# U. S. Navy Aeromedical Reference and Waiver Guide

**JUNE 09, 2026**

# Record of Changes

10MAR2026 (1.14): clarifies cognizant medical authorities for ATC
10MAR2026 (2.1): adds “All conditions listed as disqualifying in the ARWG are Local Board of Flight Surgeons eligible for designated Class IV personnel.”
10MAR2026 (17.4.1): correction to the chart
15MAY2026 (10.5): revision of headaches and migraine chapter
15MAY2026 (10.12): revision of ischemic stroke and transient ischemic attack (TIA)
15MAY2026 (7.2): update of Crohn's disease chapter
15MAY2026 (16.6) revision of renal stones (nephrolithiasis) chapter
29MAY2026 (5.1): update of the Diabetes Mellitus chapter
9JUN2026 (3.23): Update of Venous Thromboembolism chapter

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# 1.0 AVIATION PHYSICAL STANDARDS

Last Revised: Oct 2024 Last Reviewed: Oct 2024

## 1.1 INTRODUCTION

Aviation physical standards ensure the most qualified personnel are accepted and retained by Naval Aviation. The intent is to prevent medical, physical, or psychological conditions from adversely affecting flight performance, safety, or mission. Standards differ between applicants and designated personnel, and among different flying classes based on risk assessment. Applicant standards are the most rigorous to ensure candidates are capable of training completion and continued performance as a designated Naval Aviator in the demanding environment. Designated aviation standards ensure consistent flight performance, safety, and mission completion. Disqualification removes an individual based on risks associated with a medical condition, while waivers of policy allow retaining an individual based on careful risk assessment, risk control measures, and mission requirements. All conditions may be considered for waiver to preserve the aviator in the mission; however, certain conditions, treatments, and medications are generally not conducive to aviation service due to a likely adverse impact on health, safety, or mission completion. Careful risk assessment and mission consideration by the Aeromedical Officer are necessary to assure time and resources are applied appropriately in all cases, but especially where risks make the likelihood of a waiver negligible. Additional guidance can be found in the various sections of this ARWG and communication with NAMI is encouraged before expending resources, especially on cases where it would be clear to a designated Aeromedical Officer that the case is atypical and/or carries an elevated risk.

## 1.2 GENERAL REQUIREMENTS

Physical standards are published and maintained in the Manual of the Medical Department (MMD) Chapter 15. All applicants must meet general commissioning and/or enlistment standards in addition to aviation standards. If an applicant does not meet these standards, the applicant has a disqualifying defect and a waiver of standards is required. Designated personnel must remain fit for full duty and continue to meet the aviation standards published in the MMD. Any medical defect, disqualifying diagnosis, or chronic medication use requires a waiver of standards.

## 1.3 PURPOSE OF THIS GUIDE

The purpose of this guide is to offer the Flight Surgeon, Aeromedical Examiner, Aeromedical Physician Assistant, AVT, and aviator an additional resource to quickly and efficiently look up standards. The Aeromedical Reference and Waiver Guide (ARWG) is NOT an inclusive document, but only highlights and gives guidance for the most common diagnoses and standards. The MMD is the proper document to reference for disqualifying conditions and physical standards. Flight Surgeons, Aeromedical Examiners, Aeromedical Physician Assistants and AVTs should be intimately familiar with the MMD Chapter 15 and it is suggested that they have access to a copy when making Aeromedical dispositions.

## 1.4 CLASSES OF AVIATION PERSONNEL

Last Revised: Oct 2024 Last Reviewed: Oct 2024

Applicants, students, and designated aviation personnel are divided into the following three classes:

**Class I:** Naval Aviators and Student Naval Aviators (SNA). Designated Naval aviators are subdivided into three Medical Service Groups based upon the physical requirements of their specific flight duty assignment

**Medical Service Group 1:** Aviators qualified for unlimited or unrestricted flight duties

**Medical Service Group 2:** Aviators restricted from shipboard aircrew duties (include V/STOL) except helicopter

**Medical Service Group 3:** Aviators restricted to operating aircraft equipped with dual controls and accompanied on all flights by a pilot or copilot of Medical Service Group 1 or 2, qualified in the model of aircraft operated. A waiver to medical Service Group 3 includes pilot-in-command (PIC) authority unless PIC authority is specifically restricted.

**Class II:** Aviation personnel other than designated naval aviators or Student Naval Aviators including Naval Flight Officers (NFO), technical observers, Naval Flight Surgeons (NFS), Aerospace Medicine Specialists (AMS), Aeromedical Physician Assistant (APA), Aerospace Physiologists (AP), Aerospace Experimental Psychologists (AEP), Naval Aerospace Optometrists, Naval Aircrew (NAC) members, and Naval Aerial/ Aviation Observers (AO).

**NOTE:** Many squadrons have non-designated personnel that fly as a TFO, intelligence operator, cryptologic technician, or other duty that requires regular flying. If these individuals fly on a regular basis, receive flight pay, and/or have flight-related duties, or mission critical duties, assigned to them while flying, they shall be considered as Class II Naval Aircrew with regard to aeromedical standards and physical submission requirements. Consult with NAMI if their flight status is unclear. However, waiver requirements may be different in these individuals, and will be considered on a case-by-case basis depending on required physical and physiological training and their particular duties, aircraft, and mission.

**Class III:** Members in aviation related duty not requiring them to personally be airborne including Air Traffic Controllers (ATCs), flight deck, and flight line personnel.

**Class IV:** Members in aviation related duty not requiring them to personally be airborne including Unmanned Aerial Vehicle (UAV) operators.

**Class V:** Certain non-designated personnel selected for participation in duties involving flight. This includes En Route Care personnel, Mass Communication Specialists, Cryptologists, Intelligence personnel, Government and Civilian Agency personnel, and other non-aircrew personnel.

# 1.4.1 AVIATION PHYSICAL STANDARDS WNR CONDITIONS

Last Revised: Mar 2025 Last Reviewed: Mar 2025

In accordance with NAVADMIN 062/25 CHANGES TO AVIATION SPECIAL DUTY WAIVER PROCESSING, the following conditions shall be considered permanently disqualifying for aviation special duty applicants to eliminate the backlog of medical holds at Recruit Training Command and all other accession points. Submit to NAMI Code 53 HN as a permanent grounding package with a brief AMS referencing NAVADMIN 062/25.

Aviation Special Duty Waiver
Waiver Not Recommended Conditions

**All Classes**

Cardiology
- Atrial fibrillation
- Coronary artery disease (any)

Dermatology
- Psoriasis requiring systemic agents
- Dermatitis requiring systemic agents

Endocrinology
- Diabetes (All types)

Gastroenterology
- Crohn's Disease
- Ulcerative Colitis

Hematology
- Sickle Cell Disease

Infectious Disease
- HIV

Pulmonary
- Asthma (active)
- Pneumothorax with structural abnormality

Orthopedics
- Retained Spine Hardware
- Severe Scoliosis (>40 degree)
- Absence of upper or lower extremity
- Grade III Spondylolisthesis
- Scheuermann’s Kyphosis
- Ankylosing Spondylitis

ENT

Meniere's disease
Active, undiagnosed or non-specific recurrent vertiginous disorder
Severe or profound hearing loss at 500-2000Hz

Mental Health

Intellectual Developmental Disorders
Autism Spectrum Disorder
Schizophrenia Spectrum and Other Psychotic Disorders
Bipolar and Related Disorders
Depressive Disorders with psychotic features
Recurrent Depression
Personality Disorders
Voyeuristic Disorder
Exhibitionistic Disorder
Frotteuristic Disorder
Pedophilic Disorder

Ophthalmology

Moderate or Severe Color Vision Deficiency
Keratoconus (suspected, forme fruste, frank) or corneal ectatic disease
Best corrected visual acuity out of standards for aviation class
Glaucoma (any type)
Posterior or Recurrent Uveitis
Central Serous Retinopathy (CSR/CSCR)
Pigment Dispersion Syndrome (when presenting with iris transillumination defects or elevated intraocular pressure)
Retinal Detachments

**Class II**

All conditions listed above, and additionally:
Chronic sinusitis with nasal polyps (active disease)
Otosclerosis with history of stapedotomy
Superior semicircular canal dehiscence syndrome (symptomatic or untreated)
Depth perception out of standards (except fixed wing aircrew)

**Class I**

All conditions listed above, and additionally:
Bicuspid Aortic Valve
Phorias out of standards

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ZNR UUUUU
R 251931Z MAR 25
FM CNO WASHINGTON DC
TO NAVADMIN
BT
UNCLAS
NAVADMIN 062/25

PASS TO OFFICE CODES:
FM CNO WASHINTON DC//N093//
INFO CNO WASHINTON DC//N093//

MSGID/NAVADMIN/CNO WASHINGTON DC/N093/MAR//

SUBJ/CHANGES TO AVIATION SPECIAL DUTY WAIVER PROCESSING//

REF/A/NAVADMIN 013/25 CORRECTED COPY CHANGES TO SPECIAL DUTY WAIVER//

RMKS/1. The Chief of Bureau of Medicine and Surgery (BUMED) has directed both immediate and long-term improvements to Special Duty Waiver (SDW) processes to eliminate the backlog of medical holds at Recruit Training Command and all other accession points. Guidance for SDW processes for undersea medicine was previously released in ref (A). This memo addresses SDW processes for the aviation community.

2. This guidance implements a process change to improve timeliness and maximize resources in support of the aviation SDW process. It applies to the performance of all initial flight physicals and directs the Naval Aerospace Medical Institute (NAMI) to maintain a list in the Aeromedical Reference and Waiver Guide (ARWG) of disqualifying conditions for which no waiver will be recommended (WNR).

3. For the rapid disposition of initial flight physicals when a WNR condition is found:

a. An appropriately credentialed and privileged clinician (Aerospace Medicine physician, Flight Surgeon, Aerospace Medicine Physician Assistant, or Aviation Medicine Examiner) will perform all aeromedical examinations. These clinicians are collectively referred to as Aerospace Medical Clinicians (AMCs).

b. Individuals who receive a general duty waiver also require a waiver for aviation special duty. The WNR pre-existing conditions listed in the ARWG will not be considered for an aeromedical waiver, with the rare exception of some Class V flight physicals for which a waiver request may be submitted on a case-by-case basis at the discretion of the AMC. If submitted, consideration will be based on assigned platform, flight environment, occupational duties, physical requirements, and mental and physical stressors. Class I or Class II aeromedical clearances have additional disqualifying conditions in addition to those listed for all classes.

c. Individuals found to have a WNR preexisting condition do not require any further evaluation for aviation special duty assignment, including lab testing, imaging, or specialist consultation. An individual with a

disqualifying condition for a more restrictive class may still be submitted for a less restrictive class (e.g., Class II instead of Class I). AMCs should complete an abbreviated disqualification package with a brief aeromedical summary which references this message and submit via AERO as Disqualified, Waiver Not Recommended. NAMI shall forward this to the appropriate Bureau of Naval Personnel (BUPERS) code for final determination without any further adjudication required, unless NAMI or BUPERS determines a formal NAMI review is indicated.

4. NAMI shall maintain a current list of WNR conditions in the ARWG, reviewed and updated as needed based on medical evidence, aeromedical best-practices, and any superseding medical guidance. Updates to this list, in addition to any other ARWG updates, shall be reviewed and approved quarterly by the Aerospace Medicine Corporate Board and subsequently reported to Chief, BUMED via the BUMED Branch Head, Aerospace Medicine.

5. The ARWG is accessible at: https://www.med.navy.mil/Navy-Medicine-Operational-Training-Command/Naval-Aerospace-Medical-Institute/Aeromedical-Reference-and-Waiver-Guide/

6. Tracking. The current SDW backlog must be tracked to understand the effectiveness of the mitigation strategy being implemented.

a. All accession points with enlisted personnel or officer candidates who have graduated but remain in a medical hold status while awaiting their aviation medical waiver shall report monthly to BUMED Assessments and Analytics (N58) the total number of personnel in that status and the total number of flight physicals performed that month. Numbers for each category (e.g.: mental health, cardiology, etc.) should be included if possible.

b. This report should be provided to BUMED N58 upon receipt of this guidance, and monthly thereafter via email at usn.ncr.bumedfchva.mbx.n58@health.mil.

7. BUMED primary point of contact is Branch Head, Aerospace Medicine (N10F1) via email at AVMED@health.mil or phone at (703) 681-9323.

8. Released by Rear Admiral Darin K. Via, N093, Surgeon General of the Navy.//
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## 1.5 CLASS I STANDARDS

Last Revised: Feb 2017 Last Reviewed: Sep 2023

**Aeronautically Adapted (AA):** Designated personnel must remain Aeronautically Adapted. If member is Not Aeronautically Adapted (NAA), the psychiatric block should be checked abnormal with appropriate comments. Refer to MMD 15-67 for disposition of aviators found NAA.

**Valsalva:** Must demonstrate ability to equalize middle ear pressure.

**Self Balance Test (SBT):** Must pass.

**Dental:** Must have no defect which would react adversely to changes in barometric pressure (Type I or II dental examination required).

**Laboratory Testing:**

Urinalysis: Must have normal values. Specifically must be negative for glucose, albumin/protein, and blood.

HIV Testing: Must be negative or documented that it was drawn.

Hematocrit: Males 40-52%. Females 37-47%. If values are outside of this range refer to ARWG for proper evaluation and disposition.

Lipid Panel: There are no standards at this time. This does not mean the flight surgeon can ignore these values. Individuals with hyperlipidemia should have documented evaluation, counseling, and treatment in accordance with standard medical guidelines.

Fecal occult blood testing: Required annually at age 50 and older or if personal or family history dictates. Digital rectal exam is not required.

**EKG:** Disqualifying conditions are:

1. Ventricular tachycardia defined as three consecutive ventricular beats at a rate greater than 99 beats per minute.
2. Wolff-Parkinson-White syndrome or other pre-excitation syndrome predisposing to paroxysmal arrhythmias.
3. All atrioventricular and intraventricular conduction disturbances, regardless of symptoms.
4. Other EKG abnormalities consistent with disease or pathology and not explained by normal variation.

**Blood Pressure:** Systolic must be less than 140 mm Hg and Diastolic less than 90 mm Hg. If a single measurement is outside of this range, a 3-5 day blood pressure check must be completed. The average of the 3-5 day blood pressure check must fall within the above standards.

**Pulse Rate:** Shall be determined in conjunction with blood pressure. If the resting pulse is less than 45 or over 100, an electrocardiogram shall be obtained. A pulse rate of less than 45 or greater than 100 in the absence of a significant cardiac history and medical or electrocardiographic findings shall not in itself be considered disqualifying.

**Distant Visual Acuity:**

1. Service Group 1, 20/100 or better each eye uncorrected, corrected to 20/20 or better each eye.
2. Service Group 2, 20/200 or better each eye uncorrected, corrected to 20/20 or better each eye.
3. Service Group 3, 20/400 or better each eye uncorrected, corrected to 20/20 or better each eye.

The first time distant visual acuity of less than 20/20 is noted a manifest refraction (not cycloplegic) shall be performed recording the correction required for the aviator to see 20/20 in each eye (all letters correct on the 20/20 line).

**Refractive limits:** Refractions will be recorded using minus cylinder notation. There are no limits. However, anisometropia may not exceed 3.50 diopters in any meridian.

**Near Visual Acuity:** Must correct to 20/20 in each eye using either the AFVT or standard 16 Snellen or Sloan notation nearpoint card. Bifocals are approved.

**Oculomotor Balance:**

1. No uncorrected esophoria more than 6.0 prism diopters.
2. No uncorrected exophoria more than 6.0 prism diopters.
3. No uncorrected hyperphoria more than 1.50 prism diopters.
4. Tropia or Diplopia in any direction of gaze is disqualifying.

**Field of Vision:** Must be full.

**Color Vision:** Must pass any one of the following two tests:

1. PIP color plates (Any red-green screening test with at least 14 diagnostic plates; see manufacturer instructions for scoring information) randomly administered under Macbeth lamp: scoring plates 2-15, at least 12/14 correct.
2. Computer-Based Color Vision Testing: must achieve a passing grade on an approved and validated Computer-Based Color Vision Test.

(Note: All color vision tests will be administered as delineated in the NAMI Aeromedical Reference and Waiver Guide, Chapter 12.2. The Farnsworth Lantern (FALANT) was discontinued 31 Dec 2016. The FALANT or Optec 900 may be considered for selective aviators who were designated before 31 December 2016. Passing scores: 9/9 correct on the first trial or, if any are missed, at least 16/18 correct on the combined score of the second and thirdtrials.)

**Depth Perception:** Only stereopsis is tested. Must pass any <u>one</u> of the following three tests:

1. AFVT: at least A – D with no misses.
2. Stereo booklet (Titmus Fly or Randot): 40 arc second circles.
3. Verhoeff: 8/8 correct on the first trial or, if any are missed, 16/16 correct on the combined second and third trials.

**Intraocular Pressure:** Must be less than or equal to 22 mm Hg. A difference of 5 mm Hg or greater between eyes requires an ophthalmology consult, but if no pathology noted, is not considered disqualifying.

**Hearing (ANSI 1969):**

| Frequency (Hz) | Better Ear (dB) | Worse Ear (dB) |
|---|---|---|
| 500 | 35 | 35 |
| 1000 | 30 | 30 |
| 2000 | 30 | 50 |
| | | |

## 1.6 STUDENT NAVAL AVIATOR APPLICANT (SNA) STANDARDS

Last Revised: April 2016 Last Reviewed: Sep 2023

**All applicants for pilot training must meet Class I standards except as follows:**

**Visual Acuity, Distant and Near:** Uncorrected visual acuity must not be less than 20/40 each eye, correctable to 20/20 each eye using a Sloan letter, crowded, eye chart **(Goodlite)**. Vision testing procedures shall comply with those outlined on the Aerospace Reference and Waiver Guide Physical Exams section.

**Refractive Limits:** If uncorrected distant visual acuity is less than 20/20 either eye, a manifest refraction must be recorded for the correction required to attain 20/20. If the candidate's distant visual acuity is 20/20, a manifest refraction is not required. Total myopia may not be greater than -1.50 diopters in any meridian, total hyperopia no greater than +3.00 diopters in any meridian, or astigmatism no greater than -1.00 diopters. The astigmatic correction shall be reported in minus cylinder format.

**Cycloplegic Refraction:** This is required for all candidates to determine the degree of spherical ametropia. The refraction should be performed to maximum plus correction to obtain best visual acuity. Due to the effect of lens aberrations with pupil dilation, visual acuity or astigmatic correction, which might disqualify the candidate, should be disregarded if the candidate meets the standards for visual acuity and astigmatism with manifest refraction. A cycloplegic refraction should be performed at least 30 minutes after instillation of 2 gtts (5 minutes apart) 1% cyclopentolate.

**Slit Lamp Examination:** Required, and must demonstrate no pathology.

**Dilated Fundus Examination:** Required, and must demonstrate no pathology.

**Hearing (ANSI 1969) :**

| Frequency (Hz) | Decibel (dB) |
|---|---|
| 500 | 25 |
| 1000 | 25 |
| 2000 | 25 |
| 3000 | 45 |
| 4000 | 55 |

**Anthropometrics and Height/Weight:** Please refer to NASC Anthropometrics Website

**Dental Readiness:** All Applicants must be Dental Class 2 or better.

## 1.7 DESIGNATED NAVAL FLIGHT OFFICER (NFO) STANDARDS

**Must meet Class I standards, except as follows:**

**Visual Acuity, Distant and Near:** No limit uncorrected. Must correct to 20/20 each eye.

**Refraction:** No limits.

**Oculomotor Balance:** No obvious heterotropia or symptomatic heterophoria (NOHOSH).

**Depth Perception:** Not required.

**Dental Readiness:** All Applicants must be Dental Class 2 or better.

## 1.8 APPLICANT STUDENT NAVAL FLIGHT OFFICER STANDARDS

Last Revised: March 2015 Last Reviewed: Sep 2023

**Must meet Class I standards, except as follows:**

**Visual Acuity, Distant and Near:** No limit uncorrected. Must correct to 20/20 each eye. If the AFVT or Goodlite letters are used, a score of 7/10 on the 20/20 line constitutes meeting visual acuity requirements.

**Refractive Limits:** Manifest refraction must not exceed +/-8.00 diopters in any meridian (sum of sphere and cylinder) with astigmatism no greater than -3.00 diopters. Refraction must be recorded in minus cylinder format. Must have no more than 3.50 diopters of anisometropia in any meridian.

**Oculomotor Balance:** NOHOSH.

**Depth Perception:** Not Required.

**Slit Lamp Examination:** Required, and must demonstrate no pathology.

**Hearing:** Same as SNA Applicant.

**Dental Readiness:** All Applicants must be Dental Class 2 or better.

**Anthropometrics and Height/Weight:** Please refer to NASC Anthropometrics Website

## 1.9 DESIGNATED: NAVAL FLIGHT SURGEON, NAVAL AEROMEDICAL PHYSICIAN ASSISTANT, NAVAL AEROSPACE PHYSIOLOGIST, NAVAL AEROSPACE EXPERIMENTAL PSYCHOLOGIST, AND NAVAL AEROSPACE OPTOMETRIST STANDARDS

**Must meet Class I standards, except as follows:**

**Visual Acuity, Distant and Near**. No limit uncorrected. Must correct to 20/20 each eye. If the AFVT or Goodlite letters are used, a score of 7/10 on the 20/20 line constitutes meeting visual acuity requirements.

**Refractive Limits.** No limits.

**Oculomotor Balance.** NOHOSH.

**Depth Perception.** Not Required.

## 1.10 APPLICANT: NAVAL FLIGHT SURGEON, NAVAL AEROMEDICAL PHYSICIAN ASSISTANT, NAVAL AEROSPACE PHYSIOLOGIST, NAVAL AEROSPACE EXPERIMENTAL PSYCHOLOGIST, AND NAVAL AEROSPACE OPTOMETRIST STANDARDS

**All applicants must meet SNA Applicant standards except as follows:**

**Visual Acuity, Distant and Near:** No limit uncorrected. Must correct to 20/20 each eye. If the AFVT or Goodlite letters are used, a score of 7/10 on the 20/20 line constitutes meeting visual acuity requirements.

**Refraction**. No limits.

**Depth Perception.** Not Required

## 1.11 DESIGNATED AND APPLICANT NAVAL AIRCREW (FIXED WING) STANDARDS

**Must meet Class I standards except as follows.**

**Visual Acuity, Distant and Near:** No limit uncorrected. Must correct to 20/20 each eye. If the AFVT or Goodlite letters are used, a score of 7/10 on the 20/20 line constitutes meeting visual acuity requirements.

**Refraction:** No limits.

**Oculomotor Balance:** NOHOSH.

**Depth Perception:** Not required.

**Hearing:** Designated must meet Class I standards. Applicants must meet SNA Applicant standards.

## 1.12 DESIGNATED AND APPLICANT NAVAL AIRCREW (ROTARY WING) STANDARDS

**Must meet Class I standards, except as follows:**

**Visual Acuity, Distant and Near.** Must be uncorrected 20/100 or better, each eye corrected to 20/20. If the AFVT or Goodlite letters are used, a score of 7/10 on the 20/20 line constitutes meeting visual acuity requirements.

**Refraction.** No limits.

**Oculomotor Balance.** NOHOSH.

**Hearing.** Designated must meet Class I standards. Applicants must meet SNA applicant standards.

## 1.13 CLASS III PERSONNEL NON-DISQUALIFYING CONDITIONS

Class III personnel must meet standards for aviation personnel, but within those limitations, the following conditions are not considered disqualifying:

1. Hematocrit between 38.0 and 39.9 percent in males or between 35.0 and 36.9 percent in females, if asymptomatic.
2. Seasonal allergic rhinitis unless requiring regular use of antihistamines or medications causing drowsiness.
3. Nasal or paranasal polyps
4. Chronic sinus disease, unless symptomatic and requiring frequent treatment.
5. Lack of valsalva or inability to equalize middle ear pressure.
6. Congenital or acquired chest wall deformities, unless expected to interfere with general duties.
7. Mild chronic obstructive pulmonary disease.
8. Pneumothorax once resolved.
9. Surgical resection of lung parenchyma if normal function remains.
10. Paroxysmal supravertricular dysrythmias, after normal cardiology evaluation, unless symptomatic.
11. Cholecystectomy, once resolved.
12. Hyperuricemia.
13. Renal stone once passed or in stable position.
14. Internal derangements of the knee unless restricted from general duty.
15. Recurrently dislocating shoulder.
16. Scoliosis, unless symptomatic or progressive. Must meet general standards.
17. Kyphosis, unless symptomatic or progressive. Must meet general standards.
18. Fracture or dislocation of cervical spine.
19. Cervical fusion.
20. Thoracolumbar fractures.
21. History of craniotomy.
22. History of decompression sickness.
23. Anthropometric standards do not apply.
24. No limits on resting pulse if asymptomatic.

## 1.14 DESIGNATED AND APPLICANT AIR TRAFFIC CONTROLLER (ATC) STANDARDS (Military, General Schedule (GS) ATC, and Contract ATC)

Last Revised: FEB 2026 Last Reviewed: FEB 2026

Military ATC must meet the standards in MANMED Chapter 15, Section III (Physical Standards). GS ATC shall be examined by a Naval Flight Surgeon (or Aeromedical Examiner or Aeromedical Physician Assistant) and must meet the general requirements for Civil Service employment as outlined in the Office of Personnel Management, Individual Occupational Requirements for GS-2152: Air Traffic Control Series. Both groups have the following additional requirements:

Phorias: NOHOSH.

Depth Perception: Not required.

Slit Lamp Examination: Required for applicants only. Must demonstrate no pathology.

Intraocular Pressure: Must meet Class I standards.

Color Vision: Must meet Class I standards.

Hearing: Applicants must meet SNA applicant standards. Designated must meet Class I standards.

Department of the Navy GS ATC:

1. There are no specific height, weight, or body fat requirements.

2. When a GS ATC has been ill in excess of 30 days returns to work, a formal flight surgeon's (or Aeromedical Examiner or Aeromedical Physician Assistant) evaluation shall be performed prior to returning to ATC duties. DD2992 shall be used to communicate clearance for ATC duties to the commanding officer.

3. Waiver procedures are listed in the Aeromedical Reference and Waiver Guide.
*Contract ATC medical clearance is covered by 14 CFR Part 65 Subpart B and medical clearance is determined by the cognizant FAA AME.

| ATC | Relevant Instruction(s) | Medical Clearance Authority |
|---|---|---|
| GS | OPM GS-2152, MMD CH15, ARWG | FS/ APA/ AME (via DD2992) |
| Contract | 14 CFR Part 65 Subpart B | FAA AME |

## 1.15 CRITICAL FLIGHT DECK PERSONNEL STANDARDS (DIRECTOR, SPOTTER, CHECKER, NON-PILOT LANDING SAFETY OFFICER AND HELICOPTER CONTROL OFFICER, AND ANY OTHER PERSONNEL SPECIFIED BY THE UNIT COMMANDING OFFICER)

Frequency of screening is annual. Waivers of physical standards are determined locally by the senior medical department representative and commanding officer. No BUMED or NAVPERSCOM submission or endorsement is required. **Must meet the standards in Chapter 15, Section III (Physical Standards), except as follows:**

**Visual Acuity, Distant and Near:** No limits uncorrected. Must correct to 20/20. If the AFVT or Goodlite letters are used, a score of 7/10 on the 20/20 line constitutes meeting visual acuity requirements.

**Field of Vision:** Must have full field of vision.

**Depth Perception:** Must meet Class I standards.

**Color Vision:** Must meet Class I standards.

## 1.16 NON-CRITICAL FLIGHT DECK PERSONNEL STANDARDS

This paragraph includes all personnel not defined as critical. Frequency of screening is annual. Waivers of physical standards are determined locally by the senior medical department representative and commanding officer. No BUMED or NAVPERSCOM submission or endorsement is required. **Must meet the standards in Chapter 15, Section III (Physical Standards) except as follows:**

**Visual Acuity, Distant and Near:** No limits uncorrected. Must correct to 20/40 or better in one eye, 20/30 or better in the other.

NOTE: Because of the safety concerns inherent in performing duties in the vicinity of turning aircraft, flight line workers should meet the same standards as their flight deck counterparts.

## 1.17 PERSONNEL WHO MAINTAIN AVIATOR NIGHT VISION SYSTEMS STANDARDS

Personnel, specifically those aircrew survival equipment men (USN PR or USMC MOS 6060) and aviation electrician's mates (USN AE or USMC MOS 64xx), assigned to duty involving maintenance of night vision systems, or selected for training in such maintenance, shall be examined annually to determine visual standards qualifications. Record results in the member's health record. **Waivers are not considered. Standards are as follows:**

**Distant Visual Acuity:** Must correct to 20/20 or better in each eye and correction must be worn. If the AFVT or Goodlite letters are used, a score of 7/10 on the 20/20 line constitutes meeting visual acuity requirements.

**Near Visual Acuity:** Must correct to 20/20.

**Depth Perception:** Not required.

**Color Vision:** Must meet Class I standards.

**Oculomotor Balance:** NOHOSH.

# 1.18 CLASS IV PERSONNEL: PHYSICAL STANDARDS FOR APPLICANT AND DESIGNATED, ACTIVE DUTY AND DON/DOD-GS PERSONNEL THAT OPERATE UNMANNED AIRCRAFT SYSTEMS (UAS)

Last Revised: Feb 2026 Last Reviewed Feb 2026

***Reference:** MANMED Chapter 15, Article 15-63, CNAF M-3710.7

***Note:** Civilian Contract Operators must abide by their individual contracts

**UAS Groups:** Unmanned Aircraft Systems (UAS) are assigned to UAS Groups 1, 2, 3, 4, and 5 based on the aircraft's physical (gross weight) and flight (normal operating altitude and airspeed) characteristics according to OPNAVINST 3710.7 series (NATOPS). The assigned UAS Group is based on the UAS physical or flight attributes consistent with the highest numbered UAS Group. The aeromedical submission requirements are based on the assigned UAS Group and role.

**All UAS Groups:** Personnel performing any UAS operation must have no medical condition present which may incapacitate an individual suddenly or without warning. Personnel may not perform any UAS operations while using medication whose known common adverse effect or intended action(s) affect alertness, judgment, cognition, special sensory function or coordination. This includes both over the counter and prescription medications. All active-duty personnel that operate UAS aircraft must meet general duty accession standards IAW MANMED Chapter 15, Section III, and the additional requirements below.

**UAS Group 1 and 2:** UAS Group 1 and 2 (≤55 pounds) are categorized as small UAS (sUAS). Personnel operating sUAS are only required to meet the medical standards of Part 107 of the Federal Aviation Regulations (14 C.F.R. Part 107) and do not require aeromedical clearance.

**UAS Group 3, 4, and 5:** Personnel that operate UAS Group 3-5 aircraft require screening based on role type. Personnel who have duty involving actual control of a Group 3-5 UAS while in flight or are otherwise identified by their command as having a safety-of-flight role, must complete a Class IV flight physical with submission to NAMI as required. All other personnel assigned to Group 3-5 UAS who do not have direct control of a UAS, do not have an identified safety-of-flight role, and are not otherwise required to receive a Class I or II flight physical will be examined via a UAS occupational health examination as described below.

**Designated Class I and II Aviators:** Personnel that operate UAS aircraft who also have and continue to maintain a Class I (Pilot) or Class II (NFO, Aircrew) designation must follow physical qualification and submission requirements for their Class I or II physical if intended to be maintained. NAMI submissions must be for the Class I or Class II physical with clear notation regarding additional UAS Operator duties.

**Class IV aeromedical clearance requires that all active-duty personnel meet the applicable accession and retention standards listed in MANMED Chapter 15, Section III, and Department of Defense Instruction (DoDI) 6130.03 Vol. 1 and Vol. 2. All personnel must meet the following Additional Requirements:**

**All personnel that operate UAS aircraft must meet general duty accession standards IAW MANMED Chapter 15, Section III, and the following Additional Requirements:**

**All personnel that operate UAS aircraft must meet general duty accession standards IAW**

**MANMED Chapter 15, Section III, and the following Additional Requirements:**

**Vision:**

1. **Visual Acuity, Distant and Near:** No limit uncorrected. Must correct to 20/20 or better each eye. If the AFVT or Sloan Letter Crowded Chart is used, a score of 7/10 on the 20/20 line constitutes meeting visual acuity requirements.
   a. The following non-surgical visual corrections are not considered disqualifying (NCD):
      (a) Eyeglasses
      (b) Contact lenses
   b. Corneal Refractive Surgery (CRS) is not considered disqualifying (NCD) within the parameters as defined in Section 12.15 in the ARWG.

2. **Color Vision:** A validated PIP test at 12/14 (or better); or a passing grade on an approved and validated Computer-Based Color Vision Testing (CBCVT). All color vision tests will be administered as delineated in the NAMI Aeromedical Reference and Waiver Guide, Chapter 12.2. (The FALANT Test 9/9 or 16/18 may be considered for designated aviators who were designated before 31 December 2016).

3. **Oculomotor Balance:**
   a. No esophoria more than 6.0 prism diopters
   b. No exophoria more than 6.0 prism diopters
   c. No hyperphoria more than 1.5 prism diopters
   d. Tropia or Diplopia in any direction of gaze is disqualifying

4. **Field of Vision:** Must be full

5. **Depth Perception:** Only stereopsis is tested. Must pass any one of the following three tests:
   a. AFVT: at least A-D with no misses
   b. Stereo booklet (Titmus Fly or Randot): 40 arc second circles
   c. Verhoff: 8/8 correct on the first trial or if any are missed, 16/16 correct on the combined second and third trials

6. **Intraocular Pressure:** Must be less than or equal to 22 mmHg. A difference of 5 mmHg or greater between eyes requires an ophthalmology consult, but if no pathology is noted, is not considered disqualifying.

**Pregnancy:** UAS/UAV personnel who are pregnant will fall under the same guidelines as Class III Air Traffic Control personnel.

**The occupational health screening standards for personnel assigned to Group 3-5 UAS who do not have direct control of a UAS, do not have an identified safety-of-flight role, and are not otherwise required to receive a Class I or II flight physical are:**

**Active Duty:**
Applicable accession and retention standards listed in Department of Defense Instruction (DoDI) 6130.03 Vol. 1 and Vol. 2.

**Vision:**

1. **Visual Acuity, Distant and Near:** No limit uncorrected. Must correct to 20/40 or better each eye. If the AFVT or Sloan Letter Crowded Chart is used, a score of 7/10 on the 20/20 line constitutes meeting visual acuity requirements.
   a. The following non-surgical visual corrections are not considered disqualifying (NCD):
      (a) Eyeglasses
      (b) Contact lenses
   b. Corneal Refractive Surgery (CRS) is not considered disqualifying (NCD) within the parameters as defined in Section 12.15 in the ARWG.

2. **Color Vision:** A validated PIP test at 12/14 (or better); or a passing grade on an approved and validated Computer-Based Color Vision Testing (CBCVT). All color vision tests will be administered as delineated in the NAMI Aeromedical Reference and Waiver Guide, Chapter 12.2. (The FALANT Test 9/9 or 16/18 may be considered for designated aviators who were designated before 31 December 2016).

3. **Field of Vision:** Must be full

**Exam Performance and Reporting**

The occupational health screening should be performed at the flight medicine clinic to the maximum extent possible. It may be performed by any licensed clinician who is otherwise able to perform similar occupational health screenings.

The SF-600 generated by the Medical Matrix Online should be uploaded into the patient's medical record. The examination results will be reported via the standard SECNAV 5100/1, with the first two pages printed front-and-back serving in lieu of a DD Form 2992.

If a discrepancy is noted on exam, provide brief remarks in block 26 regarding limitations or accommodations. Final suitability determination belongs to the cognizant commanding officer or civilian supervisor as appropriate.

**Access Medical Matrix Online at:**

https://www.med.navy.mil/Portals/62/Documents/NMFA/NMCPHC/root/Occupational%20and%20Environmental%20Medicine/mmo_web/index.html

Access SECNAV 5100/1, *Supervisor's Medical Surveillance and Certification Exam Referral*, at:

https://www.secnav.navy.mil/doni/secnav.aspx

## 1.19 CLASS V PERSONNEL: MISSION SPECIALISTS AND OTHER NON-AIRCREW PERSONNEL

**Background**. CNAF-M 3710-7 identifies naval personnel engaged in duty involving flight who are not in a special duty flight status, as needing medical evaluation and clearance, per NAVMED P-117. However, NAVMED P-117 does not contain physical standards, administrative processes, or aeromedical clearance requirements for this new class of aviation personnel. Class V personnel are naval personnel who are required to fly as mission specialist (MS)non-aircrew, but who have not been designated as aviation personnel in a special duty flight status. This class includes naval personnel under review or in receipt of orders for:

1. Duty involving flying crewman (DIFCREW), duty involving flight as a technical advisor (DIFTECH), or temporary duty involving flight (DIFTEM) to perform mission specialist (MS) duty while being airborne.

2. MS aircrew includes any mission essential non-career aircrew personnel who perform specific skills or provide capabilities that Class II personnel would not typically be expected to perform or do not have the training to perform. MS includes non-career aircrew ratings of Cryptologist, Mass Communication Specialist, and others for enlisted personnel, and En Route Care provider, intelligence, and others for officers and enlisted personnel.

Personnel who have the rare opportunity to fly in naval aircraft for any reason, but who do not have orders stating duty involving flight or duty in a flight status, are not considered Class V personnel. They will continue to follow the requirements in CNAF-M 3710-7 and obtain a selected passenger physical using a OPNAV 3710/18 Clearance for Non-Military/Non-Aircrew Personnel To Fly In USN/USMC Aircraft. (See Section 1.20)

Class V personnel are required to initially receive a long form flight physical as described in NAVMED P-117. The initial long form flight physical will be submitted to the Naval Aerospace Medical Institute per NAVMED P-117. After the initial long form physical, Class V personnel will be evaluated annually using NAVMED 6410/10 only while on orders for duty involving flight regardless of age. Aeromedical clearance is not required for Class V personnel when not on orders involving flight as they are not career-designated aircrew. If five (5) years have elapsed since the initial flight physical or if there is a break in flight orders, Class V personnel will receive a long form physical before commencing duty involving flight with any new flight orders. Waivers of Class V physical standards will be considered on a case-by-case basis. The examining provider should consider individual assigned platform, flight environment, occupational duties, physical requirements, and mental and physical stressors when considering waiver recommendations.

Class V personnel must meet the standards in subparagraphs below to be recommended for a flight duty status, by receiving an aeromedical clearance on a DD Form 2992 Medical Recommendation for Flying or Special Operational Duty. Class V personnel do not necessarily have to meet the standards for all aviation personnel in reference P-117 article 15-84 but the applicable general duty retention standards for all Service members do apply.

The examination requirements and physical standards for Class V aviation personnel are:

***(a) Vision***.

1. ***Distant Visual Acuity (DVA)***. DVA will be tested using the Armed Forces Vision Tester (AFVT) or Snellen eye chart. The standard for DVA is 20/50-0 best corrected in one eye. There are no uncorrected DVA standards for Class V.

2. ***Near Visual Acuity (NVA)***. No standard for uncorrected but must carry near vison correction if worse than 20/50-0. NVA that is not able to be corrected to 20/50-0 in each eye is considered disqualifying (CD). Test by using either the AFVT or the standard 16-inch Snellen letter near point cards. Bifocals are approved.

3. **R*efraction***. Refractions will be recorded using minus cylinder notation. No standard applies unless determined by the examining provider.

4. ***Depth Perception***. No standard. No exam or documentation required.

5. ***Oculomotor Balance***. Any obvious strabismus on clinical exam (esotropia, exotropia, or heterotropia) or symptomatic phoria is CD. In the absence of these findings, examiner can document “No obvious heterotropia or symptomatic heterophoria” (NOTOSP, historically NOHOSH).

6. ***Color Vision***. No standard. No exam or documentation required.

7. **Intraocular Pressure**. Tested by non-contact tonometry or applanation tonometer (Goldmann). A pressure reading of greater than 22 mm Hg in either eye, or a difference of greater than 4 mm Hg between both eyes, requires an ophthalmology or optometry consult to assess.

***(b) Hearing***. Evaluation is performed yearly by screening audiogram. If screening results in hearing outside of the standards, a conventional pure-tone audiogram is needed to confirm. The physical standard is based on three frequencies (Hz) with decibel (dB) limits for the better and worse ear: at 500 Hz, no worse than 35dB in either ear; at 1000 Hz, no worse than 30 dB in either year; at 2000 Hz, no worse than 50dB in one ear and 30 dB in the other. Hearing outside of these values is CD.

**TABLE 1**

| Frequency | Better Ear | Worse Ear |
|---|---|---|
| 500 HZ | 35 dB | 35 dB |
| 1000 HZ | 30 dB | 30 dB |
| 2000 HZ | 30 dB | 50 dB |

***(c) Tympanic Membrane (TM)***. Direct visualization of the TM with otoscope and documentation of normal Eustachian tube function is required. Current perforation of the tympanic membrane is CD.

***(d) Electrocardiogram (ECG)***. A 12-lead ECG is required for all comprehensive aviation medical examinations, along with documentation of a same day pulse and blood pressure. An ECG interpreted as normal sinus rhythm, or another accepted variant identified in reference (c) is not considered disqualifying. Reference (c) is available at:www.med.navy.mil/Navy-Medicine-Operational-Training-Command/Naval-Aerospace-Medical-Institute/Aeromedical-Reference-and-Waiver-Guide/.

**(e) *Dental*.** Dental defects and disease are CD if the condition would react adversely to changes in barometric pressure and the member performs duties in a flight environment where this applies. Class V personnel should have an up-to-date type II dental exam prior to their aviation medical examination, but dental class alone is not disqualifying for flight status and does not prohibit issuing a DD 2992 Medical Recommendation for Flying or Special Operational Duty.

***(f) Weight***. Weight is to be measured by calibrated scale with clothing on. Individual MS platform assignment determines weight standards. Class V personnel must be able to board, perform duties, and emergency egress through all hatches to be considered physically qualified. Since this physical standard is for safety based on aircraft platform, waiver authority resides with the squadron's commanding officer.

## 1.20 SELECTED PASSENGERS, GOVERNMENT AND CIVILIAN AGENCY PERSONNEL, AND OTHER NON-AIRCREW PERSONNEL

When there is a requirement or opportunity for Federal Government agency personnel, civilian agency personnel, or non-designated, non-aircrew personnel (selected passengers) to fly in a U.S. Navy (USN) or United States Marine Corps (USMC) aircraft, certain Naval Aviation Survival Training Program (NASTP) training is required per Commander, Naval Air Forces (CNAF) M-3710.7 series, Chapter eight (8). To complete the required NASTP training and safely fly in a military aircraft, physical standards must be met depending on the aircraft model and its aviation life support systems. An Aerospace Medical Provider (AMP) or Aviation Medical Examiner (AME) must examine personnel prior to participation in training and flight, in order to determine aeromedical safety of flight for the model aircraft assigned.

This aviation medical examination is comprised of, at a minimum, completing the components found on the appropriate Naval Operations (OPNAV) 3710/18 form and an entry made in their electronic health record, if applicable. The extent of the physical examination should primarily focus on the circulatory system, musculoskeletal system, nervous system (coordination and equilibrium), respiratory system, psychiatric stability, and specifically document corrected visual acuity in each eye and evidence of Eustachian tube patency. The specific flying duties and operational environment may require additional evaluation components at the discretion of the AMP or AME. The examiner must attempt to determine not only the individual's physical qualification to fly in a particular aircraft or mission, but also the physical qualification to undergo all required physical and physiological training associated with the flight environment. No individual will be found fit to fly unless fit to undergo the training required in CNAF M-3710.7 series, for the aircraft and mission. Once the required NASTP training is complete, personnel have valid aeromedical clearance to fly for one year from date of exam. Where personnel may fly in USN and USMC aircraft on a recurring basis, their aeromedical clearance should be adjusted to expire on the last day of their birth month. Consult CNAF M-3710.7 series and the ARWG for additional information.

If civilian personnel are not eligible for care through the Military Health System, they must obtain the required OPNAV 3710/18, "Clearance for Nonmilitary/Nonaircrew Personnel to Fly in USN/USMC Aircraft" labs and studies through their own healthcare provider and bring the results when presenting for the AMP or AME examination and aeromedical determination. A copy of the signed OPNAV 3710/18 shall be provided to those personnel for their private medical records.

## 1.21 NAVAL AVIATION WATER SURVIVAL TRAINING INSTRUCTORS (NAWSTI) AND RESCUE SWIMMER SCHOOL TRAINING PROGRAMS STANDARDS

Applicants, designated and instructor rescue swimmers must meet the general standards outlined in MMD Chapter 15, Section III. In addition, the following standards apply:
Visual Acuity, Distant and Near:

1. **Applicant Surface Rescue Swimmer**. No worse than 20/100 uncorrected in either eye. Must correct to 20/20 each eye.
2. **Designated Surface Rescue Swimmer**. No worse than 20/200 uncorrected in either eye. Must correct to 20/20 each eye.
3. **Naval Aviation Water Survival Training Program Instructor**. No limits uncorrected. Must correct to 20/20 in the better eye, no less than 20/40 in the worse eye.
4. **All categories**. If the AFVT or Goodlite letters are used, a score of 7/10 on the 20/20 line constitutes meeting visual acuity requirements.

**Psychiatric:** Because of the rigors of the high risk training and duties they will be performing, the psychological fitness of applicants must be carefully appraised by the examining physician. The objective is to elicit evidence of tendencies which militate against assignment to these critical duties. Among these are below average intelligence, lack of motivation, unhealthy motivation, history of personal ineffectiveness, difficulties in interpersonal relations, a history of irrational behavior or irresponsibility, lack of adaptability, or documented personality disorders.

Any examinee diagnosed by a psychiatrist or clinical psychologist as suffering from depression, psychosis, manic-depression, paranoia, severe neurosis, severe borderline personality, or schizophrenia will be recommended for disqualification at the time of initial examination.

Those personnel with minor psychiatric disorders such as acute situational stress reactions must be evaluated by the local medical officer in conjunction with a formal psychiatric evaluation when necessary. Those cases which resolve completely, quickly and without significant psychotherapy can be found fit for continued duty. Those cases in which confusion exists, review by the TYCOM force medical officer for fleet personnel or BUMED, M3F1 for shore-based personnel. Any consideration for return to duty in these cases must address the issue of whether the service member, in the opinion of the medical officer and the member's commanding officer, can successfully return to the specific stresses and environment of surface rescue swimmer duty.

## 1.22 APPLICANT CHECKLIST

Last Revised: May 2025 Last Reviewed: May 2025

| | SNA | SNFO | Student: NFS,NAP NAEP, NAO,NAPA | AC (Rotary Wing) | AC F/W | ATC | UAS | Class V |
|---|---|---|---|---|---|---|---|---|
| CXR | At accession or <3yr old | | | <3 yr | <3 yr | <3 yr | <3 yr | <3 yr |
| Dental | Type I or II and Class I or 2 | | | | | | | |
| Labs | ALL LABS ARE REQUIRED WITHIN 90 DAYS OF PHYSICAL DATE | | | | | | | |
| Urine | Occult blood, Protein and Glucose by dipstick, Specific gravity | | | | | | | |
| Chems | Cholesterol, HDL, LDL, Triglyceride, Fasting Blood Sugar | | | | | | | |
| Other Labs | HCT, HIV, Sickle Cell, G6PD | | | | | | | |
| HCT | Males: 40-52<br>Females: 37-47 | | | | | Males: 38-52<br>Females: 35-47 | SAME AS SNA | SAME AS SNA |
| EKG | MUST BE DONE WITHIN 12 MONTHS OF PHYSICAL DATE SIGNED, STAMPED & UPLOADED TO AERO | | | | | | | |
| WEIGHT | NAVY STANDARDS | | | | | | | |
| BP | <140/90 | | | | | | | |
| PULSE | <100, >45 | | | | | | | |
| DVA Uncorr<br>w/Corr | ≤20/40-0<br>20/20-0 | No Limit<br>20/20 | No Limit<br>20/20 | ≤20/100<br>20/20 | SEE SPECIAL | No Limit<br>20/20 | No Limit<br>20/20 | No Limit<br>20/50 or Better |
| NVA Uncorr<br>w/Corr | ≤20/40<br>20/20 | No Limit<br>20/20 | No Limit<br>20/20 | ≤20/100<br>20/20 | No Limit<br>20/20 | No Limit<br>20/20 | No Limit<br>20/20 | No Limit<br>20/50 or Better |
| Slit Lamp Exam | Required | | | | | | | Not Required |
| Field of Vision | Full OU | | | | | | | |
| Refraction Total<br>Ref error<br>astigmatism<br>anisometropia | *Cyclo/Manifest<br>+3.00/-1.50<br>+/-1.00<br>3.50 | Manifest<br>+/-8.00<br>+/-3.00<br>3.50 | No Limit on refractive error. Record on exam | | | | | |
| Phoria | Eso ≤6, Exo ≤6 Hyper ≤1.5 | No Obvious heteroTropia Or Symptomatic heteroPhoria (NOTOSP / NOHOSH) | | | | | SAME AS SNA | SAME AS Class II & III |
| Color | PIP must pass with 12 or more correct of 14 plates; or a passing score on an approved computerized color vision test | | | | | | | Not Required |
| Depth | AFVT A-D Verhoeff 8/8<br>RANDOT or Titmus to ≤40 sec of arc | Not Required | Not Required | SAME AS SNA | Not Required | Not Required | SAME AS SNA | Not Required |
| IOP | ≤ 22 mm Hg and must be no more than 4 mm Hg difference between eyes | | | | | | | |
| Audiogram | 500 HZ 25db<br>1000 HZ 25db<br>3000 HZ 45db<br>4000 HZ 55db | | | | | | | 500 HZ 35db<br>1000 HZ 30db<br>2000 HZ 50db in one ear and 30db in the other |
| Special | **Corneal Mapping (topography /Pentacam) required | Passing 7/10 on 20/20 line is considered 20/20 for Class 2, 3, and 4 applicants Enlisted Naval Aircrew (NAC) >20/100 uncorrected shall be PQ for fixed wing only. | | | | | | |
| **SNA Topography | SNA applicants must have corneal mapping performed (topography or Pentacam) to rule out ectatic disease (i.e. keratoconus): If irregular pattern or the INFERIOR:SUPERIOR (I/S) ratio in central 6 mm of cornea (3mm above, 3 mm below center) is > 1.5, submit to NAMI for review. | | | | | | | |
| *SNA Refraction | (1) Manifest refraction is required only for SNAs who are NOT 20/20 -0 on Goodlite in each eye. (2) All SNAs require cycloplegic (1% cyclopentolate) refraction to assure ≤ +3.00 D sphere only. NOTE: there is NO standard for astigmatism (CYL) or Visual Acuity on cyclo refract. | | | | | | | |
| Fleet Accessions | Physical exam must have been completed within 12 months. | | | | | | | |
| NFO to SNA transition | Must meet SNA standards.<br>Physical exam must be within 24 months IAW MMD P-117 15-65. | | | | | | | |

Note: Class I SNA/Class 2 SNFO and all other Aviation Applicants:

*SNA Applicants – submission must have a complete Military Optometry SNA Cycloplegic Eye Exam, CXR results, Physician signed EKG uploaded to AERO Encounter for review.

*SNFO and all other Applicants – submission must have a complete Military Optometry eye exam, CXR Results, Physician signed EKG uploaded to AERO Encounter for review.

## 1.23 DESIGNATED CHECKLIST

Last Revised: May 2025 | Last Reviewed: May 2025

| | SG1 | SG2 | SG3 | NFO, NFS, NAP, NAEP, NAO,NAPA | AC (Rotary Wing) | AC F/W | ATC | UAS | Class V |
|---|---|---|---|---|---|---|---|---|---|
| DVA (SEE NOTE) | 20/100 OR BETTER CORR TO 20/20-0 | 20/200 OR BETTER CORR TO 20/20-0 | 20/400 OR BETTER CORR TO 20/20-0 | No Limit CORR TO 20/20 | ≤20/100 OR BETTER CORR TO 20/20 | No Limit CORR TO 20/20 | No Limit CORR TO 20/20 | No Limit CORR TO 20/20 | No Limit CORR TO 20/50 or Better |
| NVA Uncorr w/Corr | NO LIMIT<br>20/20 MUST CARRY NEAR CORRECTION IF WORSE THAN 20/40 | | | | | | | | No Limit<br>20/50 or Better |
| REF ERROR | NO LIMIT ON REFRACTION. PERFORM MANIFEST ON DVA >20/20 | | | | | | | | |
| Phoria | ESO ≤6<br>EXO ≤6<br>HYPERr ≤1.5 | | | No Obvious heteroTropia Or Symptomatic heteroPhoria (NOTOSP / NOHOSH) | | | | SAME AS SG1 | SAME AS Class II & III |
| Color | PIP must pass with 12 or more correct of 14 plates; or a passing score on an approved computerized color vision test (FALANT: 9/9 or 16/18 for mbrs designated before 31 DEC 2016) | | | | | | | | Not Required |
| Depth | MUST PASS ONE OF: AFVT A-D, VERHOEFF 8/8 OR 16/16 RANDOT AND TITMUS ≤40 SEC OF ARC | | | Not Required | SAME AS SG1 | Not Required | Not Required | SAME AS SG1 | Not Required |
| IOP | ≤ 22 mm Hg and must be no more than 4 mm Hg difference between eyes | | | | | | | | |
| EKG | Required Every 5 years at ages 25, 30, 35, 40 till age 50 then annually on all aviation duty physical exams. The Q5 year EKG is required to be signed, stamped and uploaded to PE in AERO. | | | | | | | | |
| URINE | **EVERY FIVE YEARS**: OCCULT BLOOD, PROTEIN, AND GLUCOSE BY DIPSTICK | | | | | | | | |
| BLOOD TESTS | **AS CLINICALLY INDICATED**: HIV<br>**EVERY FIVE YEARS**: HCT, CHOLESTEROL, HDL, LDL, TRIGLYCERIDES, FASTING BLOOD SUGAR | | | | | | | | |
| CXR | REQUIRED ONLY WHEN CLINICALLY INDICATED | | | | | | | | |
| B/P | SITTING ONLY REQUIRED. MUST BE LESS THAN 140/90 | | | | | | | | |
| PULSE | MUST BE <100 AND >45, IF <45 DOCUMENT APPROPRIATE CARDIO RESPONSE TO EXERCISE | | | | | | | | |
| Audiogram | FREQ<br>500 HZ<br>1000 HZ<br>2000 HZ | BETTER EAR<br>35DB<br>30db<br>30db | WORSE EAR<br>30DB<br>30DB<br>50DB | | | | | | 500 HZ 35db<br>1000 HZ 30db<br>2000 HZ 50db in one ear and 30db in the other |
| Special | **Interservice Transfer**: First change the service of the individual to the service they are wanting to TRANSFER TO. To do this you will go to the AERO homepage and locate the 'Tools' tab and locate the 'Edit Patient Info' link. Look the patient up and change their service to the service they are wanting to transfer to and save. Then you will create the applicant physical (P1A for Pilots and F1A for NFO's). Previously waivered conditions require an AERO Generated AMS. Required documents include: Current Full Optometry Exam and current EKG. Interservice Transfer clearly identified in the Demographics section of the 2808 and under the notes section explaining what the member is trying to do i.e. "Interservice Transfer to the US Naval Reserves." NAMI uses Designated Naval Aviator standards. For SG1 Pilots you can use their original Cyclo performed on their original Applicant PE.<br>**NFO to Pilot transition program**: Refer to SNA standards | | | | | | | | |
| NOTE | DVA of 20/20 in Class 1 personnel is 20/20 with zero misses on 20/20 line. DVA of 20/20 in Class 2, 3, and 4 personnel is considered 20/20 with up to 3 misses on 20/20 line (7/10). All aviation personnel must wear their corrective lenses if needed to meet class vision standards. If uncorrected DVA is worse than 20/100, they must carry an extra pair of spectacles. Members who wear contact lenses to fly must also carry backup spectacles that correct vision to 20/20. | | | | | | | | |

# 2.0 WAIVERS FOR PHYSICAL STANDARDS

## 2.1 INTRODUCTION

Last Revised: February 2021 Last Reviewed: February 2026

Aircrew personnel and applicants who do not meet physical standards may be considered for a waiver of standards. Waivers may be granted on the need of the service, consistent with training, experience, performance, and proven safety of the aircrew personnel. In general, applicants are held to a stricter standard than designates and are less likely to be recommended for a waiver. All conditions listed as disqualifying in the ARWG are Local Board of Flight Surgeons eligible for designated Class IV personnel.

## 2.2 GENERAL REQUIREMENTS

In addition to the criteria mentioned above, waivers are also based upon risk management and how it is applied to the following nine criteria:

1. It must be acceptable for unrestricted general military duty as per the Manual of the Medical Department (MANMED/NAVMED P-117).
2. It cannot jeopardize the successful completion of a mission.
3. The disqualifying defect must not pose a risk of sudden incapacitation.
4. It must not pose any potential risk for subtle incapacitation that might not be detected by the individual but would affect alertness, special senses, or information processing.
5. It must not be subject to aggravation by military service or continued flying.
6. It must be resolved or stable at the time of the waiver (i.e. non-progressive).
7. If the possibility of progression or recurrence exists, the first signs or symptoms must be easily detectable and cannot constitute an undue hazard to the individual or to others.
8. It cannot require uncommonly available tests, regular invasive procedures, non-routine medications or frequent absences to monitor stability or progression especially during deployment or assignment to austere areas.
9. It cannot involve unconventional medical treatments that are outside of standard of care.

## 2.3 GRANTING AUTHORITY

Waivers are granted by BUPERS, CMC (ASM), or other appropriate waiver granting authority. NAMI Code NA05 must review all waiver requests and forward their recommendations to BUPERS or CMC as appropriate. It is important to note that the BUMED endorsement letter recommending a disposition on an aircrew member is not the final action and requires BUPERS or CMC endorsement. In other words, a waiver is not truly granted until BUPERS or CMC acts. Until that time, the waiver is still in a “recommended” status.

## 2.4 REQUESTING AUTHORITY

Waivers may be requested by the following individuals:

1. The service member initiates the waiver request in most circumstances.
2. The commanding officer of the member may initiate a waiver request.
3. The examining or responsible medical officer may initiate a waiver request.

4. In certain cases the initiative to request or recommend a waiver will be taken by BUMED; the Commanding Officer, Naval Reserve Center; CMC; or NAVPERSCOM. In no case will this initiative be taken without informing the member's local command.
5. All waiver requests shall be either initiated or endorsed by the member's commanding officer.

## 2.5 ROUTING OF WAIVER REQUESTS

Except in rare cases, the waiver request will begin at the member's command either with the member or the commanding officer. All waiver requests must be routed through the member's commanding officer and contain a statement indicating that the commanding officer is aware of the request for a waiver, the Aeromedical recommendation, and whether the commanding officer concurs with this recommendation. A formal command endorsement typed on command letterhead must accompany all waiver requests for alcohol disorders. After review by the member's commanding officer, all waiver requests shall be forwarded to NAMI Code NA05 for review and endorsement via AERO submission. NAMI Code NA05 will review all waiver requests and forward their recommendation to the appropriate waiver granting authority (BUPERS or CMC) via formal BUMED letter via AERO. Copies of this BUMED letter are available via AERO and can be printed by the Aeromedical personnel who is responsible for the member. Copies of the BUMED letter shall be placed in the member's health record along with the waiver request.

## 2.6 WAIVER SUBMISSION REQUIREMENTS

The submitter should refer to the appropriate section of the Aeromedical Reference and Waiver Guide (ARWG) for specific submission requirements for each defect or disqualifying diagnosis. All waiver submissions require **ALL OP REPORTS** pertaining to the waiver (as indicated), an Aeromedical Summary (AMS), to include applicants, and the following items:

**APPLICANTS:**

1. Complete applicant physical exam
2. A detailed history, review of systems, and physical findings associated with the defect shall be recorded on the physical exam
3. All supporting documentation required by the appropriate section of the ARWG (i.e. laboratory, radiology, consultant reports...)
4. Flight Surgeon's recommended disposition

**DESIGNATED:**

1. The member's most recent flight physical
2. All supporting documentation required by the appropriate section of the ARWG (i.e. laboratory, radiology, consultant reports, etc...)
3. All information required for continuation of previous waivers
4. The Aeromedical Electronic Resource Office (AERO) website should be reviewed prior to submission to ensure that the member has all prior waivers and physical exams up-to-date
5. Once complete, the waiver request shall be submitted within 10 working days to NAMI Code NA05 via the member's commanding office via AERO.

## 2.7 WAIVER CONTINUATION

Waiver continuation requests must be submitted to NAMI Code NA05 for review as specified in the BUMED waiver recommendation letter and the Waiver Authority granting letter via AERO. Refer to the BUMED endorsement letter to determine how frequently submission is required an what information must be submitted. The continuation request must include the member's annual physical exam (long or short form) and all required additional information as specified b BUMED letter and/or the pertinent section of the ARWG.

## 2.8 AEROMEDICAL CLEARANCE

A "waiver granted" normal duration Aeromedical Clearance Notice (up-chit) may only be issued after a waiver has been granted by BUPERS or CMC. A temporary up-chit may be issued if:

1. NAMI Code NA05 has endorsed the waiver request and recommended a waiver of standards be granted
2. A Local Board of Flight Surgeons (LBFS) may issue a temporary up-chit in accordance with MMD Chapter 15-80. See criteria below

A temporary up-chit **may not exceed 90 days in duration.** If the member holds a grounding letter issued by BUPERS or CMC stating that a waiver has previously been denied, a **temporary up-chit shall not be issued.** The member must wait until a waiver is granted by appropriate authority before any up-chit is issued.

## 2.9 LOCAL BOARD OF FLIGHT SURGEONS (LBFS)

Last Revised: Feb 2026 Last Reviewed: Feb 2026

***Reference:** MANMED Chapter 15, Article 15-80

A Local Board of Flight Surgeons (LBFS) is a method to provide a bolstered medical endorsement for a waiver request when a substantive question exists concerning the suitability of aviation personnel to return to flight status. An additional function of the LBFS is to provide an expeditious way to return grounded aviation personnel to flight status pending the normal administrative process of official granting of a waiver by BUPERS or CMC when such waiver is otherwise expected. A LBFS should be considered when all criteria below are met, and it is in the best interest of the servicemember and the Command to expeditiously return the servicemember to flight status. ***The normal waiver process continues to be the gold standard and should be used whenever there is doubt.***

A LBFS may be convened by the servicemember's Commanding Officer, on the recommendation of the servicemember's Aviation Medical Clinician (AMC includes Aerospace Medicine physician, FS, APA, or AME) or by higher authority. A LBFS will consist of the cognizant AMC and a senior member. The senior member must be a designated Senior Regional Flight Surgeon (SRFS) or MAG Surgeon. If the SRFS or MAG Surgeon is not a Board Eligible/ Board-Certified Aerospace Medicine physician, one must be added as a third member. Exception to policy requests regarding composition of the board must be endorsed by the NAMI Officer in Charge (OIC).

The findings of the LBFS are recorded as an Aeromedical Summary (AMS) that is submitted in AERO as an attached PDF document, in the electronic health record (EHR), and in an official letter (which may be sent via encrypted email) to NAMI Code NA05 (usn.pensacola.navmedotcnamifl.list.nami-physqualtech@health.mil).

**The designated SRFS or MAG surgeon on the board may issue a temporary, 90-day up-chit if the following criteria are met:**

1. The condition is addressed by the Aeromedical Reference and Waiver Guide (ARWG).
2. The servicemember has completed all tests and required information as specified by the ARWG.
3. The servicemember has met all criteria for a waiver as specified in the ARWG.
4. The servicemember has not been previously grounded by BUPERS or CMC.

A LBFS **shall NOT** issue an up-chit to personnel whose condition is not addressed by the ARWG. In those cases, a waiver request should be forwarded to NAMI Code NA05 via AERO following the normal process. Expedited review may be requested if circumstances warrant. A LBFS **shall NOT** issue an up-chit if the servicemember currently has a grounding letter from BUPERS or CMC.

Aviation Class III and Class IV personnel may be considered for time-restricted aeromedical clearance while on LIMDU or PEB status via the LBFS process. The LBFS AMS and associated DD Form 2992 must include specific duty limitations as appropriate. Such clearances will adhere to the 90-day LBFS temporary clearance limit and may not be extended without completion of a new LBFS evaluation and recommendation. The LBFS process is otherwise

identical and will be routed to NAMI and PERS for review and endorsement. If such review is not favorable, NAMI will recommend issuance of a down-chit and grounding physical.

These limited clearances are intended for aviation Class III and Class IV personnel who may safely and effectively perform the functions of their position as endorsed by their Commanding Officer or OIC.

**Following conclusion of the LBFS, the designated senior member of the board shall be responsible for submitting their report within 10 working days to NAMI Code NA05 via the servicemember's Commanding Officer.**

## 2.10 SPECIAL BOARD OF FLIGHT SURGEONS

This board consists of members appointed by the OIC of NAMI. The board evaluates medical cases, which, due to their complexity or uniqueness, warrant a comprehensive aeromedical evaluation. A Special Board of Flight Surgeons should not be requested merely to challenge a physical standard or disqualification without evidence of special circumstances. Refer to MANMED 15-81 for specific instructions on how to request a Special Board of Flight Surgeons and more details regarding its proceedings.

## 2.11 SENIOR BOARD OF FLIGHT SURGEONS

This board is the final appeal board to review aeromedical dispositions as requested by NAVPERSCOM, CNO, or CMC. The board consists of a minimum of five members, three of whom must be flight surgeons and one of whom shall be a senior line officer assigned by the CNO or CMC. The presiding officer shall be the Deputy Chief, BUMED, Operations and assisted by the Director, Aerospace Medicine. Refer to MANMED 15-82 for additional information.

## 2.12 AEROMEDICAL SUMMARY

The Aeromedical Summary (AMS) is required for all initial waiver requests (designated, applicant and members currently in aviation training). An AMS allows the Flight Surgeon to write a detailed summary of the member's condition and how it relates to his current flying duty. It should be directed to the member's specific condition and include a detailed history of present illness (HPI), directed physical exam, and include results of all pertinent ancillary studies. The AMS should provide enough detail so that the reviewer can make an appropriate aeromedical decision based solely on this document. As stated earlier, the waiver request shall include the AMS, all ancillary consultant, laboratory, radiological and op reports, and the member's current physical exam. A LBFS may detail its findings and recommendations in an AMS, but not every AMS necessarily serves as a LBFS. Please refer to the AERO tutorial on "How to complete an AMS in AERO". A PRK AMS template and a Hypertension AMS template are also available for download in the forms section of the ARWG as well as their respective medical sections (ophthalmology and cardiology). An AMS MUST BE associated with a physical that is dated the same day or prior.

*AERO requires a UIC for the medical facility and the member's command.

## 2.13 HOW TO SUBMIT A WAIVER REQUEST

Waiver requests shall be submitted to NAMI Code NA05 for review and appropriate endorsement via AERO.

All flight physicals (designated or candidate) which require BUMED endorsement through NAMI, should be submitted via AERO (https://aero.health.mil/). Packages received through mail, facsimile or e-mailed scans will be returned to the examining facility without action unless accompanied by a letter explaining why submission via AERO was not utilized. If using an e-mail, please ensure the e-mail is encrypted. If a physical needs to be sent through the mail, the physical must be sent via certified mail (FEDEX, USPS) and mailed to:

Officer in Charge
Navy Medicine Operational Training Center Detachment
Naval Aerospace Medical Institute

340 Hulse Road
Attn: Code NA05
Pensacola, FL 32508

When mailing, please follow-up with an e-mail.

You can send an encrypted e-mail of scanned documents to:
usn.pensacola.navmedotcnamifl.list.nami-physqualtech@health.mil

Whenever possible, the file type .pdf should be used. If necessary, .tif or .jpg can also be sent. E-MAIL SHOULD ONLY BE USED WHEN ON A SHIP AND INTERNET PROBLEMS DUE TO DEPLOYMENT.

## 2.14 HOW TO CHECK ON THE STATUS OF A WAIVER REQUEST

Log on to AERO website: https://aero.health.mil/. This will give you access to check both the current status of aviation personnel and track the waiver request as it makes its way through the process. Access to this site requires your CAC card and PIN and a user account.

For specific requirements on requesting an account, please use the link below. (http://www.med.navy.mil/sites/nmotc/nami/arwg/Pages/AeromedicalReferenceandWaiverGuide.aspx)

# 3.0 CARDIOLOGY

Last Revised: FEB 2016 Last Reviewed: FEB 2016

Significant changes: 1) Addition of section on long QT syndrome

# 3.1 AORTIC INSUFFICIENCY

Last Revised: JAN 2016 Last Reviewed: FEB 2016

| | Applicant | Class I SG 1 | Class I SG 2 | Class I SG 3 | Class II | Class III | Class IV |
|---|---|---|---|---|---|---|---|
| **CD** | X | X | X | X | X | X | X |
| **NCD** | | | | | | | |
| **WR** | | X[1] | X[1] | X[1] | X[1] | X[1] | X[1] |
| **WNR** | X | | | | | | |
| **LBFS** | No | No | No | No | No | No | No |
| **EXCEPTIONS** | | | | | | | |
| **LIMDU/PEB** | Not required. | | | | | | |

1. Waivers are considered on a case-by-case basis on Designated Personnel for mild and moderate severity, for non-ejection seat aircraft, maritime/helo/transport only

**AEROMEDICAL CONCERNS**: Acute complications from aortic insufficiency are rare. Chronic complications include left ventricular dilation and heart failure. There are theoretical concerns that the regurgitant flow of blood back into the LV may predispose the individual to GLOC, but this has not been confirmed. A secondary concern is that weight training to improve G-tolerance is relatively contraindicated, although such training is highly desirable in the tactical community.

**WAIVER:** Aortic insufficiency associated with a structural abnormality of the valve is CD, with no waiver for candidates. Designated individuals can receive waiver recommendations limited to non-ejection seat aircraft, maritime/helo/transport only. Traditionally, AI has been felt not to occur in normal subjects, but NAMI and the Air Force Aeromedical Consult Service have detected a limited degree of AI in a number of patients without detectable valvular pathology. On echo, these "physiologic" AI cases typically have a very small AI jet that does not extend out of the LVOT. In these cases, the condition is NCD, and as such does not require a waiver.

**BICUSPID AORTIC VALVES:** Because congenital bicuspid aortic valves can degenerate and progress to aortic stenosis or insufficiency, a bicuspid aortic valve is CD. Waivers will not be considered for applicants. If an incidental finding in designated aircrew, condition may be waiverable with possible restriction on aircraft or flight profile.

**DIAGNOSIS/ICD-10 Code:**
**I35.1 Nonrheumatic aortic insufficiency**

**SERVICE MEMBER MUST COMPLETE PRIOR TO INITIATING WAIVER**

- Released from *cardiology* care with recommendation of return to full duty, world-wide deployable, and no restrictions **documented** on last clinical note (electronic or paper).
- If *cardiology* recommends restrictions, then documentation of physical and/or mental limitations and expected duration (permanent vs temporary).
- *Cardiology* recommendation for follow on care **documented** on last clinical note (electronic or paper).
- Email or provide administrative information to include command UIC, command address, personal address, phone number, designator, flight hours (total and last 6 months), primary aircraft flown, and years of service.

**AEROMEDICAL SUMMARY REQUIRED DOCUMENTATION BY FLIGHT SURGEON**

All associated documentation.

| FOLLOW UP REQUIREMENTS | Annual Submission |
|---|---|

Flight Surgeon comment regarding interval history & symptoms.
Specialist Evaluation: Cardiology or Internal Medicine, unless otherwise specified by Code NA05.

# 3.2 AORTIC STENOSIS

Last Revised: JAN 2016 Last Reviewed: FEB 2016

| | Applicant | Class I | | | Class II | Class III | Class IV |
|---|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | | |
| **CD** | X | X | X | X | X | X | X |
| **NCD** | | | | | | | |
| **WR** | | X[1] | X[1] | X[1] | X[1] | X[1] | X[1] |
| **WNR** | X | | | | | | |
| **LBFS** | No | No | No | No | No | No | No |
| **EXCEPTIONS** | | | | | | | |
| **LIMDU/PEB** | Not required. | | | | | | |

1. Waivers are considered on a case-by-case basis on Designated Personnel for mild severity, for non-ejection seat aircraft, maritime/helo/transport only

**AEROMEDICAL CONCERNS**: Aortic stenosis (AS) is generally well compensated over long periods of time. The cardinal manifestations of AS are angina, syncope and congestive heart failure. Angina is due either to CAD or the increased myocardial oxygen demands complicated by LVH. Syncope is frequently exercise related, and is generally the result of the inability of the heart to increase cardiac output. The compensatory LVH may also predispose the member to dysrhythmias, and result in syncope or sudden death.

**WAIVER:** Any degree of aortic stenosis is CD for aviation. Waivers to flight status may be considered only for designated individuals with mild AS (pressure gradient < 25 mm Hg). They are restricted to non-ejection seat aircraft, maritime/helo/transport only.

**DIAGNOSIS/ICD-10 Code:**
**I35.0 Nonrheumatic aortic stenosis**

**SERVICE MEMBER MUST COMPLETE PRIOR TO INITIATING WAIVER**

- Released from *cardiology* care with recommendation of return to full duty, world-wide deployable, and no restrictions **documented** on last clinical note (electronic or paper).
- If *cardiology* recommends restrictions, then documentation of physical and/or mental limitations and expected duration (permanent vs temporary).
- *Cardiology* recommendation for follow on care **documented** on last clinical note (electronic or paper).
- Email or provide administrative information to include command UIC, command address, personal address, phone number, designator, flight hours (total and last 6 months), primary aircraft flown, and years of service.

**AEROMEDICAL SUMMARY REQUIRED DOCUMENTATION BY FLIGHT SURGEON**

All associated documentation.

| **FOLLOW UP REQUIREMENTS** | **Annual Submission** |
|---|---|

Flight Surgeon comment regarding interval history & symptoms.
Specialist Evaluation: Cardiology or Internal Medicine, unless otherwise specified by Code NA05.

## 3.3 MITRAL REGURGITATION

Last Revised: JAN 2016 Last Reviewed: FEB 2016

| | Applicant | Class I | | | Class II | Class III | Class IV |
|---|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | | |
| **CD** | X | X | X | X | X | X | X |
| **NCD** | | | | | | | |
| **WR** | | X[1] | X[1] | X[1] | X[1] | X[1] | X[1] |
| **WNR** | X | | | | | | |
| **LBFS** | No | No | No | No | No | No | No |
| **EXCEPTIONS** | | | | | | | |
| **LIMDU/PEB** | Not required. | | | | | | |

1. Waivers for Designated Personnel are considered on a case-by-case basis

**AEROMEDICAL CONCERNS**: Reduced exercise tolerance and sudden attacks of acute pulmonary edema in severe cases.

**WAIVER:** Waiver can be considered for mild mitral regurgitation provided it is not associated with mitral stenosis or connective tissue disease. Mild MR without abnormalities of the mitral valve, abnormalities of left atrial size or abnormalities of LV size will be NCD. Higher grades of valvular insufficiency, or valvular insufficiencies with structural abnormalities will be considered for waiver recommendation on a case-by-case basis.

**DIAGNOSIS/ICD-10 Code:**
**I34.0 Nonrheumatic mitral insufficiency**

**SERVICE MEMBER MUST COMPLETE PRIOR TO INITIATING WAIVER**

- Released from *cardiology* care with recommendation of return to full duty, world-wide deployable, and no restrictions **documented** on last clinical note (electronic or paper).
- If *cardiology* recommends restrictions, then documentation of physical and/or mental limitations and expected duration (permanent vs temporary).
- *Cardiology* recommendation for follow on care **documented** on last clinical note (electronic or paper).
- Email or provide administrative information to include command UIC, command address, personal address, phone number, designator, flight hours (total and last 6 months), primary aircraft flown, and years of service.

**AEROMEDICAL SUMMARY REQUIRED DOCUMENTATION BY FLIGHT SURGEON**

All associated documentation.

| **FOLLOW UP REQUIREMENTS** | **Annual Submission** |
|---|---|

Flight Surgeon comment regarding interval history & symptoms.
Specialist Evaluation: Cardiology or Internal Medicine, unless otherwise specified by Code NA05.

## 3.4 MITRAL STENOSIS

Last Revised: JAN 2016 Last Reviewed: FEB 2016

| | Applicant | Class I | | | Class II | Class III | Class IV |
|---|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | | |
| **CD** | X | X | X | X | X | X | X |
| **NCD** | | | | | | | |
| **WR** | | | | | | | |
| **WNR** | X | X | X | X | X | X | X |
| **LBFS** | No | No | No | No | No | No | No |
| **EXCEPTIONS** | | | | | | | |
| **LIMDU/PEB** | These cases should be forwarded to PEB for retention determination. | | | | | | |

**AEROMEDICAL CONCERNS**: Mitral stenosis has a varied clinical presentation. Hemoptysis can occur, and ranges from simply blood streaked sputum to frank hemorrhage; although dramatic, it is rarely life-threatening. Atrial fibrillation is a frequent sequela of MS. Hemodynamic decompensation may result from atrial fibrillation, with or without a rapid ventricular response rate, as ventricular filling is highly dependent on atrial contraction (atrial kick), and/or a long diastolic filling time. MS may also present with chest pain. The dilated left atrium is prone to clot formation, and embolic events are not uncommon.

**WAIVER**: Any degree of mitral stenosis is CD, with no waiver recommended. Valve replacement surgery is not waived.

**DIAGNOSIS/ICD-10 Code:**
**I34.8 Other nonrheumatic mitral valve disorders**

## 3.5 MITRAL VALVE PROLAPSE

Last Revised: JAN 2016 Last Reviewed: FEB 2016

| | Applicant | Class I | | | Class II | Class III | Class IV |
|---|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | | |
| **CD** | X | X | X | X | X | X | X |
| **NCD** | | | | | | | |
| **WR** | X[1] | X[2] | X[2] | X[2] | X[2] | X[2] | X[2] |
| **WNR** | | | | | | | |
| **LBFS** | No | No | No | No | No | No | No |
| **EXCEPTIONS** | | | | | | | |
| **LIMDU/PEB** | Not required. | | | | | | |

1. Waivers are considered on a case-by-case basis for Class III & IV applicants only
2. Waivers are considered on Designated Personnel on a case-by-case basis for mild severity, not requiring medication, and without history of arrhythmia

**AEROMEDICAL CONCERNS**: MVP syndrome symptoms vary in severity and are manifold in presentation. Arrhythmias are seen in a subset of MVP patients; most commonly premature ventricular beats, paroxysmal supraventricular and ventricular tachycardias. Non- anginal chest pain often causes patients to seek medical attention. Palpitations, syncope and light-headedness have been reported, and sudden death is a rare complication. Of those patients who develop ventricular arrhythmias, approximately 50% have a history of syncopal or presyncopal episodes.

**WAIVER**: Candidates are not recommended for waiver, except for class III or IV. Designated personnel with minimal regurgitation, who do not require medication or have a history of significant arrhythmias, may be considered for waiver.

**DIAGNOSIS/ICD-10 Code:**
**I34.8 Other nonrheumatic mitral valve disorders**

**SERVICE MEMBER MUST COMPLETE PRIOR TO INITIATING WAIVER**

- Released from *cardiology* care with recommendation of return to full duty, world-wide deployable, and no restrictions **documented** on last clinical note (electronic or paper).
- If *cardiology* recommends restrictions, then documentation of physical and/or mental limitations and expected duration (permanent vs temporary).
- *Cardiology* recommendation for follow on care **documented** on last clinical note (electronic or paper).
- Echocardiogram, Exercise stress testing and Holter monitor.
- Email or provide administrative information to include command UIC, command address, personal address, phone number, designator, flight hours (total and last 6 months), primary aircraft flown, and years of service.

**AEROMEDICAL SUMMARY REQUIRED DOCUMENTATION BY FLIGHT SURGEON**

All associated documentation.

| **FOLLOW UP REQUIREMENTS** | **Annual Submission** |
|---|---|

Flight Surgeon comment regarding interval history & symptoms.
Specialist Evaluation: Cardiology or Internal Medicine, unless otherwise specified by Code NA05.

# 3.6 VALVULAR CONDITIONS (OTHER)

Last Revised: JAN 2016 Last Reviewed: FEB 2016

| | Applicant | Class I | | | Class II | Class III | Class IV |
|---|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | | |
| **CD** | X | X | X | X | X | X | X |
| **NCD** | | | | | | | |
| **WR** | X[1] | X[1] | X[1] | X[1] | X[1] | X[1] | X[1] |
| **WNR** | | | | | | | |
| **LBFS** | No | No | No | No | No | No | No |
| **EXCEPTIONS** | | | | | | | |
| **LIMDU/PEB** | Not required. | | | | | | |

1. Waivers are considered on a case-by-case basis

**AEROMEDICAL CONCERNS**: The major concern is the relationship with mitral and aortic valve pathology. Pulmonic or tricuspid stenosis can both produce fatigue or shortness of breath. Tricuspid insufficiency is associated with arrhythmias.

**WAIVER:** Asymptomatic cases with mild functional abnormalities of the tricuspid or pulmonary valves may be considered for waiver in the absence of other pathology.

**DIAGNOSIS/ICD-10 Code:**
**I36.8 Other nonrheumatic tricuspid valve disorders**
**I37.8 Other nonrheumatic pulmonary valve disorders**

**SERVICE MEMBER MUST COMPLETE PRIOR TO INITIATING WAIVER**

- Released from *cardiology* care with recommendation of return to full duty, world-wide deployable, and no restrictions **documented** on last clinical note (electronic or paper).
- If *cardiology* recommends restrictions, then documentation of physical and/or mental limitations and expected duration (permanent vs temporary).
- *Cardiology* recommendation for follow on care **documented** on last clinical note (electronic or paper).
- Exercise stress testing and Holter monitor.
- Email or provide administrative information to include command UIC, command address, personal address, phone number, designator, flight hours (total and last 6 months), primary aircraft flown, and years of service.

**AEROMEDICAL SUMMARY REQUIRED DOCUMENTATION BY FLIGHT SURGEON**

All associated documentation.

| **FOLLOW UP REQUIREMENTS** | **Annual Submission** |
|---|---|

Flight Surgeon comment regarding interval history & symptoms.
Specialist Evaluation: Cardiology or Internal Medicine, unless otherwise specified by Code NA05.

# 3.7 ARRHYTHMIAS (PAC/PVC/OTHER)

Last Revised: JAN 2016 Last Reviewed: FEB 2016

| | Applicant | Class I | | | Class II | Class III | Class IV |
|---|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | | |
| **CD** | X | X | X | X | X | X | X |
| **NCD** | | | | | | | |
| **WR** | X[1] | X[1] | X[1] | X[1] | X[1] | X[1] | X[1] |
| **WNR** | | | | | | | |
| **LBFS** | No | No | No | No | No | No | No |
| **EXCEPTIONS** | | | | | | | |
| **LIMDU/PEB** | Not required. | | | | | | |

1. Waivers are considered on a case-by-case basis

**AEROMEDICAL CONCERNS**: The concerns usually relate to presence of underlying heart disease. There is also a risk of progression to the development of symptoms or yet more severe arrhythmias which could be disabling in flight.

**WAIVER:** A waiver is not recommended for ventricular fibrillation or flutter. Most other conditions that have not been specifically addressed are waiverable provided there is no evidence of underlying heart disease. Some conditions require the flier to be grounded while undergoing evaluation while others allow a continuation of flying status. When in doubt, discuss the case with NAMI before making any decisions.

**DIAGNOSIS/ICD-10 Code:**
**I49.1 Atrial premature depolarization**
**I49.3 Ventricular premature depolarization**
**I49.49 Other premature depolarization**

**SERVICE MEMBER MUST COMPLETE PRIOR TO INITIATING WAIVER**

1. Patients with sinus pause (>2.5 sec), single or paired premature atrial contractions (PAC), single or paired junctional premature beats, supraventricular premature beat, idioventricular rhythm, uniform ventricular premature contraction (PVC), multiform PVC, or fused PVC should have a Holter monitor while remaining on flying status.
   a. If this is normal, no further evaluation is necessary.
2. Patients with sinus bradycardia (<40 bpm) should have a rhythm strip performed during exercise, if it cannot be accounted for by a vigorous exercise program
   a. If the individual cannot achieve 100 bpm or double the heart rate, a Holter monitor and exercise stress test should be carried out while the aviator is grounded.
3. Patients with paired PVC's or PVC with R on T phenomenon require Holter monitor, exercise stress test and echocardiogram while grounded.
   a. If paired or frequent ectopic beats are seen on Holter monitoring (comprising >1% of all beats or >25% of all beats in any hour, or more than 5 per minute, or if multifocal), an echocardiogram and exercise stress test should be performed.
4. In cases where ectopic beats comprise 10% or more of all beats or >25% in any hour or more than 10 pairs of ectopic beats are seen in 24 hours, the individual should be grounded and undergo complete cardiology evaluation.

- Released from *internal medicine or cardiology* care with recommendation of return to full duty, world-wide deployable, and no restrictions **documented** on last clinical note (electronic or paper).
- If *internal medicine or cardiology* recommends restrictions, then documentation of physical and/or mental limitations and expected duration (permanent vs temporary).
- *Internal medicine or cardiology* recommendation for follow on care **documented** on last clinical note (electronic or paper).

- Email or provide administrative information to include command UIC, command address, personal address, phone number, designator, flight hours (total and last 6 months), primary aircraft flown, and years of service.

| **AEROMEDICAL SUMMARY REQUIRED DOCUMENTATION BY FLIGHT SURGEON** |
|---|

All associated documentation.

| **FOLLOW UP REQUIREMENTS** | **Annual Submission** |
|---|---|

Flight Surgeon comment regarding interval history & symptoms.
Specialist Evaluation: Cardiology or Internal Medicine, unless otherwise specified by Code NA05.

# 3.8 ATRIAL FIBRILLATION (AFIB)

Last Revised: JAN 2016 Last Reviewed: FEB 2016

| | Applicant | Class I | | | Class II | Class III | Class IV |
|---|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | | |
| **CD** | X | X | X | X | X | X | X |
| **NCD** | | | | | | | |
| **WR** | | X[1] | X[1] | X[1] | X[1] | X[1] | X[1] |
| **WNR** | X | | | | | | |
| **LBFS** | No | No | No | No | No | No | No |
| **EXCEPTIONS** | | | | | | | |
| **LIMDU/PEB** | Yes, if ablation performed to allow time for complete evaluation and waiver process | | | | | | |

1. Waivers are considered on a case-by-case basis on Designated Personnel following a single episode of atrial fibrillation with a documented precipitating factor (e.g. Holiday Heart), a return to full flight status is possible after 6 months without recurrence. No medications are waivered. Waivers are not recommended in paroxysmal/recurrent cases without successful ablation.

**AEROMEDICAL CONCERNS**: Loss of atrial contribution to cardiac output with or without rapid ventricular response may result in hemodynamic symptoms and impaired exercise capacity with implications for aviators in high performance aircraft. Symptoms of atrial fibrillation often include palpitations and lightheadedness, and may include near-syncope, dyspnea, or chest pain, although many episodes of atrial fibrillation are asymptomatic. There is a significantly increased risk of thrombosis and embolic phenomena in the setting of both paroxysmal and chronic atrial fibrillation. Chronic medications for maintenance of sinus rhythm or for ventricular rate control may impair hemodynamic response to +Gz loading.

REMEMBER: SINCE THE MINIMUM TIME OF OBSERVATION FOR RECURRENCE IS GREATER THAN 60 DAYS, A GROUNDING PHYSICAL IS REQUIRED AT THE TIME OF DIAGNOSIS; A LOCAL BOARD OF FLIGHT SURGEONS IS NOT AUTHORIZED TO RETURN TO FLIGHT STATUS.

Radiofrequency catheter ablation for atrial fibrillation is also CD. Paroxysmal atrial fibrillation following successful ablation may be considered no sooner than 6 months post-procedure for all designated classes with the exception of Class I, SG1 which requires at least 12 months observation post-procedure. Waiver requires that the member remain asymptomatic off all antiarrhythmic medication with no recurrence of atrial fibrillation after ablation and a normal cardiac evaluation as outlined below. Due to significantly lower success rates, waivers for ablation of permanent atrial fibrillation are generally not recommended.

**DIAGNOSIS/ICD-10 Code:**
**I48.91 Unspecified atrial fibrillation**

**SERVICE MEMBER MUST COMPLETE PRIOR TO INITIATING WAIVER**

**Single episode of Afib (resolved)**:

1. Exclusion of secondary causes is mandatory, including an exact detailed history of the event(s) (i.e. alcohol use, thyroid disorders, stimulant use, sleep, stress, etc.).
2. Complete cardiology consultation is required, to include:
   a. Exercise treadmill testing
   b. Echocardiography
   c. Ambulatory EKG monitor (event monitor) obtained 3-6 months post-event (ideally sometime during final observation month) off all antiarrhythmic medication. Monitoring for minimum of 10 days is preferred.
   Note: If ambulatory EKG is not available a 48 hour Holter may be substituted.

**Recurrent/Paroxysmal Afib treated with radiofrequency catheter ablation:**

1. Exclusion of secondary causes is mandatory, including an exact detailed history of the event(s) (i.e. alcohol use, thyroid disorders, stimulant use, sleep, stress, etc.).
2. Complete cardiology consultation is required, to include:
   a. Exercise treadmill testing
   b. Echocardiography
   c. At least one ambulatory EKG monitor (event monitor). *Monitor should be applied for minimum of 10 days* and off all antiarrhythmic medication. Monitors obtained for waiver consideration at the 6 month mark should be obtained no sooner than 5 months post-ablation.

- Released from *cardiology* care with recommendation of return to full duty, world-wide deployable, and no restrictions **documented** on last clinical note (electronic or paper).
- If *cardiology* recommends restrictions, then documentation of physical and/or mental limitations and expected duration (permanent vs temporary).
- *Cardiology* recommendation for follow on care **documented** on last clinical note (electronic or paper).
- Email or provide administrative information to include command UIC, command address, personal address, phone number, designator, flight hours (total and last 6 months), primary aircraft flown, and years of service.

| **AEROMEDICAL SUMMARY REQUIRED DOCUMENTATION BY FLIGHT SURGEON** |
|---|

All associated documentation.

| **FOLLOW UP REQUIREMENTS** | **Annual Submission** |
|---|---|

**If ablation not performed:**

1. Flight surgeon exam with assessment for symptoms and EKG is required. Additional testing/monitoring requirements may be requested by NAMI on a case-by-case basis.
2. Flight Surgeon comment regarding interval history & symptoms.
3. Specialist Evaluation: Cardiology, unless otherwise specified by Code NA05.

**If ablation performed:**

1. Ambulatory EKG monitor (event monitor): *for minimum of 10 days* at 6 month intervals required for 2 years post-ablation for continuation of waiver.
   a. After 2 years, ambulatory EKG monitor (event monitor) required at 12 month intervals for continuation of waiver. (If ambulatory EKG is not available a 48 hour Holter may be substituted).
   b. Any evidence of recurrence requires grounding. A second waiver is unlikely but may be reconsidered after a second ablation procedure.
2. Flight Surgeon comment regarding interval history & symptoms.
3. Specialist Evaluation: Cardiology, unless otherwise specified by Code NA05.

## 3.9 ATRIAL FLUTTER (AF)

Last Revised: JAN 2016 Last Reviewed: FEB 2016

| | Applicant | Class I | | | Class II | Class III | Class IV |
|---|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | | |
| **CD** | X | X | X | X | X | X | X |
| **NCD** | | | | | | | |
| **WR** | | X[1] | X[1] | X[1] | X[1] | X[1] | X[1] |
| **WNR** | X | | | | | | |
| **LBFS** | No | No | No | No | No | No | No |
| **EXCEPTIONS** | | | | | | | |
| **LIMDU/PEB** | Yes, recommended since member grounded for 6 months pending full evaluation | | | | | | |

1. Waivers are considered on a case-by-case basis on Designated Personnel following a single episode of atrial flutter with a documented precipitating factor (e.g. Holiday Heart). No medications are waivered. 6-month grounding required during evaluation. Waivers are not recommended in recurrent cases.

**AEROMEDICAL CONCERNS**: Acute atrial flutter may result in a runaway ventricular response rate. AF may be associated with chest pain, syncope or near syncope. There is a significantly increased incidence of embolic phenomena.

REMEMBER: SINCE THE MINIMUM TIME OF OBSERVATION FOR RECURRENCE IS GREATER THAN 60 DAYS, A GROUNDING PHYSICAL IS REQUIRED AT THE TIME OF DIAGNOSIS; A LOCAL BOARD OF FLIGHT SURGEONS IS NOT AUTHORIZED TO RETURN TO FLIGHT STATUS.

**DIAGNOSIS/ICD-10 Code:**
**I48.92 Unspecified atrial flutter**

**SERVICE MEMBER MUST COMPLETE PRIOR TO INITIATING WAIVER**

1. Exclusion of secondary causes is mandatory, including an exact detailed history of the event(s) (i.e. alcohol use, thyroid disorders, stimulant use, sleep, stress, etc.).
2. Complete cardiology consultation is required, to include:
   a. Exercise treadmill testing
   b. Echocardiography
   c. Three Holter monitors at monthly intervals

- Released from *cardiology* care with recommendation of return to full duty, world-wide deployable, and no restrictions **documented** on last clinical note (electronic or paper).
- If *cardiology* recommends restrictions, then documentation of physical and/or mental limitations and expected duration (permanent vs temporary).
- *Cardiology* recommendation for follow on care **documented** on last clinical note (electronic or paper).
- Email or provide administrative information to include command UIC, command address, personal address, phone number, designator, flight hours (total and last 6 months), primary aircraft flown, and years of service.

**AEROMEDICAL SUMMARY REQUIRED DOCUMENTATION BY FLIGHT SURGEON**

All associated documentation.

| FOLLOW UP REQUIREMENTS | Annual Submission |
|---|---|

EKG.
Flight Surgeon comment regarding interval history & symptoms.
Specialist Evaluation: Cardiology, unless otherwise specified by Code NA05.

# 3.10 ATRIAL SEPTAL DEFECT (ASD)/PATENT FORAMEN OVALE

Last Revised: JAN 2016 Last Reviewed: FEB 2016

| | Applicant | Class I | | | Class II | Class III | Class IV |
|---|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | | |
| **CD** | X | X[1,2] | X[1,2] | X[1,2] | X[1,2] | X[1,2] | X[1,2] |
| **NCD** | | | | | | | |
| **WR** | | | | | | | |
| **WNR** | X | | | | | | |
| **LBFS** | No | No | No | No | No | No | No |
| **EXCEPTIONS** | | | | | | | |
| **LIMDU/PEB** | Not required. | | | | | | |

1. Hemodynamically stable ASD or PFO is NCD. Hemodynamically stable is defined as:
   a. Asymptomatic
   b. No right ventricular enlargement on echocardiogram
   c. No fixed splitting of S2
   d. Normal EKG
   e. Normal chest radiograph
2. Cases not meeting stable criteria above are CD and waivers will be considered on a case-by-case basis on Designated Personnel.

**AEROMEDICAL CONCERNS**: Physiologically, it is difficult to differentiate between patent foramen ovale (no murmur, no change in S2) and atrial septal defects (murmur, fixed split in S2). For the purposes of this discussion, the two conditions will be both considered "atrial septal defects". Atrial septal defects predispose individuals to several conditions, however, the known frequency of the condition in military aviation personnel and the relative lack of demonstrated pathology argue against any significant effect. It has been postulated that ASD predisposes to decompression sickness (DCS). Valvular dysfunction can occur and pulmonary hypertension may develop.

**DIAGNOSIS/ICD-10 Code:**
**Q21.1 Atrial septal defect**

**SERVICE MEMBER MUST COMPLETE PRIOR TO INITIATING WAIVER**

- Released from *cardiology* care with recommendation of return to full duty, world-wide deployable, and no restrictions **documented** on last clinical note (electronic or paper).
- If *cardiology* recommends restrictions, then documentation of physical and/or mental limitations and expected duration (permanent vs temporary).
- *Cardiology* recommendation for follow on care **documented** on last clinical note (electronic or paper).
- Email or provide administrative information to include command UIC, command address, personal address, phone number, designator, flight hours (total and last 6 months), primary aircraft flown, and years of service.

**AEROMEDICAL SUMMARY REQUIRED DOCUMENTATION BY FLIGHT SURGEON**

All associated documentation.

| **FOLLOW UP REQUIREMENTS** | **Routine Submission** |
|---|---|

Flight Surgeon comment regarding interval history & symptoms.

# 3.11 ATRIOVENTRICULAR CONDUCTION DISTURBANCES

Last Revised: JAN 2016 Last Reviewed: FEB 2016

| | Applicant | Class I | | | Class II | Class III | Class IV |
|---|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | | |
| **CD** | X[1] | X[1] | X[1] | X[1] | X[1] | X[1] | X[1] |
| **NCD** | | | | | | | |
| **WR** | | | | | | | |
| **WNR** | X[2] | X[2] | X[2] | X[2] | X[2] | X[2] | X[2] |
| **LBFS** | No | Yes | Yes | Yes | Yes | Yes | Yes |
| **EXCEPTIONS** | | | | | | | |
| **LIMDU/PEB** | Not required. | | | | | | |

1. First degree A-V block and Mobitz type I second degree A-V block (Wenckebach) are NCD as long as non-invasive work-up as below is normal.
2. Mobitz type II second degree and third degree A-V block are CD, waivers not recommended.

**AEROMEDICAL CONCERNS**: There is a risk of bradycardia with decreased +Gz tolerance, syncope or sudden death in some conduction disturbances.

**DIAGNOSIS/ICD-10 Code:**
**I44.0 Atrioventricular block, first degree**
**I44.1 Atrioventricular block, second degree**

**SERVICE MEMBER MUST COMPLETE PRIOR TO INITIATING WAIVER**

1. First degree A-V block:
   a. Local evaluation should include a repeat EKG or rhythm strip performed during exercise, which may be calisthenics. The heart rate may need to be increased over 80-100 bpm.
      (1) If the PR interval shortens (it does not have to be normal) with increased heart rate no further evaluation is necessary, condition is NCD.
      (2) If PR interval remains prolonged despite increased heart rate, a non-invasive cardiac evaluation including exercise stress testing, echocardiography, and Holter monitor is required. Up to this stage, the aviator may remain on flying status during evaluation. If the tests are normal, no further evaluation is needed, condition is NCD.
2. Second degree A-V block (Mobitz Type I) requires:
   a. Cardiology consultation, including exercise stress testing, echocardiography, and Holter monitor.

- Released from *cardiology* care with recommendation of return to full duty, world-wide deployable, and no restrictions **documented** on last clinical note (electronic or paper).
- If *cardiology* recommends restrictions, then documentation of physical and/or mental limitations and expected duration (permanent vs temporary).
- *Cardiology* recommendation for follow on care **documented** on last clinical note (electronic or paper).
- Email or provide administrative information to include command UIC, command address, personal address, phone number, designator, flight hours (total and last 6 months), primary aircraft flown, and years of service.

**AEROMEDICAL SUMMARY REQUIRED DOCUMENTATION BY FLIGHT SURGEON**

All associated documentation.

| FOLLOW UP REQUIREMENTS | Annual Submission |
|---|---|

EKG.
Flight Surgeon comment regarding interval history & symptoms.

# 3.12 CORONARY ARTERY DISEASE

Last Revised: JAN 2016 Last Reviewed: FEB 2016

Significant changes: 1) Added documentation of ASVCD risk to waiver requirements.

| | Applicant | Class I SG 1 | Class I SG 2 | Class I SG 3 | Class II | Class III | Class IV |
|---|---|---|---|---|---|---|---|
| **CD** | X | X | X | X | X | X | X |
| **NCD** | | | | | | | |
| **WR** | | X[1] | X[1] | X[1] | X[1] | X[1] | X[1] |
| **WNR** | X | | | | | | |
| **LBFS** | | No | No | No | No | No | No |
| **EXCEPTIONS** | | | | | | | |
| **LIMDU/PEB** | Not required. | | | | | | |

1. Waivers are considered on a case-by-case on Designated Personnel

**AEROMEDICAL CONCERNS**: The major concern is the risk of sudden death or incapacitation in flight – acute coronary syndromes are unpredictable and often catastrophic at initial presentation. Characterization of two hazards is important in minimizing this risk – the presence of hemodynamically significant stenosis (coronary artery narrowing) and the total burden of disease or plaque (most commonly atherosclerosis). Prevention (either primary or secondary) of excess hazards depends upon adequate identification of aviators at risk followed by treatment of modifiable factors. The risk control measures for CAD are revascularization of any significant lesions and aggressive risk factor modification. Advances in screening, diagnostic modalities, and treatment of CAD increase the likelihood that aviators with asymptomatic CAD (not strictly disqualified by the above standards) will present for aeromedical disposition. Advances in the treatment of symptomatic CAD also open the potential for recommending aviators to return to aviation duty when both the lesion and underlying disease process can be controlled to acceptable levels of risk.

Effective treatment requires long term medications. Medications used have potential adverse effects or toxicities. Effects of the aviation environment on medication toxicity are generally unknown. Monitoring of treatment may require periodic testing not commonly available in operational settings.

**DIAGNOSIS/ICD-10 Code:**
**I25.9 Chronic ischemic heart disease, unspecified**

**SERVICE MEMBER MUST COMPLETE PRIOR TO INITIATING WAIVER**

1. Statement from member documenting tobacco cessation (if applicable).
2. Documentation of ASCVD Risk found at http://tools.acc.org/ASCVD-Risk-Estimator/.

- Released from *cardiology* care with recommendation of return to full duty, world-wide deployable, and no restrictions **documented** on last clinical note (electronic or paper).
- If *cardiology* recommends restrictions, then documentation of physical and/or mental limitations and expected duration (permanent vs temporary).
- *Cardiology* recommendation for follow on care **documented** on last clinical note (electronic or paper).
- Email or provide administrative information to include command UIC, command address, personal address, phone number, designator, flight hours (total and last 6 months), primary aircraft flown, and years of service.

**AEROMEDICAL SUMMARY REQUIRED DOCUMENTATION BY FLIGHT SURGEON**

All associated documentation.

| **FOLLOW UP REQUIREMENTS** | **Annual Submission** |
|---|---|

Flight Surgeon comment regarding interval history & symptoms.

Specialist Evaluation: Cardiology, unless otherwise specified by Code NA05. **Waiver may be terminated if any of the following occur:**

1. BMI > baseline or not at target
2. Noncompliance with medications
3. Unwillingness to comply with exercise program or tobacco cessation
4. Failure to promptly report recurrence of symptoms

## 3.13 HYPERLIPIDEMIA

Last Revised: JAN 2016 Last Reviewed: FEB 2016

| | Applicant | Class I | | | Class II | Class III | Class IV |
|---|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | | |
| **CD** | | | | | | | |
| **NCD** | X | X | X | X | X | X | X |
| **WR** | | | | | | | |
| **WNR** | | | | | | | |
| **LBFS** | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| **EXCEPTIONS** | | | | | | | |
| **LIMDU/PEB** | Not required. | | | | | | |

**AEROMEDICAL CONCERNS**: Risk of ischemic heart disease with increased plasma cholesterol and with increased low density lipoprotein (LDL).

Before any therapy is initiated, exclude all causes of secondary hyperlipidemia such as hypothyroidism, diabetes, cholestasis, alcohol abuse, gout, renal failure, nephrotic syndrome, myeloma and systemic lupus erythematosus.

See MEDICATIONS section regarding antihyperlipidemic medications.

**DIAGNOSIS/ICD-10 Code:**
**E78.4 Other hyperlipidemia**

## 3.14 HYPERTENSION

Last Revised: MAR 25 Last Reviewed: FEB 2023

| | Applicant | Class I | | | Class II | Class III | Class IV |
|---|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | | |
| **CD** | X | X | X | X | X | X | X |
| **NCD** | | | | | | | |
| **WR** | X[1] | X[1] | X[1] | X[1] | X[1] | X[1] | X[1] |
| **WNR** | | | | | | | |
| **LBFS** | No | Yes | Yes | Yes | Yes | Yes | Yes |
| **EXCEPTIONS** | | | | | | | |
| **LIMDU/PEB** | Not required. | | | | | | |

1. Waivers are considered on a case-by-case Basis

**AEROMEDICAL CONCERNS:** Untreated hypertension is associated with long term changes in the cardiovascular system that can cause a significant reduction in life span. Untreated hypertension also predisposes individuals to cerebrovascular accident, myocardial infarction, ophthalmologic disease and renal failure. The magnitude of the blood pressure elevation is directly proportional to the risk of developing complications and is increased by other risk factors such as hyperlipidemia or cigarette smoking. A diagnosis of **White Coat Hypertension** may be warranted, however, must be supported by a completely normal 24-hour ambulatory blood pressure monitor. If the blood pressure exceeds standards at the time of exam, three day blood pressure checks (at two different times each day) are indicated. Previously high readings which are then normal on three day follow-up DOES NOT relieve the examining flight surgeon from re-evaluation if the blood pressure is high during subsequent physical exams (or sick-call visits).

Blood pressure exceeding 139 mm HG systolic or 89 mm HG diastolic is CD and a waiver will not be recommended. If the systolic pressure is 150 mm or less and/or the diastolic 100 mm or less, member may continue to fly for a maximum of six months with Flight Surgeon's approval if asymptomatic and no evidence of end organ damage. This allows for a trial of weight reduction, diet modification, exercise, etc. Clearance Notice should clearly state the necessity to re-evaluate for effectiveness of non-pharmacologic measures every three months and be issued for duration of only 90 days and the reason (pending blood pressure reduction measures). At the end of a total of six months, if member is within aviation standards (BP<140/90), they are PQ. If not within standards, member is NPQ, and grounded for any remaining work-up and the initiation of therapy. **Blood pressure out of standards will not be waived**; the approved medications are outlined below. Unrestricted waivers are possible if adequate control of blood pressure is achieved (BP<140/90), there is no evidence of end-organ damage, and there are no significant medication side effects in designated personnel.

**LIFESTYLE MODIFICATION:** The cornerstone of blood pressure management begins with lifestyle modification. Proper diet and adequate aerobic exercise will improve cardiovascular fitness and decrease the effects that hypertension can cause. When lifestyle modifications alone are insufficient to control a patient's blood pressure, medical therapy will need to be initiated. Diet and exercise remain

important adjuncts to therapy and should be encouraged at a level appropriate to the patient's age, current level of conditioning, and stage of hypertension.

**MEDICAL THERAPY:** After appropriate evaluation of an aviator with HTN (and a trial of diet and exercise therapy if blood pressure is less than 150/100) the use of **Angiotensin Converting Enzyme (ACE) Inhibitors, Angiotensin II Receptor Blockers (ARBs)** and **Thiazide Diuretics** can be used as **first line** agents for treatment of HTN in aviation personnel. ACE inhibitors or ARBs are preferred as they have a low incidence of aeromedically significant side effects and are generally well tolerated. There are no dose restrictions on these medications as long as manufacturer recommended maximum doses are not exceeded.

**Amlodipine**, a calcium channel antagonist, may be considered as a **second line** therapy either alone or in combination with ACE inhibitors, ARBs or HCTZ. All **second line therapy waivers** are restricted to **SG 3 and Class II in non-high-performance aircraft, and all Class III and IV.**

**Beta blockers** are not compatible with waivers for Class I Medical Service Groups 1 or 2. Aviators may be waived to SG 3 or Class II flying duties in non-high performance aircraft. SG 3 and Class II and IV are granted waivers on a case-by-case basis. All SG 1/SG 2 aviators or tactical NFOs on beta blockers are NPQ, no waiver. Beta blockers are incompatible with physiologic compensation required in response to G-forces so requests should state "transport/maritime/helo aircraft only." If beta blockers are used, the use of the cardio selective agents such as Atenolol is preferred.

All personnel requesting a waiver should have their blood pressure adequately controlled (<140 systolic and <90 diastolic), be free of side effects, and have no complications from their hypertension. All waiver requests outside these guidelines should consult NAMI Internal Medicine.

**DIAGNOSIS/ICD-10 Code:**
**I10 Essential (primary) hypertension**

**SERVICE MEMBER MUST COMPLETE PRIOR TO INITIATING WAIVER**

1. Documentation of blood pressure control by submitting to NAMI three separate BP measurements over 5 days showing compliance of the standard of BP<140/90.
2. Documentation of an absence of end organ damage
3. Initial evaluation should include:
    a. CBC
    b. CHEM 7 (serum electrolytes, glucose, urea nitrogen and creatinine)
    c. TSH
    d. Fundoscopic examination
    e. Urinalysis
    f. ECG
    g. An echocardiogram may be required if there is any suggestion of ventricular hypertrophy by exam or ECG
    h. Any pathology detected will require specialist evaluation
    i. The WS-HTN (Hypertension Worksheet) must be completed and uploaded as a supporting document within AERO.

- Email or provide administrative information to include command UIC, command address, personal address, phone number, designator, flight hours (total and last 6 months), primary aircraft flown, and years of service.

| AEROMEDICAL SUMMARY REQUIRED DOCUMENTATION BY FLIGHT SURGEON |
|---|

All associated documentation.

| FOLLOW UP REQUIREMENTS | Annual Submission |
|---|---|

Flight Surgeon documentation of blood pressure control by submitting to NAMI three separate BP measurements over 5 days showing compliance of the standard of BP<140/90.

1. CHEM 7
2. ECG
3. Urinalysis
4. The WS-HTN (Hypertension Worksheet) must be completed and uploaded as a supporting document within AERO.

# 3.15 HYPERTROPHIC CARDIOMYOPATHY

Last Revised: JAN 2016 Last Reviewed: FEB 2016

| | Applicant | Class I | | | Class II | Class III | Class IV |
|---|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | | |
| **CD** | X | X | X | X | X | X | |
| **NCD** | | | | | | | |
| **WR** | | X[1] | X[1] | X[1] | X[1] | X[1] | X[1] |
| **WNR** | X | | | | | | |
| **LBFS** | No | No | No | No | No | No | No |
| **EXCEPTIONS** | | | | | | | |
| **LIMDU/PEB** | Not required. | | | | | | |

1. Waivers are considered on a case-by-case on Designated Personnel.

**AEROMEDICAL CONCERNS**: These patients have significant risk of developing dysrhythmias. Angina may also be a complicating factor, and can be due either to superimposed coronary artery disease or ischemia from extrinsic compression of the penetrating branches of the major epicardial vessels. If the hypertrophic changes involve the LV outflow tract, a functional outflow tract obstruction can result, with the attendant reduction in cardiac output and exercise tolerance. There is an annual mortality of 3.4% without surgery. Surgery for obstructive myopathy (myotomy, myectomy) has a mortality of 5-10% and the long term gain is uncertain.

**WAIVER:** True primary hypertrophic cardiomyopathy (e.g., IHSS) is rare, and is not usually discovered until post-mortem. This condition is disqualifying for general duty, and no waivers are recommended either for accession to general duty or special duty. Waiver will only be considered in the very mildest of cases with no hemodynamic and minimal echocardiographic abnormalities and after the exclusion of underlying pathology. If the myopathy is secondary to other pathology, the underlying condition is the basis of disqualification. If the hypertrophic changes are documented to have resolved after treatment, a waiver recommendation may be considered. The majority of patients with idiopathic cardiomyopathy are disqualified from military flying. If a waiver is requested, refer to NAMI for evaluation.

**DIAGNOSIS/ICD-10 Code:**
**I42.1 Obstructive hypertrophic cardiomyopathy**

**SERVICE MEMBER MUST COMPLETE PRIOR TO INITIATING WAIVER**

1. Cardiology consultation is required, which should include:
   a. Echocardiography and cardiac catheterization if indicated
   b. Exclusion of underlying secondary causes for hypertrophic cardiomyopathy such as hypertension, pulmonary hypertension, valvular disorders, and hyperthyroidism

- Released from *cardiology* care with recommendation of return to full duty, world-wide deployable, and no restrictions **documented** on last clinical note (electronic or paper).
- If *cardiology* recommends restrictions, then documentation of physical and/or mental limitations and expected duration (permanent vs temporary).
- *Cardiology* recommendation for follow on care **documented** on last clinical note (electronic or paper).
- Email or provide administrative information to include command UIC, command address, personal address, phone number, designator, flight hours (total and last 6 months), primary aircraft flown, and years of service.

**AEROMEDICAL SUMMARY REQUIRED DOCUMENTATION BY FLIGHT SURGEON**

All associated documentation.

| **FOLLOW UP REQUIREMENTS** | **Annual Submission** |
|---|---|

Flight Surgeon comment regarding interval history and cardiac symptoms.
Specialist Evaluation: Cardiology, unless otherwise specified by Code NA05.

# 3.16 INTRAVENTRICULAR CONDUCTION ABNORMALITIES

Last Revised: JAN 2016 Last Reviewed: FEB 2016

| | Applicant | Class I | | | Class II | Class III | Class IV |
|---|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | | |
| **CD** | X | X | X | X | X | X | X |
| **NCD** | | | | | | | |
| **WR** | X[1] | X[1] | X[1] | X[1] | X[1] | X[1] | X[1] |
| **WNR** | | | | | | | |
| **LBFS** | No | No | No | No | No | No | No |
| **EXCEPTIONS** | | | | | | | |
| **LIMDU/PEB** | Not required. | | | | | | |

1. See Waiver comments below

**AEROMEDICAL CONCERNS**: Left bundle branch block (LBBB) is usually associated with coronary artery disease. Right bundle branch block (RBBB), especially as a new finding, may also be associated with heart disease, particularly atrial septal defects.

WAIVER:

1. **RBBB, LAHB, LPHB** are NCD if a non-invasive workup (Holter monitor, treadmill and echocardiogram) is normal.
2. **LBBB** is CD. No waiver recommended for non-designated personnel. A waiver is possible for designated aviators with LBBB in the documented absence of coronary artery disease and if asymptomatic.
3. Bifascicular blocks (LAHB or LPHB with RBBB) are CD, no waiver recommended.
4. **Trifascicular blocks** (1st degree AVB with RBBB and either LAHB or LPHB) are CD, no waivers.
5. **Incomplete RBBB** is NCD, with no workup required. Please refrain from using the term "Nonspecific intraventricular conduction delay".

**DIAGNOSIS/ICD-10 Code:**
**I45.10 Unspecified right bundle-branch block**
**I44.7 Left bundle branch block, unspecified**

**SERVICE MEMBER MUST COMPLETE PRIOR TO INITIATING WAIVER**

1. Complete cardiology evaluation is necessary for LBBB, RBBB, left posterior hemiblock and left anterior hemiblock (LAH) if this is a sudden change from previous ECGs.
2. If LAH is found:
   a. If younger than 35 years and no previous recordings are available, an echocardiogram should be performed to rule out congenital heart disease.
   b. If older than 35 with no previous ECGs available, a treadmill test as well as an echocardiogram should be performed.
   c. Pending these evaluations, persons with LAH may remain on flying status.
   d. If the studies are normal, no further evaluation is required.
   e. If LAH develops slowly over some years as a result of progressive left axis deviation, no further evaluation is required.
   f. A standard treadmill in any patient with any conduction defect may be unreliable. Stress echocardiography or thallium stress test is preferred.

- Released from *cardiology* care with recommendation of return to full duty, world-wide deployable, and no restrictions **documented** on last clinical note (electronic or paper).
- If *cardiology* recommends restrictions, then documentation of physical and/or mental limitations and expected duration (permanent vs temporary).
- *Cardiology* recommendation for follow on care **documented** on last clinical note (electronic or paper).

- Email or provide administrative information to include command UIC, command address, personal address, phone number, designator, flight hours (total and last 6 months), primary aircraft flown, and years of service.

| **AEROMEDICAL SUMMARY REQUIRED DOCUMENTATION BY FLIGHT SURGEON** |
|---|
| All associated documentation. |

| **FOLLOW UP REQUIREMENTS** | **Annual Submission** |
|---|---|

Flight Surgeon comment regarding interval history and cardiac symptoms.
Specialist Evaluation: Cardiology, unless otherwise specified by Code NA05.

# 3.17 LEFT VENTRICULAR HYPERTROPHY

Last Revised: JAN 2016 Last Reviewed: FEB 2016

| | Applicant | Class I | | | Class II | Class III | Class IV |
|---|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | | |
| **CD** | X | X | X | X | X | X | X |
| **NCD** | | | | | | | |
| **WR** | | X[1] | X[1] | X[1] | X[1] | X[1] | X[1] |
| **WNR** | X | | | | | | |
| **LBFS** | No | No | No | No | No | No | No |
| **EXCEPTIONS** | | | | | | | |
| **LIMDU/PEB** | Not required. | | | | | | |

1. For Designated Personnel, see Waiver comments below

**AEROMEDICAL CONCERNS**: An increase in left ventricular mass has been shown in several series to be associated with dysrhythmias, angina or sudden death. Idiopathic or secondary cardiomyopathies are discussed separately.

**WAIVER**: In our population, LVH based on ECG criteria is usually a false positive. Current criteria, based on the general population, are not valid for our young, athletic population. The electrocardiograph criteria established by the U.S. Air Force School of Aviation Medicine for diagnosis of LVH by voltage will be used to screen naval flight personnel.

LVH by Voltage:
For all aviators - A diagnosis of LVH by voltage is considered NCD provided the echocardiogram is normal. It is not required that the aviator be grounded pending echocardiogram interpretation.
USAFSAM LVH by voltage criteria:

1. S in V1 or V2 plus R in V5 or V6:
   >55mm if age 35 or younger
   >45mm if older than 35
2. No ST/T changes

True LVH:
Applicants - True LVH in applicants is CD and waivers are not recommended (WNR).
Designated Aviators - True LVH in designated aviators CD, with waiver recommended if the aviator is normotensive (with or without antihypertensive medication) and has a normal ejection fraction. Please submit the information required below with an Aeromedical Summary.

**DIAGNOSIS/ICD-10 Code:**
**I51.7 Cardiomegaly**

**SERVICE MEMBER MUST COMPLETE PRIOR TO INITIATING WAIVER**

1. Echocardiography
2. Internal Medicine or Cardiology evaluation to include exercise history, CAD risk factors.
3. Serial Blood Pressures

- Released from *cardiology or internal medicine* care with recommendation of return to full duty, world-wide deployable, and no restrictions **documented** on last clinical note (electronic or paper).
- If *cardiology or internal medicine* recommends restrictions, then documentation of physical and/or mental limitations and expected duration (permanent vs temporary).
- *Cardiology or internal medicine* recommendation for follow on care **documented** on last clinical note (electronic or paper).
- Email or provide administrative information to include command UIC, command address, personal address, phone number, designator, flight hours (total and last 6 months), primary aircraft flown, and years of service.

| AEROMEDICAL SUMMARY REQUIRED DOCUMENTATION BY FLIGHT SURGEON |
|---|
| All associated documentation. |

| FOLLOW UP REQUIREMENTS | Annual Submission |
|---|---|

Flight Surgeon comment regarding interval history, cardiac symptoms, and exercise tolerance.

1. EKG - comparison with previous EKG
2. Serial Blood Pressures
3. If there are any significant changes from initial evaluation, an echocardiogram should be obtained

## 3.18 PERICARDITIS

Last Revised: JAN 2016 Last Reviewed: FEB 2016

| | Applicant | Class I | | | Class II | Class III | Class IV |
|---|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | | |
| **CD** | X | X | X | X | X | X | X |
| **NCD** | | | | | | | |
| **WR** | X[1] | X[1] | X[1] | X[1] | X[1] | X[1] | X[1] |
| **WNR** | | | | | | | |
| **LBFS** | No | No | No | No | No | No | No |
| **EXCEPTIONS** | | | | | | | |
| **LIMDU/PEB** | Not required. | | | | | | |

1. Waivers are considered on a case-by-case

**AEROMEDICAL CONCERNS**: Pericardial effusion can lead to acute cardiovascular compromise secondary to cardiac tamponade. Less severe cases can produce pain and shortness of breath that can be distracting in flight.

**WAIVER:** The flier should be grounded during the acute illness. Idiopathic pericarditis can be considered for waiver after the acute episode resolves provided there has been no recurrence or sequelae. The disposition of cases secondary to underlying disease will depend on the disease concerned. Any pericardial effusions must be resolved by echocardiography before waiver recommendations will be made.

**DIAGNOSIS/ICD-10 Code:**
**I30.8 Other forms of acute pericarditis**

**SERVICE MEMBER MUST COMPLETE PRIOR TO INITIATING WAIVER**

1. Cardiology consultation is necessary to exclude connective tissue disorder, myocardial infarction, neoplasm or other disease processes. The workup should include:
   a. Echocardiography to rule out sequelae such as pericardial effusion or constrictive pericarditis.

- Released from *cardiology* care with recommendation of return to full duty, world-wide deployable, and no restrictions **documented** on last clinical note (electronic or paper).
- If *cardiology* recommends restrictions, then documentation of physical and/or mental limitations and expected duration (permanent vs temporary).
- *Cardiology* recommendation for follow on care **documented** on last clinical note (electronic or paper).
- Email or provide administrative information to include command UIC, command address, personal address, phone number, designator, flight hours (total and last 6 months), primary aircraft flown, and years of service.

**AEROMEDICAL SUMMARY REQUIRED DOCUMENTATION BY FLIGHT SURGEON**

All associated documentation.

| **FOLLOW UP REQUIREMENTS** | **Annual Submission** |
|---|---|

Flight Surgeon comment regarding interval history, cardiac symptoms, and exercise tolerance.
Specialist Evaluation: Cardiology, unless otherwise specified by Code NA05.

## 3.19 PRE-EXCITATION SYNDROMES

Last Revised: JAN 2016 Last Reviewed: FEB 2016

| | Applicant | Class I | | | Class II | Class III | Class IV |
|---|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | | |
| **CD** | X | X | X | X | X | X | X |
| **NCD** | | | | | | | |
| **WR** | X[1] | X[1] | X[1] | X[1] | X[1] | X[1] | X[1] |
| **WNR** | | | | | | | |
| **LBFS** | No | No | No | No | No | No | No |
| **EXCEPTIONS** | | | | | | | |
| **LIMDU/PEB** | Not required. | | | | | | |

1. See Waiver Requests comments below

**AEROMEDICAL CONCERNS**: Pre-excitation syndromes include Wolff Parkinson White (WPW) and Lown-Ganong-Lavine (LGL). WPW patterns with adverse symptoms and/or inducible to a dysrhythmia using electrophysiologic studies (EPS) are associated with increased risks of tachyarrhythmias, hemodynamic compromise (palpitations, lightheadedness, syncope), and sudden death. Ablation is recommended in symptomatic individuals and/or those with EPS-induced dysrhythmias.

Short PR with symptomatic palpitations and/or dysrhythmias, known as Lown-Ganong-Lavine (LGL), is associated with risks of tachyarrhythmias and hemodynamic compromise, and EPS is recommended.

Very short PR (< 0.1) without Delta wave, symptoms or dysrhythmia is associated with slightly elevated risks of dysrhythmia, and non-invasive studies are recommended for aviation personnel.

Short PR (≥ 0.1) without symptoms or dysrhythmias is not considered disqualifying (NCD) and requires no further evaluation. Individuals with short PR and no symptoms have the same risk of adverse cardiac events as the general population.

Pre-excitation syndromes are associated with other types of heart disease, such as hypertrophic cardiomyopathy or Ebstein's malformation. Uninvestigated and/or untreated pre-excitation syndromes are not compatible with flight safety or current care standards.

WAIVER REQUESTS and INFORMATION REQUIRED:

**Class I**: Applicants or Designated

1. Asymptomatic WPW pattern requires a cardiology evaluation, echocardiogram and EPS.
   a. WPW pattern alone with a normal echocardiogram and non-inducible EPS is considered disqualifying (CD), but a waiver is recommended (WR).
   b. If a dysrhythmia is induced by EPS and ablated, the patient must be retested with EPS immediately after the ablation during that same procedure to ensure dysrhythmias are no longer inducible.
      (1) Designated members are CD/WR and waivered to SG3 during the six-month post-ablation period. Waiver requests to SG1 or SG2 may be submitted six months post-ablation with documentation indicating they had no recurrence of dysrhythmias or symptoms.
      (2) Applicants are CD/WNR. Waivers are considered six months post-ablation, with documentation indicating no recurrence of dysrhythmias or symptoms.
2. WPW syndrome (WPW pattern with symptoms) or LGL (short PR with palpitations) are CD, and require a cardiology evaluation and echocardiogram. Ablation is required for waiver eligibility. Waiver recommendation is on a case-by-case basis, and local board of flight surgeons (LBFS) action is prohibited.

3. Very short PR (< 0.1) without Delta wave, symptoms or dysrhythmia requires a non-invasive cardiology evaluation (24 hour Holter, echocardiogram, stress test). If all tests are negative/normal, then the condition is not considered disqualifying (NCD). If any of the tests are positive/abnormal, then the condition is CD, requires a cardiology evaluation, and may require EPS and/or ablation. Waivers are considered on a case-by-case basis.
4. Short PR (≥ 0.1) without symptoms or dysrhythmia is NCD, and requires no further evaluation, treatment, or waiver.

**Class II/III/IV**: Applicant or Designated

1. Asymptomatic WPW pattern requires cardiology consultation, echocardiogram, 24-hour Holter monitor, and exercise stress testing.
   a. WPW pattern alone with normal studies is CD/WR.
   b. If cardiology studies determine EPS is indicated, and EPS does NOT cause inducible dysrhythmias, the individual is CD/WR.
   c. If cardiology studies determine that EPS is indicated and the EPS causes inducible dysrhythmias, then ablation is required. During ablation procedure, retesting is required to demonstrate that the dysrhythmia is non-inducible. The condition is CD/WR. Waiver requests are considered immediately; Class II, III and IV do not have a six-month post-ablation waiting period.
2. WPW syndrome (WPW pattern with symptoms) and LGL (short PR with palpitations) are both CD. Waiver requirements are the same as for Class I personnel with symptomatic dysrhythmias (See Class I Paragraph 2).
3. Very short PR (< 0.1) without Delta wave, symptoms or dysrhythmia requires a non-invasive cardiology evaluation (24 hour Holter, echocardiogram, stress test). If all tests are negative/normal, then the individual is NCD. If any of the tests are positive/abnormal, then the individual is CD, requires a cardiology evaluation, and may require EPS and/or ablation. Waivers are considered on a case-by-case basis.
4. Short PR (≥ 0.1) without symptoms or dysrhythmias is NCD, and requires no further evaluation, treatment, or waiver.

**DIAGNOSIS/ICD-10 Code:**
**I45.6 Pre-excitation syndrome**

| **SERVICE MEMBER MUST COMPLETE PRIOR TO INITIATING WAIVER** |
|---|

1. Cardiology consultation.

- Released from *cardiology* care with recommendation of return to full duty, world-wide deployable, and no restrictions **documented** on last clinical note (electronic or paper).
- If *cardiology* recommends restrictions, then documentation of physical and/or mental limitations and expected duration (permanent vs temporary).
- *Cardiology* recommendation for follow on care **documented** on last clinical note (electronic or paper).
- Email or provide administrative information to include command UIC, command address, personal address, phone number, designator, flight hours (total and last 6 months), primary aircraft flown, and years of service.

| **AEROMEDICAL SUMMARY REQUIRED DOCUMENTATION BY FLIGHT SURGEON** |
|---|

All associated documentation.

| **FOLLOW UP REQUIREMENTS** | **Annual Submission** |
|---|---|

Flight Surgeon comment regarding interval history, cardiac symptoms or dysrhthmias, and exercise tolerance.

1. An EKG will be completed and compared to prior studies. In some cases, a Holter monitor may be substituted.
2. If dysrhythmias or symptoms recur, personnel are NPQ and waivers are terminated.

## 3.20 SINUS BRADYCARDIA

Last Revised: JAN 2016 Last Reviewed: FEB 2016

| | Applicant | Class I | | | Class II | Class III | Class IV |
|---|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | | |
| **CD** | X[1] | X[1] | X[1] | X[1] | X[1] | X[1] | X[1] |
| **NCD** | | | | | | | |
| **WR** | | | | | | | |
| **WNR** | | | | | | | |
| **LBFS** | | | | | | | |
| **EXCEPTIONS** | | | | | | | |
| **LIMDU/PEB** | Not required. | | | | | | |

1. If the heart rate increases with exercise, the bradycardia is NCD, and no waiver is required.

**AEROMEDICAL CONCERNS**: Extreme sinus bradycardia may be a reflection of an underlying conduction system abnormality. There may be an inability to increase the heart rate in response to increased demand.
**WAIVER**: If the heart rate increases with exercise, the bradycardia is NCD, and no waiver is required.

**DIAGNOSIS/ICD-10 Code:**
**R94.31 Abnormal electrocardiogram**

**SERVICE MEMBER MUST COMPLETE PRIOR TO INITIATING WAIVER**

- Released from *cardiology* care with recommendation of return to full duty, world-wide deployable, and no restrictions **documented** on last clinical note (electronic or paper).
- If *cardiology* recommends restrictions, then documentation of physical and/or mental limitations and expected duration (permanent vs temporary).
- *Cardiology* recommendation for follow on care **documented** on last clinical note (electronic or paper).
- Email or provide administrative information to include command UIC, command address, personal address, phone number, designator, flight hours (total and last 6 months), primary aircraft flown, and years of service.

**AEROMEDICAL SUMMARY REQUIRED DOCUMENTATION BY FLIGHT SURGEON**

All associated documentation.

| **FOLLOW UP REQUIREMENTS** | **Annual Submission** |
|---|---|

Flight Surgeon comment regarding interval history.

1. An EKG with heart rate > 45

## 3.21 SINUS TACHYCARDIA

Last Revised: JAN 2016 Last Reviewed: FEB 2016

| | Applicant | Class I | | | Class II | Class III | Class IV |
|---|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | | |
| **CD** | X | X | X | X | X | X | X |
| **NCD** | | | | | | | |
| **WR** | | | | | | | |
| **WNR** | X | X | X | X | X | X | X |
| **LBFS** | No | No | No | No | No | No | No |
| **EXCEPTIONS** | | | | | | | |
| **LIMDU/PEB** | Not required. | | | | | | |

**AEROMEDICAL CONCERNS**: Sinus tachycardia may be a reflection of a significant metabolic abnormality. In candidates, consider anxiety as the root problem. Other causes include fever, hyperthyroidism, dehydration, anemia, hypoxia, pulmonary emboli, and pain.

**WAIVER:** The waiver recommendation will stem from the reason for the tachycardia. If the heart rate is persistently >100 bpm and no cause has been identified, both candidates and designated personnel are CD, no waiver.

**DIAGNOSIS/ICD-10 Code:**
**R00.0 Tachycardia, unspecified**

# 3.22 SUPRAVENTRICULAR TACHYCARDIA

Last Revised: JAN 2016 Last Reviewed: FEB 2016

| | Applicant | Class I | | | Class II | Class III | Class IV |
|---|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | | |
| **CD** | X | X | X | X | X | X | X |
| **NCD** | | | | | | | |
| **WR** | | X[1] | X[1] | X[1] | X[1] | X[1] | X[1] |
| **WNR** | X | | | | | | |
| **LBFS** | No | No | No | No | No | No | No |
| **EXCEPTIONS** | | | | | | | |
| **LIMDU/PEB** | Not required. | | | | | | |

1. For Designated Personnel, see Waiver comments below

**Note:** NAMI's definition of supraventricular tachycardia is 3 or more consecutive nonventricular ectopic beats at a heart rate of greater than 99 BPM. Excluded are atrial fibrillation/flutter and multifocal atrial tachycardia. Recurrent is defined as occurring more than once in any test or during any evaluation. Sustained tachycardia is defined as lasting more than 10 minutes.

**AEROMEDICAL CONCERNS**: The major concern in supraventricular tachycardia (SVT) is hemodynamic decompensation in flight leading to lightheadedness, dizziness, presyncope and loss of consciousness.

**WAIVER:** Only asymptomatic (with the exclusion of the sensation of palpitations as a symptom) cases will be considered for waiver as symptoms are an indication of hemodynamic compromise. **Service Group 1 waiver recommendations** can be considered for those with the following: episodes of single or recurrent, non-sustained SVT including those with coexisting mitral valve prolapse (MVP), left or right bundle branch block (LBBB or RBBB), mitral regurgitation (MR) and sarcoidosis; a single episode of sustained SVT including those with coexisting MVP, L/RBBB, MR or sarcoidosis. No evidence of CAD can be present if a waiver is requested. Disqualification is mandatory in cases of SVT with hemodynamic compromise, single sustained SVT with gradable CAD, recurrent, sustained SVT when the recurrence is at intervals <3 years and any SVT associated with a pre-excitation pattern on ECG. Waivers are not recommended for students or candidates. No waivers are recommended for Multifocal Atrial Tachycardia (MAT). Note: In the absence of P-waves, distinguishing between SVT with BBB vs. VT is difficult.

REMEMBER: SINCE THE MINIMUM TIME OF OBSERVATION FOR RECURRENCE IS GREATER THAN 60 DAYS, A GROUNDING PHYSICAL IS REQUIRED AT THE TIME OF DIAGNOSIS; A LOCAL BOARD OF FLIGHT SURGEONS IS NOT AUTHORIZED TO RETURN TO FLIGHT STATUS.

**DIAGNOSIS/ICD-10 Code:**
**I47.1 Supraventricular tachycardia**

**SERVICE MEMBER MUST COMPLETE PRIOR TO INITIATING WAIVER**

1. Cardiology consultation including:
   a. Echocardiogram
   b. Stress test
   c. Three 24-hour Holters during a 6 month grounding period
2. For cases of a single, asymptomatic, 3-10 beat run of SVT, only local evaluation is required. This should include:
   a. Thyroid function testing
   b. Echocardiogram
   c. Standard treadmill test
   d. Three 24-hour Holters at monthly intervals to identify cardiovascular risk factors

e. These studies will be forwarded to NAMI with the waiver request for review. If there is any abnormality, further cardiology evaluation will be required.

3. Note: If LBBB or RBBB is present, a standard treadmill EST is almost impossible to interpret. Preferred studies are stress echocardiogram, thallium stress test or Sestamibi

- Released from *cardiology* care with recommendation of return to full duty, world-wide deployable, and no restrictions **documented** on last clinical note (electronic or paper).
- If *cardiology* recommends restrictions, then documentation of physical and/or mental limitations and expected duration (permanent vs temporary).
- *Cardiology* recommendation for follow on care **documented** on last clinical note (electronic or paper).
- Email or provide administrative information to include command UIC, command address, personal address, phone number, designator, flight hours (total and last 6 months), primary aircraft flown, and years of service.

| **AEROMEDICAL SUMMARY REQUIRED DOCUMENTATION BY FLIGHT SURGEON** |
|---|

All associated documentation.

| **FOLLOW UP REQUIREMENTS** | **Annual Submission** |
|---|---|

Flight Surgeon comment regarding interval history, cardiac symptoms or dysrhythmias, and exercise tolerance.

1. An EKG will be completed and compared to prior studies.

# 3.23 VENOUS THROMBOEMBOLISM

Last Revised: MAY 2026 Last Reviewed: MAY 2026

| | Applicant | Class I | | | Class II | Class III | Class IV |
|---|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | | |
| **CD** | X | X | X | X | X | X | X |
| **NCD** | | | | | | | |
| **WR** | X[1] | X[1] | X[1] | X[1] | X[1] | X[1] | X[1] |
| **WNR** | | | | | | | |
| **LBFS** | No | No | No | No | No | No | No |
| **EXCEPTIONS** | | | | | | | |
| **LIMDU/PEB** | Not required. | | | | | | |

1. See waiver comments below

AEROMEDICAL CONCERNS: Venous thromboembolism (VTE) is the clinical term encompassing both pulmonary embolism (PE) and deep vein thrombosis (DVT). The primary aeromedical risks associated with a PE include acute chest pain, shortness of breath (dyspnea), hypoxia, cardiac arrhythmias, syncope, and the potential for sudden death. Approximately 70% of symptomatic patients present with dyspnea or tachypnea, chest pain and cough are also common symptoms. Dyspnea can manifest suddenly or can develop over days.

Proximal vein DVT in the lower extremities is the most common source of pulmonary embolism. While distal leg DVTs rarely embolize to the lungs, they may extend into the proximal veins if left untreated, thereby increasing the risk of a PE. Furthermore, the localized pain and swelling associated with DVT can be a significant distraction during flight operations, potentially compromising mission performance.

WAIVER: In cases of a first DVT/PE whether provoked or unprovoked, a waiver will not be considered until a minimum of three months after the event. Waivers will only be considered after the prescribed course of anticoagulation therapy (usually 3-6 months) has been completed, the member is asymptomatic, and off all anticoagulants.

Patients with a VTE provoked by major risk factors have a low recurrence rate of 1-3% per year and do not typically require extended anticoagulation. Conversely, unprovoked VTE carries a higher recurrence rate of approximately 10% in the first year and up to 30% over a ten-year period; consequently, current guidelines recommend extended anticoagulation for secondary prevention in these patients. For those with VTEs provoked by minor risk factors, the recurrence rate is estimated to be between 3-5% per year. It is within this specific intermediate-risk group that thrombophilia testing may offer clinical benefit to better estimate the risk of a recurrent VTE. Thrombophilia studies should be at the discretion of the specialist and should not be performed during the acute event or while on anticoagulants.

Patients should be current on any age-appropriate cancer screenings.

The development of Chronic Thromboembolic Pulmonary Hypertension (CTEPH), the need for continued anticoagulation, or surgical procedures such as application of the vena cava or insertion of filter devices is CD, no waiver. Superficial thrombophlebitis is NCD.

REMEMBER: SINCE THE MINIMUM TIME OF OBSERVATION FOR RECURRENCE IS GREATER THAN 60 DAYS, A GROUNDING PHYSICAL IS REQUIRED AT THE TIME OF DIAGNOSIS AND THEN A LOCAL BOARD OF FLIGHT SURGEONS IS NOT APPROPRIATE TO BE CONVENED.

**DIAGNOSIS/ICD-10 Code:**
**I82.62 Acute embolism and thrombosis of deep veins of upper extremity**
**I82.40 Acute embolism and thrombosis of unspecified deep veins of lower extremity**
**I26.99 Other pulmonary embolism without acute cor pulmonale**

**SERVICE MEMBER MUST COMPLETE PRIOR TO INITIATING WAIVER**

1. Internal medicine, family medicine, cardiology, or hematology consultation

- Released from *internal medicine, family medicine, cardiology, or hematology* care with recommendation of return to full duty, world-wide deployable, and no restrictions **documented** on last clinical note (electronic or paper).
- If *internal medicine, family medicine, cardiology, or hematology* recommends restrictions, then documentation of physical and/or mental limitations and expected duration (permanent vs temporary).
- *Internal medicine, family, medicine, cardiology, or hematology* recommendations for follow on care **documented** on last clinical note (electronic or paper).
- Email or provide administrative information to include command UIC, command address, personal address, phone number, designator, flight hours (total and last 6 months), primary aircraft flown, and years of service.

**AEROMEDICAL SUMMARY REQUIRED DOCUMENTATION BY FLIGHT SURGEON**

All associated documentation.

| | |
|---|---|
| **FOLLOW UP REQUIREMENTS** | **Routine Submission** |

Flight Surgeon comments regarding interval history

## 3.24 VENTRICULAR TACHYCARDIA

Last Revised: JAN 2016 Last Reviewed: FEB 2016

| | Applicant | Class I | | | Class II | Class III | Class IV |
|---|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | | |
| **CD** | X | X | X | X | X | X | X |
| **NCD** | | | | | | | |
| **WR** | | | | | | | |
| **WNR** | X | X | X | X | X | X | X |
| **LBFS** | No | No | No | No | No | No | No |
| **EXCEPTIONS** | | | | | | | |
| **LIMDU/PEB** | | | | | | | |

**Note:** NAMI's definition of ventricular tachycardia is 3 or more consecutive, ventricular, ectopic beats at a heart rate greater than 99 bpm. Recurrence is defined as occurring more than once in any Holter monitor or period of workup, or more than once in any subsequent evaluation.

**AEROMEDICAL CONCERNS**: Hemodynamic changes can result in a fall in blood pressure and a reduction in cerebral blood flow. The condition is often associated with underlying heart disease. There is also a risk of sudden death associated with the condition, usually from ventricular fibrillation.

**WAIVER:** Non-Designated and Designated Personnel: CD all DIF, no waiver for either sustained or non-sustained VT.

**DIAGNOSIS/ICD-10 Code:**
**I47.2 Ventricular tachycardia**

## 3.25 RAYNAUD'S PHENOMENON

Last Revised: JAN 2016 Last Reviewed: FEB 2016

| | Applicant | Class I | | | Class II | Class III | Class IV |
|---|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | | |
| **CD** | X | X | X | X | X | X | X |
| **NCD** | | | | | | | |
| **WR** | | X[1] | X[1] | X[1] | X[1] | X[1] | X[1] |
| **WNR** | X | | | | | | |
| **LBFS** | | No | No | No | No | No | No |
| **EXCEPTIONS** | | | | | | | |
| **LIMDU/PEB** | Not required. | | | | | | |

1. Waivers are considered on a case-by-case for Designated Personnel.

**AEROMEDICAL CONCERNS**: Raynaud's Phenomenon is an episodic, reversible spasm of the vasculature in the extremities. Typically the hands are primarily affected. During an episode skin changes that occur include:

1. Pallor-caused by lack of oxygenated blood
2. Cyanosis-caused by pooling of poorly oxygenated blood
3. Rubor-occurs as the vasospasm ends

During a severe episode the vascular changes and associated pain can affect hand usage in the cockpit.

**WAIVER:** Civilian applicants with Raynaud's Phenomenon are CD, no waiver, per the Manual of the Medical Department (MANMED). Designated aviators with primary Raynaud's Phenomenon will be considered for waiver. Underlying pathology must be excluded and symptoms must be manageable in the performance of flight duties. Designated aviators diagnosed with secondary Raynaud's Phenomenon are CD, waiver considered on a case-by-case basis.

**DIAGNOSIS/ICD-10 Code:**
**I73.00 Raynaud's syndrome without gangrene**

**SERVICE MEMBER MUST COMPLETE PRIOR TO INITIATING WAIVER**

1. Internal medicine or rheumatology consultation.
2. A flight surgeon's analysis of the aviator's ability to perform normal and emergency duties must be included with the waiver submission request.

- Released from *internal medicine or rheumatology* care with recommendation of return to full duty, world-wide deployable, and no restrictions **documented** on last clinical note (electronic or paper).
- If *internal medicine or rheumatology* recommends restrictions, then documentation of physical and/or mental limitations and expected duration (permanent vs temporary).
- *Internal medicine or rheumatology* recommendation for follow on care **documented** on last clinical note (electronic or paper).
- Email or provide administrative information to include command UIC, command address, personal address, phone number, designator, flight hours (total and last 6 months), primary aircraft flown, and years of service.

**AEROMEDICAL SUMMARY REQUIRED DOCUMENTATION BY FLIGHT SURGEON**

All associated documentation.

| **FOLLOW UP REQUIREMENTS** | **Annual Submission** |
|---|---|

Flight Surgeon comment regarding interval history.

# 3.26 PROLONGED QT INTERVAL AND LONG QT SYNDROME

Last Revised: JAN 2016 Last Reviewed: FEB 2016

New entry.

| | Applicant | Class I | | | Class II | Class III | Class IV |
|---|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | | |
| **CD** | X | X | X | X | X | X | X |
| **NCD** | | | | | | | |
| **WR** | | X[1] | X[1] | X[1] | X[1] | X[1] | X[1] |
| **WNR** | X | | | | | | |
| **LBFS** | No | No | No | No | No | No | No |
| **EXCEPTIONS** | | | | | | | |
| **LIMDU/PEB** | If required prior to waiver consideration | | | | | | |

1. For Designated Personnel, see waiver comments below.

**AEROMEDICAL CONCERNS**: Prolonged QT interval on ECG can result in syncope, arrhythmias such as ventricular tachycardia, and sudden cardiac death. The QT interval in a normal person can be prolonged by hypocalcemia, hypothyroidism, and medications. The congenital long QT syndrome (LQTS) may cause about 4000 deaths in the United States primarily in teenagers and young adults. Medications that can prolong the QT interval include anti-arrhythmics, antimicrobials (macrolides, fluoroquinolones, choloroquine), anti-psychotics, and anti-depressants (SSRI). An updated list was found at https://www.crediblemeds.org at the time of this revision.

The QT and QTc intervals measured by the ECG machine computer are frequently inaccurate. Any prolonged QT/QTc measured by the ECG computer should be manually measured and calculated using an on-line calculator. http://www.medcalc.com/qtc.html http://reference.medscape.com/calculator/qt-interval-correction-ekg

To manually measure the QT interval, use the tangent method by drawing a line tangent to the downslope of the T wave in Lead II. Measure the interval in msec from the beginning of the Q wave to the point where the tangent crosses the baseline.

If after manual measurement of QT, the QTc is greater than 439 msec, the prolonged QT interval is CD and the following policy and evaluation apply.

**WAIVER:**

1. Manual confirmed QTc <440 msec males (<460 msec females) - NCD
2. Manual confirmed QTc 440-499 msec males (460-499 msec females) - CD, Waiver considered on case-by-case basis. Submit the following information:
   a. Cardiology consultation
3. Manual confirmed QTc ≥500 msec males (≥500 msec females )- CD, Waiver unlikely.

**DIAGNOSIS/ICD-10 Code:**
**I45.81 Long QT syndrome**
**R94.31 Abnormal electrocardiogram (for prolonged QT interval)**

| **SERVICE MEMBER MUST COMPLETE PRIOR TO INITIATING WAIVER** |
|---|

1. Cardiology consultation.

- Released from *cardiology* care with recommendation of return to full duty, world-wide deployable, and no restrictions **documented** on last clinical note (electronic or paper).
- If *cardiology* recommends restrictions, then documentation of physical and/or mental limitations and expected duration (permanent vs temporary).
- *Cardiology* recommendation for follow on care **documented** on last clinical note (electronic or paper).
- Email or provide administrative information to include command UIC, command address, personal address, phone number, designator, flight hours (total and last 6 months), primary aircraft flown, and years of service.

| **AEROMEDICAL SUMMARY REQUIRED DOCUMENTATION BY FLIGHT SURGEON** |
|---|

All associated documentation.

| **FOLLOW UP REQUIREMENTS** | **Annual Submission** |
|---|---|

Flight Surgeon comment regarding interval history.

1. An EKG will be completed and compared to prior studies.

# 4.0 DERMATOLOGY

## 4.1 ACNE

Revised Dec 2023

AEROMEDICAL CONCERNS: The lesions on the face may interfere with mask seal and helmet wear. Those over the shoulders may cause discomfort when wearing safety restraints or parachute harnesses.

WAIVER: Normally, unrestricted waiver can be considered although severe cystic acne may dictate service group/aircraft limitation to avoid routine use of either helmet or mask.

INFORMATION REQUIRED:

1. Dermatology consultation to ensure appropriate treatment for type of acne.
2. Detailed full-body skin exam.
3. Details of current treatment.
4. Documentation of any side effects of medication, an eye exam two weeks after initiating Accutane, and the ability to wear flight gear and achieve mask seal (if applicable).

**TREATMENT:** Treatment with oral erythromycin, doxycycline, or tetracycline is NCD following a period of grounding to screen for side effects. Minocycline is not acceptable because of the risk of CNS side effects such as light-headedness, dizziness and vertigo.

For patients with cystic acne resistant to other treatments oral Isotretinoin (Accutane) may be the treatment of choice. Accutane is CD, but waivers will be considered on a case-by-case basis after a 14 day period of observation. Accutane use requires monthly follow up by prescribing physician and notification to Flight Surgeon of any side effects related to the medication. Additionally, patients require an eye exam two weeks (including slit lamp) after initiation of treatment to ensure that vision remains within service group standards. Accutane side effects include potential visual concerns with mucocutaneous effects of medication. Side effects that would require stopping the medication include: nose bleeding, skin cracking (lips, hands, etc.), rash, changes in mood, or musculoskeletal pain.

**DISCUSSION:** Antibiotics as described above, taken while avoiding large quantities of oral milk, alkali or iron, will produce good or excellent results in 90% of patients in 3 months. The incidence of dizziness in patients taking minocycline has reported to be as high as 17%, however the risk of side effects is dose related and is quoted as 5% in the dose required to control acne.

Isotretinoin counteracts the pathogenic factors that contribute to the development of acne vulgaris. It is a teratogenic drug that is associated with a range of mucocutaneous and extracutaneous adverse effects. However, for many patients it is the definitive treatment required for severe acne vulgaris. Side effects of isotretinoin are usually manageable, permitting continuation of therapy with close follow up.

**ICD-9 CODES:**
**706.1 Acne**
**706.17 Acne with any use of Accutane**

## 4.2 DERMATITIS

**AEROMEDICAL CONCERNS:** Depending on the location of lesions, there can be interference with the wearing of flight gear. The symptoms, particularly itching, can be distracting in flight. Patients with atopic dermatitis are more susceptible to contact dermatitis due to irritants found in a military environment.

**WAIVER:** Symptom severity and the requirement for therapy will determine the aeromedical disposition. Patients controlled on topical therapy over small areas and patients who are asymptomatic on stable doses of loratadine (Claritin) **OR** fexofenadine (Allegra) may be considered for waiver. An initial seven day grounding period is required for loratadine and fexofenadine to document no adverse effects. A one-time separate waiver submission is required for loratadine or fexofenadine.

**INFORMATION REQUIRED:**

1. Allergy/immunology consultation to rule out asthma or hay fever
2. Dermatology consult (when clinically indicated)
3. Detailed full-body skin exam
4. Details of current treatment
5. Documentation of the ability to wear flight gear and achieve mask seal (if applicable)

**TREATMENT:** Intermittent use of topical steroids over a limited area is compatible with waiver. The use of other medications besides loratadine or fexofenadine is CD, no waiver.

**DISCUSSION:** Atopic dermatitis affects 1-3% of the population, 20% of whom will have the onset delayed into adult life. Between 30-50% of patients will also exhibit allergic respiratory disease such as asthma or hay fever.

**ICD-9 CODES:**
**691 Atopic Dermatitis**
**692 Contact Dermatitis**
**708.0 Allergic Urticaria**

## 4.3 DERMATOPHYTOSIS OF THE NAIL

**AEROMEDICAL CONCERNS:** The disease process does not interfere with aviation duties and is only a cosmetic concern. Treatment is potentially toxic, expensive, has high relapse rates and often requires adjuvant therapy.
**WAIVER:** Not required for the disease. Treatment with terbinafine is NCD provided the following guidelines.

**INFORMATION REQUIRED:**

1. Documentation of baseline liver function tests.
2. Monthly liver function tests for duration of treatment.

**TREATMENT:** Terbinafine is the only approved medication for use in aviators. A three day grounding period is required when initiating therapy with terbinafine. Ketoconazole is not recommended for waiver. A positive culture is required prior to the initiation of treatment following the standard of care.

**DISCUSSION:** Clinically, microscopic diagnosis is sufficient to guide therapy in most cases. Susceptibility to onychomycosis appears to be genetically determined. Susceptible individuals have frequent recurrences and a less than optimal response to treatment.

**ICD-9 CODE:**
**110.1 Dermatophytosis of Nail**

## 4.4 PSORIASIS

**AEROMEDICAL CONCERNS:** The relapsing nature of the condition together with the requirement for therapy makes it difficult for the military aviator to satisfy operational responsibilities. Some cases are exacerbated by physically and emotionally strenuous work. Some of the forms of treatment have side effects incompatible with flying.

**WAIVER:** Waiver may be considered for mild cases, including those needing occasional topical steroids. More severe cases will be found NPQ, with no waiver recommended. A history of psoriasis is disqualifying for entry into aviation.

**INFORMATION REQUIRED:**

1. Dermatology consultation(must include treatment recommendations and response to therapy)

**TREATMENT:** Topical steroids in mild cases will control the condition in one third of cases within 2 weeks, even when the steroid is withdrawn. A second third will respond to continued applications of steroid 1-2 times weekly. The remainder of cases do not respond. Other topical applications such as tar products and dithranol are unacceptable in aviation. Anti-mitotic drugs such as methotrexate (side effects including ataxia, hallucinations) and retinoic acid (liver toxicity, dry mouth, sore lips, conjunctivitis) are also unacceptable within aviation. Phototherapy (PUVA) can help in 75% of cases, but the requirement for maintenance therapy interferes with operational requirements.

**DISCUSSION:** The condition has a peak onset in young adults, with 2% of the adult population from NW Europe affected. It is less common in sunny climates and in those with darker skins. Psoriasis is a fluctuating condition of spontaneous remissions and relapses; up to one third of cases go into remission each year. Up to 7% of cases have been reported to have psoriatic arthritis. Conversely, 4% of patients with inflammatory polyarthritis have psoriasis.

**ICD-9 CODE:**
**696.1 Psoriasis**

# 5.0 ENDOCRINOLOGY

## 5.1 DIABETES MELLITUS

Last Revised: March 2026 Last Reviewed: March 2026

| DM Type 1 | Applicant | Class 1 | | | Class 2 | Class 3 | Class 4 | Class 5 |
|---|---|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | | | |
| CD | x | x | x | x | x | x | x | x |
| NCD | | | | | | | | |
| WR | | | | | | | | |
| WNR | x | x | x | x | x | x | x | x |
| LBFS | | | | | | | | |
| EXCEPTIONS | | | | | | | | |
| LIMDU/PEB | Required for Diabetes Type 1 (NO waivers all DIF) | | | | | | | |

| DM Type 2 | Applicant | Class 1 | | | Class 2 | Class 3 | Class 4 | Class 5 |
|---|---|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | | | |
| CD | x | x | x | x | x | x | x | x |
| NCD | | | | | | | | |
| WR | | x | x | x | x | x | x | x |
| WNR | x | | | | | | | |
| LBFS | | | | | | | | |
| EXCEPTIONS | *DM 2 in sustained remission (A1C <6.5) due to *lifestyle changes only* are WR for all SG. | | | | | | | |
| LIMDU/PEB | Not required for Type 2 (may be requested by Code 53HN) | | | | | | | |

**AEROMEDICAL CONCERNS**: Alterations in blood glucose levels may result in neurologic and ophthalmologic conditions (neuropathy, headache, confusion, syncope, vision changes, etc.) causing both subtle and sudden incapacitation. Long-term complications of diabetes mellitus (DM) also include renal and cardiovascular disease, with older diabetics having similar risks of cardiovascular events as non-diabetics with established coronary artery disease. Deployment frequently decreases glycemic control secondary to uncontrolled diet, long work hours and environmental stressors.

***REMEMBER: IF THE ESTABLISHMENT OF THE DIAGNOSIS AND ACHIEVEMENT OF MAINTENANCE PHASE OF TREATMENT WILL TAKE GREATER THAN 60 DAYS, A GROUNDING PHYSICAL IS REQUIRED AT THE TIME OF DIAGNOSIS AND THEN A LOCAL BOARD OF FLIGHT SURGEONS IS NOT APPROPRIATE TO BE CONVENED.***

**ICD-9 Code/DIAGNOSIS**
**250.03 Diabetes Mellitus 1**
**250.02 Diabetes Mellitus 2**
**250.0d Diabetes Mellitus – Diet controlled**

***DIAGNOSIS/DEFINITIONS:***

***Diabetes Mellitus (DM):***

1) FBG ≥ 126 mg/dL OR
2) 2 hr PG on OGTT ≥ 200 mg/dL OR
3) Hgb A1C ≥ 6.5%.

Alternatively random BG ≥ 200 mg/dL + symptoms of hyperglycemia.

For 1-3, diagnosis should be confirmed by repeat testing unless results from 2 different tests are both diagnostic (e.g. FBG ≥126 with A1C ≥6.5). While least convenient/readily available, OGTT appears to be the most sensitive screening test.

**SERVICE MEMBER MUST COMPLETE PRIOR TO INITIATING ALL WAIVERS**

- Released from *Family medicine, Internal Medicine, or Endocrinology* care with recommendation of return to flight status and no restrictions **documented** on last clinical note (electronic or paper).
- Completed *Diabetic Nurse Education and Nutrition consultation* and provide end of care summary- Completed *Ophthalmology/Optometry* consultation with dilated diabetic eye exam
- Consultant's *recommendation for follow on care* **documented** on last clinical note (electronic or paper).
- Provide administrative information to FS/AME to include command UIC, command address, personal address, phone number, designator, flight hours (total and last 6 months), primary aircraft flown, and years of service.

**STANDARDS & REQUIREMENTS TO BE MET PRIOR TO SCHEDULING WAIVER EXAM WITH FLIGHT SURGEON**

- **PHYSICAL STANDARDS**: BP <140/90, accurate height/weight for baseline BMI
- **LABORATORY LEVELS**: HgbA1C (required x 2 at least 3 months apart). For DM2 on medication: <7%. For DM2 with lifestyle changes only: <6.5%.
Avg Fasting blood glucose (assessed 4x/year at a minimum) < 120; Improving Lipid profile with a goal LDL of <100; TSH (normal), UA (normal)
- **SPECIAL TEST STANDARDS/FINDINGS/LEVELS**: For DM2 only. Markers to distinguish type 1 from type 2 DM (pancreatic autoantibodies (e.g. islet-cell antibodies [ICA] or glutamic acid decarboxylase [GAD65]), insulin and c-peptide levels) *if indicated*
- **MEDICATIONS**: On stable dose of medication (if required) for 30 days.

**NOTE**: Class I (SG1 and SG2): *Metformin* **only** approved diabetic medication. Class I (SG3 ONLY), Class II - IV: Additional medications considered on case-by-case basis (FS to discuss with NAMI), waiver consideration for DPP4, GLP-1, and SGLT-2. Insulin and Sulfonylurea(s) will not be considered for waivers.
**Class IV**: UAS Group 3-5, only those with duties involving actual control and identified as having a safety-of-flight role require a Class IV flight physical with submission to NAMI as required.
**Class V**: CD/WR as above; waiver authority rests with the squadron's commanding officer. NAMI submission not required.
Member should be asymptomatic (if any symptoms were present) and laboratory data as outlined above should be within parameters for at least 3-6 months prior to submitting a waiver request

**AEROMEDICAL SUMMARY REQUIRED DOCUMENTATION BY FLIGHT SURGEON**

Diagnosis:
How Condition Was Diagnosed/Treated:
Past Medical History: No evidence of hypoglycemia; no Emergency Room visits for DM or associated complications in the prior 6 months. Evaluate for end-organ complications impacting flight safety (i.e., retinopathy, nephropathy, or neuropathy).
Social And Family History: SH: Include comment on diet and physical activity, FH: Attention to endocrine diseases, malignancy, and cardiovascular disease
Military/Occupational History: Include most recent deployment
Physical Exam: Vitals, Neurologic exam (includes microfilament assessment for peripheral

neuropathy), Eye exam, Skin, Cardiac, Waist circumference (measured at iliac crest)
Labs and X-ray Data: FBG, HgbA1C, Complete Metabolic Panel, Lipid Profile (goal LDL <100), TSH, UA, Urine microalbumin: urine creatinine ratio (goal <300)
Medications: Previous (prior 6 months) and current medications/dosages
Consults: Document review and completion of all required consultations.

**FOLLOW-UP REQUIREMENTS (UNLESS STATED OTHERWISE IN WAIVER LETTER)**

**Type 2 Diabetes Mellitus**

1. Annual Submission: Annual Physical - FS documents level of control and compliance, as well as BMI and waist circumference compared to baseline (generally WNR if current BMI >baseline or noncompliance). No evidence of hypoglycemia; no Emergency Room visits for DM or associated complications in the prior 12 months.
2. Specialist Evaluation: Minimum of annual Endocrinology, Internal Medicine, or Family Medicine evaluation in addition to annual dilated diabetic eye exam
3. LABS: HgbA1c (DM2 on medication: <7%, Lifestyle changes only <6.5%), FBG avg <120 (assessed 4x/year at a minimum), Lipids (DM2: goal LDL <100); FBG, Complete Metabolic Panel, Lipid Profile (goal LDL <100), TSH, UA, Urine microalbumin: urine creatinine ratio (goal <300)
4. Medications: Report any medication changes or dosage adjustments

**WORKUP/DISPOSITION:**

DM - Confirm Diagnosis of Type 2/exclude Type 1 DM (take clinical picture into account, some cases require specialized testing). Ensure above waiver requirements are met.

**Applicants (all flying classes):** HgbA1C <5.7% - CD/WR/annual submission as above; HgbA1C >5.7%- CD, WNR

**Designated (all flying classes):** CD/WR/all flying class/SG, MINIMUM of annual assessment for DM submission includes FBG and HgbA1C. Specific recommendations for annual submission will be detailed in BUMED/NAMI waiver letter.

**References:**


[1] Considerations for Deployment of Service Members with Diabetes. Shwayhat and Gaydos. Federal Practioner. 2013

[2] DoDINST 6130.03 (2011)

[3] Diagnosis and Classification of Diabetes Mellitus. American Diabetes Association Position Statement. Diabetes Care. 2011 Jan; 34 Suppl 1:S1-2

[4] Haffner SM et al. N Engl J Med. 1998;339(4):229.

## 5.2 GOUT

Last Revised: April 2014 Last Reviewed: July 2014

Changes include clarification on medication use, removal of temporary SG3 restriction for first 3 months, and increased initial required workup.

| | Applicant | Class 1 | | | Class 2 | Class 3 |
|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | |
| CD | x | x | x | x | x | x |
| NCD | | | | | | |
| WR | | x | x | x | x | x |
| WNR | x | | | | | |
| LBFS | | | | x | x | x |
| EXCEPTIONS | | | | | | |
| LIMDU/PEB | Not required | | | | | |

**AEROMEDICAL CONCERNS**: Gout may present as an acute, severely painful arthritis without warning. Untreated, chronic arthritis may develop leading to pain, joint deformity and decreased function. It is often associated with other disqualifying conditions such as atherosclerosis/coronary artery disease, diabetes, hypertension, and renal disease, to include renal stones.

***REMEMBER: IF THE ESTABLISHMENT OF THE DIAGNOSIS AND ACHIEVEMENT OF MAINTENANCE PHASE OF TREATMENT WILL TAKE GREATER THAN 60 DAYS, A GROUNDING PHYSICAL IS REQUIRED AT THE TIME OF DIAGNOSIS AND THEN A LOCAL BOARD OF FLIGHT SURGEONS IS NOT APPROPRIATE TO BE CONVENED.***

**ICD-9 Code/DIAGNOSIS**
**274.9 Gout**

**SERVICE MEMBER MUST COMPLETE PRIOR TO INITIATING WAIVER**

- For complicated or *recurrent* gout flares, patient must be evaluated and released from Rheumatologist or Internist care with recommendations for return to flight status with no restrictions as well as plan for follow on care **documented** on last clinical note (electronic or paper).
- Email or provide administrative information to include command UIC, command address, personal address, phone number, designator, flight hours (total and last 6 months), primary aircraft flown, and years of service.

**STANDARDS & REQUIREMENTS TO BE MET PRIOR TO SCHEDULING WAIVER EXAM WITH FLIGHT SURGEON**

- **CURRENT PHYSICAL LIMITATIONS**: None
- **LABORATORY LEVELS**:
  1. Serum Uric Acid. If obtained during initial symptoms flare, repeat 2-4 weeks after resolution. If xanthine oxidase inhibitors are prescribed, include level on therapy
  2. Basic Metabolic Panel/Chem 7. Patients with impaired renal function require commentary and further evaluation.
  3. Urinalysis. Patients with acidic urine (pH <5.5), proteinuria or microscopic hematuria require commentary and further evaluation (see separate ARWG topics).
  4. Fasting blood glucose or Hemoglobin A1C
  5. Fasting lipid profile (within last year)
  6. CBC with differential and Liver associated enzymes (required if taking allopurinol)

- **RADIOLOGY FINDINGS**:
    1. KUB to evaluate for renal stones. Any calcifications/abnormalities consistent with stones on KUB or patients with gout and microscopic hematuria require a CT (renal stone protocol). Confirmed stones requires full workup and separate waiver.
    2. Radiographs of affected joints (as clinically indicated)
- **SPECIAL TEST STANDARDS**: Results from joint aspiration (if obtained)
- **MEDICATIONS**: Medications considered for waiver include:

Allopurinol is preferred first line treatment for aviators requiring uric acid lowering. Alternatively febuxastat is considered on a case-by-case basis in situations which require uric acid lowering therapy but allopurinol is contraindicated or not tolerated.

NSAIDS (specifically ibuprofen, naproxen) are also waiverable for rare gout attacks or for prophylaxis while titrating uric acid lowering therapy. Indomethacin and systemic steroid (e.g. prednisone) use should only be under the supervision of the flight surgeon and requires grounding during and for 2 weeks after medication use. "As needed" prescriptions without evaluations and chronic indomethacin use will not be waived. Oral or systemic corticosteroids should be reserved for polyarticular joint involvement or impaired renal function and generally should be avoided in aviation personnel. If needed, short (less than 2 weeks) treatment generally results in low risk of adrenal suppression and stim testing afterwards is not routinely required. Recurrent steroid use is not authorized. Cox-2 inhibitors (e.g. Celecoxib) are not preferred for this indication and unlikely to be approved.

Probenecid use is generally not used but will be considered for waiver when properly prescribed by a rheumatologist.

Although low (<1.2mg) dose colchicine use is generally well tolerated and is useful for gout prophylaxis while titrating uric acid lowering therapy, currently it requires grounding and is not authorized for any DIF at this time. Waivers considered once discontinued.

**AEROMEDICAL SUMMARY REQUIRED DOCUMENTATION BY FLIGHT SURGEON**

Diagnosis:
Clinical Presentation:
Past Medical History/Prior Waivers:
Social And Family History: SH: Include comment on diet, EtOH and physical activity FH: Attention to endocrine disease, renal disease including stones, and cardiovascular disease
Military/Occupational History: Assess risk for lead exposure
Physical Exam: Vitals (attention to BP), Skin (rash, tophi), MSK/Joint (tophi, pain, ROM), Cardiac, Waist circumference (measured at iliac crest)
Labs And X-ray Data: comment on abnormal findings
Consults:
Medications: Review medications for potentially gout exacerbating medications. Comment on indications for uric acid lowering therapy.
Recommendation:

**FOLLOW-UP REQUIREMENTS**

Submission: Annual Physical: FS documents level of control and compliance with lifestyle changes/medications, including frequency of symptoms, in last year and total number of flares since diagnosis.
Specialist Evaluation: Generally not required if low frequency of attacks (<2/year)
LABS: Serum uric acid, Basic Metabolic Panel/Chem 7. Consider CBC and Serum transaminases if on uric acid lowering medications.
Medications: Report any medication used in last year, changes or dosage adjustments.

## APPENDICES

### COMORBID CONDITIONS:

Nephrolithiasis occurs with a much higher frequency in patients with a history of gout compared to the general population and increases in risk with serum uric acid levels. In healthy patients without a history of gout, average annual incidence of gout is 0.5 % in persons with a uric acid level between 7 and 8.9 mg/dL and 4-5%/year in those with a level of 9 mg/dL or greater. Flight surgeons should consider several comorbid conditions when first evaluating a patient with gout. In addition to screening for aeromedically disqualifying conditions such as stones, hypertension, and metabolic syndrome, assessment for chronic kidney disease, dyslipidemia and excessive alcohol intake represents an important opportunity for change.

### TREATMENT

Lifestyle modifications, to include limited dietary purine intake, should be suggested for all patients. Indications for uric acid lowering pharmacotherapy include established diagnosis of gouty arthritis with tophus or tophi on clinical exam or imaging and frequent attacks (≥2/year). Therapy should also be considered in patients with CKD stage 2 or worse or past urolithiasis, though this is based on expert opinion only. Although not routinely done until after a flare resolves, allopurinol can be started during an acute gout flare if concurrently taking anti-inflammatory medication. Patients already on allopurinol should not discontinue the medication during an acute gout flare. Typical starting dose is 50-100mg daily. Allopurinol should be titrated up in increments of 50-100mg every 2-5 weeks to achieve a target serum uric acid concentration <6 mg/dl. Note: 50% of gout patients will require an allopurinol dose of greater than 300mg to reach the serum uric acid goal of less than 6. Temporary prophylaxis with low dose NSAIDS (or colchicine while grounded) can be used to prevent precipitation of gout flare while titrating allopurinol doses. The estimated incidence of allopurinol hypersensitivity syndrome is approximately 1:1,000 in the US. Patients with Asian ethnic backgrounds may have higher risk.

References:


[1] Campion EW, Glynn RJ, DeLabry LO. Asymptomatic hyperuricemia. Risks and consequences in the Normative Aging Study. Am J Med. 1987;82:421–6.

[2] Khanna D et al. 2012 American College of Rheumatology guidelines for management of gout. Part 1: systematic nonpharmacologic and pharmacologic therapeutic approaches to hyperuricemia. Arthritis Care Res (Hoboken). 2012 Oct;64(10):1431-46.

[3] Khanna D et al. 2012 American College of Rheumatology guidelines for management of gout. Part 2: therapy and anti-inflammatory prophylaxis of acute gouty arthritis. Arthritis Care Res (Hoboken). 2012 Oct;64(10):1447-61.

[4] Kramer HJ, Choi HK, Atkinson K, Stampfer M, Curhan GC. The association between gout and nephrolithiasis in men: The Health Professionals' Follow-Up Study. Kidney Int 2003;64:1022-6.

[5] Liu D, et al. A practical guide to the monitoring and management of the complications of systemic corticosteroid therapy. Allergy Asthma Clin Immunol. 2013 Aug 15;9(1):30.

[6] Neogi T. Clinical practice: gout. N Engl J Med 2011;364:443–52.

[7] Pak, CYC: Etiology and treatment of urolithiasis. Am J Kidney Dis 1991 18: 624–637

## 5.3 HYPERTHYROIDISM

Last Revised: April 2014 Last Reviewed: July 2014

Changes: Acceptable treatments for Naval aviation personnel are highlighted/clarified. Guidance on low TSH with normal T4/T3 provided.

| | Applicant | Class 1 | | | Class 2 | Class 3 |
|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | |
| CD | x | x | x | x | x | x |
| NCD | | | | | | |
| WR | x* | x | x | x | x | x |
| WNR | | | | | | |
| LBFS | | | | | | |
| EXCEPTIONS | *Applicants must be euthyroid for 12 months prior to application and have no evidence of ophthalmopathy.<br>**NOTE**: Treatment of Grave's with thionamides without radioactive iodine ablation/thyroidectomy is WNR all DIF. | | | | | |
| LIMDU/PEB | Required if service member elects treatment with thionamide medications. | | | | | |

**AEROMEDICAL CONCERNS**: Cardiac manifestations (palpitations, arrhythmias) may cause sudden incapacitation. Fatigue is a common manifestation, and neurocognitive effects such as impaired attention and memory, and psychiatric symptoms, such as irritability and anxiety, may result in subtle incapacitation. Patients with thyroid ophthalmopathy may have difficulty with eye movements and corneal damage or optic neuropathy can also occur.

***REMEMBER: IF THE ESTABLISHMENT OF THE DIAGNOSIS AND ACHIEVEMENT OF MAINTENANCE PHASE OF TREATMENT WILL TAKE GREATER THAN 60 DAYS, A GROUNDING PHYSICAL IS REQUIRED AT THE TIME OF DIAGNOSIS AND THEN A LOCAL BOARD OF FLIGHT SURGEONS IS NOT APPROPRIATE TO BE CONVENED.***

**ICD-9 Code/DIAGNOSIS**
**242.03 Hyperthyroidism**
**241.0 Thyroid Nodule**
**241.1 Multinodular Goiter, non-toxic**
**240.9 Goiter, unspecified**
**242.9 Thyrotoxicosis without mention of goiter or other cause**

**SERVICE MEMBER MUST OBTAIN/COMPLETE PRIOR TO INITIATING WAIVER**

- *Endocrinologist* end of care summary documenting complete resolution of symptoms and stable euthyroid status, with recommendation of return to flight status with no restriction. If *Endocrinologist* recommends restrictions, note must include documentation of physical and/or mental limitations and expected duration (permanent vs temporary).
- *Endocrinologist* recommendation for follow on care **documented** on last clinical note.
- Surgery/Procedure Note (if performed).
- Copies of PEB (if indicated, e.g. service member undergoes treatment with thionamides).
- Provide administrative information to Flight Surgeon that includes command UIC, command address, personal address, phone number, designator, flight hours (total and last 6 months), primary aircraft flown, and years of service.

**STANDARDS & REQUIREMENTS TO BE MET PRIOR TO SCHEDULING WAIVER SUBMISSION EXAM WITH FLIGHT SURGEON**

- **LABORATORY LEVELS**: Two sequential sets of serum TSH and free T4 values in normal range (drawn 4-6 weeks apart)
- **SPECIAL TEST STANDARDS**: RAIU (radioactive iodine uptake) study required for all overt hyperthyroidism cases unless contraindicated (e.g. pregnancy, nursing). TSH receptor antibody testing may be substituted if RAIU unable to be obtained. Ophthalmology/optometry consultation is required in Graves' Disease to exclude ophthalmopathy.
- **MEDICATIONS**: On *stable* dose of levothyroxine (if required) for minimum of 60 days. NOTE: Levothyroxine is only approved form of replacement medication (if required). Current use of thionamide drugs (propylthiouracil or methimazole) is disqualifying for general duty and will not be granted waivers for aviation duty.

**AEROMEDICAL SUMMARY REQUIRED DOCUMENTATION BY FLIGHT SURGEON**

Diagnosis:
How Condition Presented/Was Diagnosed/Treated:
Past Medical History:
Social And Family History:
Aviation History:
Physical Exam: Attention to Neurologic, Ocular, Neck, Cardiac
Labs And X-ray Data: ECG, CBC, Complete Metabolic Panel, RAIU (radioactive iodine uptake) result(required in cases of biochemical hyperthyroidism), thyroid antibody results (if obtained), thyroid ultrasound report (if obtained), pathology report (if obtained)
Medications: Previous (prior 6 months) and current medications/dosages.
Consults: Endocrinology notes required.

**FOLLOW-UP REQUIREMENTS**

Submission: Annual Physical documenting continued clinical and chemical euthyroidism
Specialist Evaluation: Minimum of annual Endocrinology or Internal Medicine evaluation (submit all notes from past year)
LABS: TSH, fT4 (obtained annually at a minimum)
Medications: Report any medication changes or dosage adjustments

**APPENDICES**

**TREATMENT:** There are three primary forms of therapy: medical treatment with thionamides; thyroid ablation with radioactive iodine; and surgery (thyroidectomy). The best treatment strategy will depend on the etiology of the hyperthyroidism and may vary from patient to patient. While patients have the right to choose their treatment, patients should NOT be considered world-wide deployable while taking thionamide medications and a medical board is indicated. Thionamides may cause side effects incompatible with aviation duties to include vertigo, drowsiness, liver dysfunction as well as agranulocytosis and requires close laboratory monitoring and clinical follow-up which may not be possible in an operational setting. Relapse rates once discontinued are high. For Graves' disease, only surgery or ablation is compatible with return to duties involving flying. While complete remission with radioactive iodine ablation is high, most will go on to require long-term thyroid hormone supplementation. A small number of cases will also require eye surgery.

**CLINICAL PRESENTATION/DIAGNOSIS:** Although hyperthyroidism can affect nearly all organ systems and lead to a variety of manifestations, neuropsychiatric and cardiovascular effects are the most relevant to the aeromedical physician. Behavior and personality changes

may include subtle irritability and restlessness or overt emotional lability, anxiety, or psychosis. Cardiovascular symptoms are often related to the potentiation of the sympathetic nervous system and include tachycardia, dysrhythmias, and systolic hypertension with widened pulse pressure. Weight loss and energy supplements may contain substances that interfere with normal thyroid function and in some cases contain thyroid hormone. Smoking cessation increases probability of remission. Smoking is a risk factor for Graves' ophthalmopathy.

Biochemical hyperthyroidism is defined as a low/suppressed TSH with either an elevated freeT4 or T3. For patients with biochemical hyperthyroidism, workup should include 24-hour radioiodine thyroid uptake study to determine the etiology (Graves', thyroiditis, nodule, etc.). This study and antibody testing is best left to endocrinologists and should not be routinely ordered by the flight surgeon. Persistent (>6-12 weeks) low TSH with normal freeT4 and T3 (subclinical hyperthyroidism) is also CD and requires a waiver with close follow-up. The need for further testing and treatment in such instances should be determined on a case-by-case basis. *Contact NAMI Internal Medicine for guidance* if needed.

## 5.4 HYPOTHYROIDISM

Last Revised: April 2014 Last Reviewed: July 2014

Includes clarifications on Subclinical Hypothyroidism and guidance on elevated TSH with normal T4/T3 provided.

| | Applicant | Class 1 | | | Class 2 | Class 3 |
|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | |
| CD | x | x | x | x | x | x |
| NCD | | | | | | |
| WR | x | x | x | x | x | x |
| WNR | | | | | | |
| LBFS | | | | | | |
| EXCEPTIONS | | | | | | |
| LIMDU/PEB | | | | | | |

**AEROMEDICAL CONCERNS**: The insidious onset of many signs and symptoms of hypothyroidism reduces the aviator's ability to recognize abnormalities. It can foster complacency or an unwillingness to seek medical advice until performance is significantly degraded. Fatigue, lethargy, muscle weakness, decreased cognitive function, motor weakness, delayed reflexes, bradycardia, first degree heart block, cardiomegaly, pericardial effusion, depression, sensorineural hearing loss and anemia are all complications relevant to aviation. The flight surgeon must know and observe their aviators for the subtle onset of any of these signs and symptoms.

***REMEMBER: IF THE ESTABLISHMENT OF THE DIAGNOSIS AND ACHIEVEMENT OF MAINTENANCE PHASE OF TREATMENT WILL TAKE GREATER THAN 60 DAYS, A GROUNDING PHYSICAL IS REQUIRED AT THE TIME OF DIAGNOSIS AND THEN A LOCAL BOARD OF FLIGHT SURGEONS IS NOT APPROPRIATE TO BE CONVENED.***

**ICD-9 Code/DIAGNOSIS**
**244.8 Acquired hypothyroidism (iatrogenic)**
**245.0 Acute thyroiditis**
**245.1 Subacute thyroiditis**
**245.2 Hashimoto's thyroiditis**
**245.9 Thyroiditis, unspecified**

**SERVICE MEMBER MUST OBTAIN/COMPLETE PRIOR TO INITIATING WAIVER**

- *Endocrinologist/Internist/Family Medicine specialist* end of care summary documenting complete resolution of symptoms (if applicable) and stable euthyroid status, with recommendation of return to flight status with no restrictions **documented**. If *Endo/IM/FP* recommends restrictions, note must include documentation of physical and/or mental limitations and expected duration (permanent vs temporary).
- *Endo/IM/FP* recommendation/plan for follow on care **documented** on last clinical note.
- Surgery/Procedure Note (if performed).
- Provide administrative information to Flight Surgeon that includes command UIC, command address, personal address, phone number, designator, flight hours (total and last 6 months), primary aircraft flown, and years of service.

**STANDARDS & REQUIREMENTS TO BE MET PRIOR TO SCHEDULING WAIVER SUBMISSION APPOINTMENT WITH FLIGHT SURGEON**

- **LABORATORY LEVELS**: For biochemically hypothyroid patients and those on thyroid hormone replacement therapy, two sequential sets of serum TSH and free T4 values in normal range (drawn 4-6 weeks apart) are required prior to waiver consideration. For asymptomatic patients not on hormone replacement therapy who have normal freeT4and TSH greater than the upper limit of normal but less than 10 mIU/L, waiver will be considered after 4-6 weeks showing stable TSH/freeT4 levels. Thyroglobulin(TG) and/or Thyroid peroxidase (TPO) antibody testing may help guide decisions to start levothyroxine but should generally be reserved for patients with abnormal TSH in whom replacement medication may not be used (i.e. subclinical hypothyroidism)
- **MEDICATIONS**: On ***stable*** dose of levothyroxine (if required) for minimum of 60 days. NOTE: Levothyroxine is ONLY approved form of replacement medication (if required) for Navy Aviation.

**AEROMEDICAL SUMMARY REQUIRED DOCUMENTATION BY FLIGHT SURGEON**

Diagnosis:
How Condition Presented/Was Diagnosed/Treated:
Past Medical History:
Social And Family History:
Aviation History:
Physical Exam: Attention to Vitals, Skin/Hair, Neurologic, Ocular, Neck, Cardiac
Labs And X-ray Data: ECG, CBC, Complete Metabolic Panel required. Thyroid ultrasound report NOT routinely required, but include if obtained.
Medications: Previous (prior 6 months) and current medications/dosages.
Consults: Endocrinology, Internal Medicine, or Family Medicine consultation required.

**FOLLOW-UP REQUIREMENTS**

Submission: Annual Physical documenting continued clinical and chemical euthyroidism
Specialist Evaluation: Minimum of annual Endocrinology Internal Medicine, or Family Medicine evaluation for first 2 years after diagnosis. After 2 years, uncomplicated patients with stable TSH and levothyroxine dosage may be followed by FS only.
LABS: TSH, freeT4 (obtained annually at a minimum)
Medications: Report any medication changes or dosage adjustments

**APPENDICES**

**DIAGNOSIS/DEFINITIONS:**

***Overt Primary Hypothyroidism:*** Elevated TSH (usually >10 mIU/L) with subnormal freeT4.
***Central Hypothyroidism:*** Low, "inappropriately normal" or minimally elevated TSH with subnormal freeT4.
***Subclinical Hypothyroidism:*** TSH >upper reference limit (usually 4-10 mIU/L) with normal freeT4, stable over several weeks (minimum 4-6).
NOTE: This is a biochemical diagnosis: TSH must be abnormal. Aviators with symptoms of hypothyroidism (fatigue, weight gain, constipation, hair/skin changes, etc.) who are *definitively* biochemically normal (TSH<2.5mIU/L, normal fT4) do NOT have subclinical hypothyroidism and further thyroid testing (e.g. ultrasound, antibody testing) is generally unnecessary and may be harmful. Other etiologies of their symptoms should considered (iron deficiency, sleep disorders, adrenal insufficiency, emotional stress, etc.). Antibody testing/imaging may be helpful in borderline elevated TSH values, with treatment often started in patients with positive antibodies and elevated TSH due to higher risk of progression. *Initiating treatment in biochemically normal*

*aviation personnel with thyroid hormone replacement is not authorized and will not be considered for waiver.*

**MANAGEMENT/DISPOSITION:**
- ***Elevated TSH + low freeT4, with or without symptoms***: Consultation, further evaluation and treatment generally indicated, grounding for all DIF until asymptomatic and biochemically normal.
- ***Elevated TSH (>10 mIU/L) + normal freeT4, with or without symptoms***: Consultation, further evaluation and treatment generally indicated, grounding for all DIF until asymptomatic biochemically normal.
- ***Elevated TSH(4.2-10 mIU/L) + normal freeT4 + symptoms c/w hypothyroidism***: Consultation, further evaluation and treatment may be indicated, grounding for all DIF until asymptomatic.
- ***Elevated TSH(4.2-10 mIU/L) + normal fT4 + NO symptoms c/w hypothyroidism***: Further evaluation and treatment may be indicated, not grounding (LBFS authorized) while undergoing evaluation. Initial close monitoring (TSH/fT4 every 3-6 months) needed with AMS and submission for waiver required for final disposition by NAMI.
- ***Transient (<4-6 weeks)***: TSH elevation with normal freeT4 and no symptoms that then returns to normal is NCD and does not require waiver submission.

## 5.5 MALE HYPOGONADISM

Last Revised: April 2014 Last Reviewed: July 2014

Includes current or recent use of testosterone supplementation

| | Applicant | Class 1 | | | Class 2 | Class 3 |
|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | |
| CD | x | x | x | x | x | x |
| NCD | | | | | | |
| WR | | x | x | x | x | x |
| WNR | x | | | | | |
| LBFS | ***Temporary upchits and LBFS are NOT authorized.*** | | | | | |
| EXCEPTIONS | | | | | | |
| LIMDU/PEB | | | | | | |

**AEROMEDICAL CONCERNS**: Hypogonadism is associated with decreased muscle mass and strength, anemia, and possibly depressed mood. Use of testosterone supplementation has a high potential for abuse, may cause non-physiologic hormone shifts, and may increase risk of BPH/Prostate Cancer, cardiovascular events, and erythrocytosis. Long term safety in aviation population is currently unknown.

***REMEMBER: A GROUNDING PHYSICAL IS REQUIRED AT THE TIME OF DIAGNOSIS AN THEN A LOCAL BOARD OF FLIGHT SURGEONS IS NOT APPROPRIATE TO BE CONVENED.***

**ICD-9 Code/DIAGNOSIS**
**257.2 Hypogonadism (male)**

**SERVICE MEMBER MUST COMPLETE & ENSURE DOCUMENTATION AVAILABLE PRIOR TO INITIATING WAIVER**

- Evaluation to include diagnosis and workup to be performed by a Board Certified *Endocrinologist* skilled and knowledgeable in the evaluation pituitary hormones. A recommendation of return to flight status and no restrictions should be **documented** on last clinical note (electronic or paper).
- *Endocrinologist* recommendation for follow on care **documented** on last clinical note (electronic or paper).
- Service member to email or provide FS administrative information to include command UIC, command address, personal address, phone number, designator, flight hours (total and last 6 months), primary aircraft flown, and years of service.

**STANDARDS & REQUIREMENTS TO BE MET PRIOR TO SCHEDULING WAIVER EXAM**

- **CURRENT PHYSICAL LIMITATIONS:** None
- **LABORATORY LEVELS-SPECIAL TEST STANDARDS:** Copies of all laboratory testing with dates/times and reference values required. Optimal testing conditions must exist for hormonal tests to be accurately sampled. Specifically, these tests must be obtained at 0800 while fasting for 12 hours, with no sexual activity or exercise or nipple stimulation for 48 hours prior to sampling. Minimum workup required ***prior to*** any medication prescription/use:
- Serum TOTAL Testosterone (8 AM), a minimum of TWO (three is preferred) readings below the lower limit of normal for the used lab (most labs 280–300 ng/dl (9.8–10.4 nmol/liter (should be “distinctly subnormal”). Total testosterone is preferred first line screening test. Free testosterone should be measured ONLY IF total testosterone is borderline AND altered SHBG suspected; must be measured using a validated equilibrium dialysis method.

- FSH and LH should be measured if truly hypogonadal. In cases of secondary hypogonadism, i.e. low or normal FSH and LH (most patients), pituitary function assessment (8AM serum cortisol, TSH, freeT4, IGF-1), and serum prolactin, iron saturation and ferritin are required. Hematocrit (HCT) recorded at baseline and 6 months post-treatment. For males ≥50 yo (≥40 yo if African American or family history of prostate CA) also require Initial International Prostate Symptom Score (IPSS), PSA and DRE, again after 6 months post-treatment.
-**RADIOLOGY FINDINGS:** MRI of the pituitary is required for all cases of confirmed Secondary Hypogonadism
-**MEDICATIONS:** On stable dose of prescription testosterone for 90 days. Both topical and injectable formulations will be considered depending on therapeutic ranges/clinical effect of therapy. Confirmation of normalized/ therapeutic levels is required prior to waiver request.

**AEROMEDICAL SUMMARY REQUIRED DOCUMENTATION**

Diagnosis:
Clinical History/How Condition Was Diagnosed:
Past Medical History:
Social And Family History: Include reproductive history.
Military/Occupational History:
Aviation History:
Physical Exam: Vitals, body habitus, neck and waist circumference, weight, BMI. GU exam including testicular size(cm or mL), body hair distribution, presence or absence of gynecomastia, prostate exam
Labs And Imaging Data: Summarize above findings.
Medications: Current dosage and frequency.
Consults:
Recommendation:

**FOLLOW-UP REQUIREMENTS**

Submission: Annual Physical: FS documents continued control of symptoms with medication and assesses for symptoms of OSA
Specialist Evaluation: Minimum of annual Endocrinology evaluation.
LABS: Serum testosterone level (approximately ≥350 ng/dL to ≤750 ng/dL) on therapy (measured midway between injection doses or anytime with topical doses). Annual HCT within aviation standards (suspend treatment if HCT >54). For males ≥50 yo (≥40 yo if African American or family history of prostate CA) also require Initial International Prostate Symptom Score (IPSS), PSA and DRE.
Medications: Report any medication changes or dosage adjustments

**APPENDICES**

**DISCUSSION:**

A variety of herbal and nutritional supplements are available on the market and may interfere with normal pituitary-gonadal hormonal physiology/testing. Direct to consumer marketing of prescription testosterone can make accurate diagnosis difficult and has resulted in a marked increase in inappropriate prescriptions. Male hypogonadism requires both a good clinical history and properly done laboratory workup. Initiation of treatment prior to a completed evaluation may interfere with testing results. Flight Surgeons and consultants should be made aware of the required workup and are discouraged from making this diagnosis and initiating potentially lifelong treatment prior to proper evaluation. Once initiated, discontinuation can result in symptoms due a potential prolonged recovery period of the pituitary-gonadal axis after

suppression with supplementation. Patients should be counseled that testosterone supplementation may result in infertility issues.

Symptoms and signs are nonspecific and modified by age, comorbid illness, severity and duration of androgen deficiency, variation in androgen sensitivity, and previous testosterone therapy. They are based on *expert opinion* from clinical experience (no studies to validate). Although low testosterone levels have been shown to correlate with central adiposity, it is unclear whether this relationship is causal.

## 5.6 PITUITARY TUMORS

Last Revised: April 2014 Last Reviewed: July 2014

Changes Include: Clarification in workup and management is provided based on tumor size and functionality. Non-functioning microadenomas causing no local effects can be considered for waiver in applicants and dispositioned with a LBFS for designated.

| | Applicant | Class 1 | | | Class 2 | Class 3 |
|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | |
| CD | x | x | x | x | x | x |
| NCD | | | | | | |
| WR | x* | x | x | x | x | x |
| WNR | | | | | | |
| LBFS | | | | | | |
| EXCEPTIONS | | | | | | |
| LIMDU/PEB | Required for all macroadenomas and those treated with surgery | | | | | |

*Restrictions in eligibility apply (see Appendix below)

**AEROMEDICAL CONCERNS:** The complications of pituitary tumors of aeromedical significance generally center around the following main factors: 1) size of the tumor and whether it causes or has potential to impact anatomic adjacent anatomic structures; 2) risk of tumor hemorrhage (apoplexy) resulting in sudden visual field deficits and hormonal dysfunction; 3) metabolic effects of hormone excess or deficiency; 4) side effects or complications from treatment. Local effects from the larger tumors can also cause local hemorrhage (apoplexy), headache, cranial nerve palsies, and visual field defects. Pituitary carcinomas are associated with a poor prognosis. Hypersectretion and hyposecretion of pituitary hormones may result in disqualifying conditions discussed elsewhere (e.g. hypothyroidism, hyperthyroidism, diabetes mellitus). Surgical treatments may result in neurologic complications and side effects of medications used to treat certain pituitary tumors may cause headache, dizziness, sedation, as well as psychological effects (psychosis, impulsive behavior) causing safety of flight issues. ***REMEMBER: IF THE ESTABLISHMENT OF THE DIAGNOSIS AND ACHIEVEMENT OF MAINTENANCE PHASE OF TREATMENT WILL TAKE GREATER THAN 60 DAYS, A GROUNDING PHYSICAL IS REQUIRED AT THE TIME OF DIAGNOSIS AN THEN A LOCAL BOARD OF FLIGHT SURGEONS IS NOT APPROPRIATE TO BE CONVENED.***

**ICD-9 Code/DIAGNOSIS**
**227.3 Benign neoplasm of pituitary**

**SERVICE MEMBER MUST COMPLETE PRIOR TO INITIATING WAIVER**

**For Microadenomas** (<10mm in maximal dimension)
- Completed *Endocrinology* evaluation with recommendation of return to flight status and no restrictions **documented** on last clinical note (electronic or paper).
- Endocrine evaluation must obtain following LABS: fasting glucose, serum prolactin, thyroid stimulating hormone (TSH), free T4 (FT4) and insulin like growth factor type I (IGF1). If triad of impaired fasting glucose, body mass index >29, and hypertension (BP > 140/90) co-exist, 24 hour collection of urine for free cortisol also required.

**For Macroadenomas** (>10mm in maximal dimension)
- Six month grounding period for observation
- Completed *Endocrinology* evaluation with recommendation of return to flight status and no restrictions **documented** on last clinical note (electronic or paper).

- Endocrine evaluation must obtain following LABS: fasting glucose, serum prolactin, insulin like growth factor type I (IGF1), follicle stimulating hormone (FSH), luteinizing hormone (LH), thyroid stimulating hormone (TSH), free T4 (FT4), 8 AM total testosterone (or estradiol in females), fasting morning cortisol, and chemistry panel.
NOTE: A fasting morning cortisol <12 mcg/dL requires a Cortrosyn stimulation test (250 mcg). Peak cortisol at 30 or 60 minutes must be > 18 mcg/dL.
- Neurosurgery evaluation with recommendation of return to flight status and no restrictions documented on last clinical note (electronic or paper)
-Completed Ophthalmology/Optometry consultation with visual field testing and dilated eye exam with recommendation of return to flight status and no restrictions documented on last clinical note (electronic or paper).

**For Pituitary Surgery**
- Six month post-operative grounding period for observation
- Follow-up at 6 weeks and 6 months with evaluations by neurosurgery, optometry or ophthalmology, endocrinologist
- Testing six months post-operative and annually must include the following LABS: Fasting glucose, serum prolactin, insulin like growth factor type I (IGF1), thyroid stimulating hormone (TSH), free T4 (FT4), follicle stimulating hormone (FSH), luteinizing hormone (LH), testosterone or estradiol (females), cortisol, chem 10 , and Cortrosyn stimulation test (250mcg) with peak at 30 or 60 minutes >18 mcg/dL.
- Provide administrative information to FS/AME to include command UIC, command address, personal address, phone number, designator, flight hours (total and last 6 months), primary aircraft flown, and years of service.

**STANDARDS & REQUIREMENTS TO BE MET PRIOR TO SCHEDULING WAIVER EXAM WITH FLIGHT SURGEON**

- **LABORATORY LEVELS:** Laboratory values listed above should be within normal limits. Ongoing but stable abnormalities of pituitary function (e.g. prolactin elevation) should be discussed with NAMI prior to submitting a waiver request. ****It must be emphasized that optimal testing conditions must exist for hormonal tests to be accurately sampled**. Specifically, these tests must be obtained at 0700 while fasting for 12 hours, with no sexual activity or exercise or nipple stimulation for 48 hours prior to sampling.***
- **MEDICATIONS:** A summary of the medications used during evaluation/treatment should be provided to the Flight Surgeon. For prolactinomas, no waivers are granted for use of bromocriptine; use of cabergoline may be **considered** on a case-by-case basis for waiver after a 6 month observation period. No waivers are granted for any other medications used for suppression or replacement of pituitary hormones.

**AEROMEDICAL SUMMARY REQUIRED DOCUMENTATION BY FLIGHT SURGEON**

Diagnosis:
How Condition Was Diagnosed:
Treatment Summary:
Past Medical History:
Social And Family History: FH: Attention to endocrine diseases and malignancy
Military/Occupational History: Attention to radiation exposures
Physical Exam: Vitals, Full Neurologic exam, Eye exam
Labs And X-ray Data: Results of MRI of sella turcica and required labs
Medications: Previous (prior 6 months) and current medications/dosages
Consults: FS to document all required consultations completed and reviewed.

## FOLLOW-UP REQUIREMENTS

Submission: Annual Endocrinology follow-up with FS summary. Medical and/or surgical therapy should be considered if significant tumor growth, threat to vision (or invasion of) local structures, the appearance of hormonal excess or deficiencies.
Specialist Evaluation: Minimum of annual Endocrinology follow-up. Macroadenomas and those treated with surgery require neurosurgical evaluation and visual field evaluation by optometry or ophthalmology.
LABS: Based on tumor type and behavior on follow-up.
Minimums required based on diagnosis:

*Microadenomas*: prolactin, insulin like growth factor type I (IGF1), thyroid stimulating hormone (TSH) and free T4 (FT4)
*Macroadenomas*: full pituitary hormonal evaluation to include fasting glucose, serum prolactin, insulin like growth factor type I (IGF1), follicle stimulating hormone (FSH), luteinizing hormone (LH), thyroid stimulating hormone (TSH), free T4 (FT4), testosterone (or estradiol in females), cortisol, and chemistry panel, Cortrosyn stimulation test. Peak cortisol at 30 or 60 minutes must be >18 mcg/dL
IMAGING: MRI of sella turcica annually up to 5 years, then periodic if stable
MEDICATIONS: Report any medication changes or dosage adjustments. No waivers are granted for any other medications used for suppression or replacement of pituitary hormones.

## APPENDICES

### WAIVER DISPOSITIONS ELABORATED

**Applicants:** may be considered for waiver ONLY if they meet all of the following criteria:

1. Maximal dimension <10 mm by MRI of the sella turcica (preferably performed at a military MTF and read by a neuroradiologist).
2. No imaging evidence of compression of local anatomic structures.
3. No evidence on history or physical examination of multiple endocrine neoplasia type 1a).
4. The tumor is established as non-functional with appropriate tests performed by an endocrinologist trained and skilled in hormonal testing.
5. Applicants with tumors that do not meet the above four criteria will NOT be considered for waiver.

**Designated:** Designated aviators with a pituitary adenoma that meets all four of the following criteria are considered disqualified:

1. Maximal dimension <10 mm by MRI of the sella turcica (preferably performed at a military MTF and read by a neuroradiologist).
2. No imaging evidence of compression of local anatomic structures.
3. No evidence on history or physical examination of multiple endocrine neoplasia type 1a).
4. The tumor is established as non-functional with appropriate tests performed by an endocrinologist trained and skilled in hormonal testing.

BUT, may be granted clearance by a Local Board of Flight Surgeons. Designated aviators with pituitary tumors that do not meet all four of the above criteria may not be granted clearance by a Local Board of Flight Surgeons but may be considered for waiver. Waivers for designated aviators with pituitary tumors are considered based upon the following:

- ***Functional microadenomas*** may be considered for waiver based on tumor type, therapeutic options, complications and side effects of therapy, among other factors. No waivers are granted for use of bromocriptine; cabergoline may be considered for waiver. *No waivers are granted for any other medications used for suppression or replacement of pituitary hormones.*

This includes but is not limited to Cortisol, Growth hormone, and Vasopressin (antidiuretic hormone).

- ***Macroadenomas*** are usually not considered for waiver. Exceptions are those aviators with pituitary macroadenomas that have demonstrated all six of the following characteristics:

1. Regression or response to medical therapy.
2. Long history of presence (>5yrs) without growth.
3. No evidence of compromise of other pituitary hormones.
4. No evidence of anatomic complication or compression.
5. Normal visual field examination by optometry or ophthalmology.
6. An extensive (6 month) grounding period of observation.

**DISCUSSION:**

In pooled autopsy studies pituitary adenomas have been found in 1.5-27% of subjects who otherwise had no indication of pituitary dysfunction suggesting that the rate of occurrence in the general population is higher than previously thought. Tumors are classified as those discovered incidentally – when no pre imaging suspicion existed – and those discovered clinically due to patient presentation. They are further categorized as functional if they secrete excess hormones or nonfunctional if they are do not secrete excess hormones or secrete hormones that are inert. Finally, pituitary adenomas are categorized by size; those less than 10 mm in maximal dimension are termed microadenomas and those greater than or equal to 10 mm in maximal dimension are termed macroadenomas. The size of the tumor and whether it has hormonal effects have the greatest established impact on its prognosis.

Most pituitary tumors are microadenomas that either secrete prolactin or are nonfunctional, do not grow, and otherwise are of no clinical consequence. As a general rule virtually all prolactinomas respond to dopamine agonist therapy and will regress in dimension over time without causing complications. For most patients the side effects of dopamine agonist therapy regress over 8 weeks after initiation of therapy. Other treatments aside from surgery are available for pituitary tumors. The type of treatment and the success rates of treatment depend on the size of the tumor and the type of tumor. An endocrinologist is the best subspecialist to evaluate and treat pituitary adenomas.

# 6.0 EAR NOSE AND THROAT

LAST REVISED: APRIL 2025 LAST REVIEWED: APRIL 2025

# 6.1 RHINITIS

Last Revised: April 2025 Last Reviewed: April 2024

**AEROMEDICAL CONCERNS:** Acute rhinitis is often accompanied by mucosal inflammation that can manifest as nasal congestion, rhinorrhea, and/or sinus pressure. At a minimum, these symptoms are distracting during flight and may affect occupational performance. If inflammation progresses to mucosal edema, the function of the paranasal sinuses and the eustachian tubes are often impaired. This may result in **sinus or middle ear barotrauma** with the potential for in-flight incapacitation and prolonged periods of grounding.

Routine treatment of rhinitis is highly effective in managing symptoms. However, certain medications may have side effects that are incompatible with aviation and/or difficult to administer in the deployed environment. Since many of these drugs have Over-The-Counter availability, the FS shall maintain an active role in prescribing, administering, and monitoring the safest "aviation approved" medications (Table 1).

**FS MANAGEMENT**: Rhinitis is one of the most common diseases affecting adults. There are many causes for chronic rhinitis and it is typically sub-classified into 3 major areas: allergic rhinitis (AR), non-allergic rhinitis (NAR), and infectious rhinitis (IR).

AR is estimated to occur in 1 out of 6 Americans. It can be defined as an lgE-mediated inflammatory response of the sinonasal mucous membranes after exposure to an allergen. Nasal congestion, rhinorrhea, sneezing, post-nasal drip, lacrimation, and pruritis (nasal, ocular, or palatal) are common symptoms. When evaluating the AR patient, it is important to determine the temporal pattern (seasonal vs perennial), frequency, severity, and suspected triggers of these symptoms. These elements will typically guide an initial treatment approach and further define the extent of therapy.

NAR (Vasomotor Rhinitis, Non-allergic rhinitis with nasal eosinophilia, etc.) can mimic AR and often consists of prominent nasal congestion and post nasal drip with associated rhinorrhea and sneezing. The nasal congestion is often reported as alternating, sometimes severe, and may be triggered by specific factors to include: temperature and humidity changes, odors, irritants, recumbent positioning, and emotion.

IR is typically acute, readily diagnosed, and effectively managed with supportive care and/or antibiotics. These episodes typically reflect a temporary illness and the aviator should receive a down-chit until a valsalva maneuver is easily performed and rhinitis symptoms have resolved.

**Infrequent** IR is Not Considered Disqualifying unless symptoms are consistent with chronic rhino- sinusitis (see Section 6.2).

*Other common causes of rhinitis include: rhinitis medicamentosa, laryngopharyngeal reflux, and nasal polyposis. Any of these disorders are considered disqualifying for aviation and will require an ENT evaluation with subsequent waiver determination.

**REQUIRED ELEMENTS OF AN AEROMEDICAL RHINITIS EVALUATION:**

1. Diagnosis and clinical management documented on DD 2807/2808
2. Nasal speculum exam documented
3. **Rhinitis Worksheet-** Ensures associated co-morbidities are addressed and pertinent clinical history are considered.

**FS management of chronic rhinitis should focus on determining the etiology and treating symptoms with common "aviation approved" medications (Table 1).**

| Medication Class | Generic | Common | Route | Use Restrictions ( see *Note 3*) |
|---|---|---|---|---|
| Antihistamines 2nd generation (see *Note 2*) | Loratidine<br>Desloratidine<br>Fexofenadine | Claritin<br>Clarinex<br>Allegra | Oral | 7 day grounding for initial use |
| Antihistamines Topical | Azelastine HCL | Astelin | Topical | 7 day grounding for initial use |
| Nasal Steroids | Fluticasone<br>Mometasone<br>budesonide | Flonase<br>Nasonex<br>Rhinocort | Topical | None |
| Leukotriene receptor antagonist | Montelukast | Singulair | Oral | 7 day grounding for initial use |
| Mast cell stabilizer | Cromolyn sodium | Nasalcrom | Topical | None |

| | | | | |
|---|---|---|---|---|
| **Nasal Saline Rinse** | | **Neilmed/ AYR** | **Topical** | **None** |

**Note 1**: Aviation approved medications listed above should always be trialed before using allergy formulations that require a waiver.

**Note 2**: Zyrtec, Xyzal, and *any antihistamine combined with a Decongestant* is **CD** and will require a waiver.

**Note 3**: 7 day Grounding period applies to "initial" use of each individual medication. (Ex. Switching from Claritin to Allegra requires a new grounding period despite both being oral antihistamines.)

**If rhinitis symptoms are not well controlled using above medications; the condition is considered disqualifying and an ENT and/or Allergy consultation is required.**

**Immunotherapy:** ENT/Allergy consultants may offer allergy immune therapy (AIT) to patients with Allergic Rhinitis who have inadequate response to pharmacologic therapy. AIT involves controlled repetitive dosing of identified allergen(s) in order to increase immune tolerance. Although AIT can be highly effective, it typically requires a prolonged course (2-5 years) of regularly scheduled treatments with an ENT or Allergy subspecialist. AIT is typically delivered using subcutaneous injections-"subcutaneous immunotherapy (SCIT)", or by sublingual instillation in the form of drops or tablets-"sublingual immunotherapy (SLIT)". Both methods are logistically challenging for the military aviator and should only be pursued if topical sprays and/or non-sedating antihistamines are ineffective.

All forms of AIT require an initial "ramp up" period to achieve clinically effective doses of the allergen(s) being administered. During this treatment phase, the individual will be in a down status. **After reaching **maintenance levels** for all allergens and achieving relief of symptoms, the member may be considered for a waiver. **

After AIT is waived, the “type” of ongoing therapy (SCIT or SLIT) will dictate additional grounding requirements. Administration of SCIT has a risk of anaphylaxis so that a 30 minute period of observation is necessary after each shot in the clinic. A **12 hour grounding period is required after each shot.** SLIT has very low risk of anaphylaxis so only the 1st dose is administered in the clinic with a 30 minute observation period. Subsequent SLIT administration is typically done daily at home and therefore does not have any observation periods or 12 hour grounding requirements. With SLIT, it may not take as long to get to an initial maintenance dose, but there are often subsequent changes made to the concentration of individual allergens in the solution. **During maintenance therapy, if the concentration of any allergen in the SLIT or SCIT formulation is changed, the aviator will be placed in a renewed down status for 7 days in order to be sure that there are no new side effects.**

When using AIT, logistical restrictions must be clearly delineated to the aviator. The proper administration of immunotherapy should be coordinated with the member's immediate flight status so that minimal impact on the mission is achieved.

**WAIVER CONSIDERATIONS:** *Uncomplicated* Rhinitis is **NCD!** Patients with a history of rhinitis after age 12 must meet ALL of the following criteria to be considered uncomplicated.

1. Symptoms must be effectively managed with any combination of aviation approved medications (Table 1).
2. There must be no use of allergy immunotherapy (AIT) within the past 12 months.
   a. Active use of AIT requires a waiver.
   b. If an individual on a prior waiver for AIT has completed treatment and 12 months have elapsed since last dose, the member may request removal of the waiver.
   c. *Applicants* who have previously used AIT with a last dose greater than 12 months ago, DO NOT require a waiver if symptoms are adequately controlled.
3. Anterior rhinoscopy should be normal. There should be no evidence of a significant obstructive anatomical deformity, mucosal disease, or purulent drainage.

** The nasal exam is optimized when using a nasal decongestant. If uncertain about your exam findings, seek ENT consultation. **

4. Although not required, if sinus imaging is obtained during any clinical evaluation, there should be no evidence of chronic mucosal disease or obstructive sinus or ostiomeatal complex (OMC) pathology. * Non-obstructive maxillary mucus retention cysts are the exception and are NCD.
5. Rhinitis Worksheet findings are considered benign.

If the conditions outlined above are not met, then Rhinitis is CD and the member is NPQ. Specialty consultation with ENT and/or Allergy is required for further evaluation and treatment. Waivers will be considered on a case-by-case basis.

**Waiver Submission Requirements for Rhinitis that is CD**

1. Discussion statement regarding why Rhinitis is CD
2. Completed Rhinitis Worksheet
3. ENT and/or Allergy consultation
4. Results of any further tests, imaging, and/or recommended treatment.

**ICD-10 CODES/DIAGNOSIS:**
**J30 Vasomotor and allergic rhinitis**
**J30.0 Vasomotor rhinitis**
**J30.1 Allergic rhinitis due to pollen**
**J30.2 Other seasonal allergic rhinitis**
**J30.5 Allergic rhinitis due to food**
**J30.81 Allergic rhinitis due to animal hair dander**
**J30.89 Other allergic rhinitis**
**J30.9 Allergic rhinitis, unspecified**
**J31.0 Chronic rhinitis**

## RHINITIS WORKSHEET

### MEMBER SECTION

1. Have you ever been diagnosed with allergic or non-allergic rhinitis? ☐ Yes ☐ No

2. What symptoms do you typically demonstrate?
☐ Nasal drainage ☐ Nasal Congestion ☐ Sneezing ☐ Itching ☐ Eye Tearing

3. What is the frequency of your symptoms?
☐ Seasonal ☐ Year round

4. How often do you require medication to manage your symptoms?
☐ Never (skip to question 6) ☐ Occasional ☐ Daily

5. What medications have you used to manage your symptoms in the past?
☐ Claritin/ Clarinex ☐ Allegra ☐ Zyrtec/ Xyzal ☐ Atrovent (Ipratropium Bromide)
☐ Nasal Steroids (flonase, Nasonex, rhinocort) ☐ Nasal Antihistamine (Azelastine)
☐ Nasal Saline Rinses ☐ Singulair (monteleukast) ☐ Other:
_____

6. What medications do you currently use to manage any of your symptoms?
☐ None ☐ List Meds: _____

7. Have you ever been prescribed immunotherapy? ☐ Yes ☐ No (go to next question)
If YES, what type? ☐ Allergy shots ☐ Allergy drops
Have you used immunotherapy within the last 12 months? ☐ Yes ☐ No
If using immunotherapy, are you on a stable maintenance dose? ☐ Yes ☐ No
If immunotherapy discontinued, when was last dose? _____

8. After the age of 12, have you ever been diagnosed with any of the following conditions?
☐ Asthma ☐ Atopic Dermatitis ☐ Sleep disordered breathing ☐ Chronic Sinusitis ☐ Chronic Otitis Media

9. Have you ever experienced Ear or Sinus Barotrauma? ☐ Yes ☐ No
If yes, describe incident? _____

**I CERTIFY that the above is TRUE to the best of my knowledge** _____
**MEMBER signature** **Date_**

### FLIGHT SURGEON SECTION

Anterior Rhinoscopy (Nasal Speculum Exam) within normal limits? ☐ Yes ☐ No
If no, describe findings: _____

Ear Exam within normal limits and TM mobility demonstrated? ☐ Yes ☐ No
If no, describe findings: _____

ENT/ Allergy Consultation ☐ Yes ☐ No
Recommendations: _____

**AEROMEDICAL DISPOSITON**

☐ CD ☐ WR, routine submission ☐ WNR, _____ ☐ NCD

**FS Signature/Stamp:** _____

| | | | |
|---|---|---|---|
| **Date** | | **Name** | |
| **Aviation Duty** | | **DOD ID #** | |

## 6.2 CHRONIC SINUSITIS/SINUS SURGERY

Last Revised: Nov 2023 Last Reviewed: Nov 2023

**AEROMEDICAL CONCERNS:** Chronic sinusitis is of particular concern because sinus barotrauma has the potential for in-flight incapacitation, prolonged periods of grounding, and other symptoms affecting performance. Patients with chronic sinusitis may have a wide variety of upper respiratory symptoms (congestion, facial pressure, postnasal drip, cough, Eustachian tube dysfunction) that can lead to frequent trips to sick call and time in a down status, thus impacting squadron flight schedules and mission accomplishment.

**TREATMENT:** Chronic sinusitis can be relatively asymptomatic and may only come to the attention of the flight surgeon after the member suffers an episode of sinus barotrauma. On the other hand, there may be nasal congestion, persistent or intermittent cough, postnasal drainage, facial pressure, and low-grade malaise for many months before the flight surgeon is consulted. Chronic sinusitis is a multifactorial inflammatory condition, and medical management should involve consistent use of topical nasal steroids and saline irrigations at a minimum. Additional treatments such as leukotriene inhibitors, antihistamines and antibiotics should be tailored to the individual clinical presentation. Surgical management with Functional Endoscopic Sinus Surgery (FESS) or balloon sinuplasty may be an effective adjunct to medical management in refractory cases. Balloon sinuplasty may be used to treat some cases of recurrent acute sinusitis and chronic rhinosinusitis without polyposis refractory to medical management. Surgery may be considered sooner in aircrew because many flying personnel may not be able to do their jobs until the disease is well-managed.

Although this approach may seem aggressive, it can be effective in eliminating disease and returning aircrew to flying sooner than medical management in some cases. Not all ENT surgeons may be comfortable with recommending early surgery, especially if the patient is asymptomatic on the ground and their CT shows only minimal disease. When that “minimal" disease is in the ostiomeatal complex, it can have a profound effect on the sinuses’ ability to ventilate and thereby lead to sinus barotrauma. Although there are several potential complications associated with sinus surgery, the most relevant concern is that patients with chronic sinusitis treated with surgery have an approximately 10% chance of requiring either revision or additional surgery at some point in the future. Chronic sinusitis can persist or recur despite successful treatment in the past, so the flight surgeon should have a relatively low threshold for treatment or for referral back to ENT if symptoms return.

**WAIVER: Students and designated aviation personnel** with chronic sinusitis or history of sinus surgery are NPQ. Waivers should be requested after the disease has been successfully managed with medical or surgical treatments. If surgery - Functional Endoscopic Sinus Surgery (FESS) or balloon sinuplasty - is performed, the site must be healed and free of active disease as demonstrated by an endoscopic examination performed by the surgeon before the patient can return to flight duties. This may take 4 to 8 weeks after FESS, depending on the extent of disease and procedure. Aircrew members who undergo balloon sinuplasty should be down for minimum two weeks following the procedure and be cleared by the specialist with an endoscopic evaluation.

**Regardless of treatment method, the patient must demonstrate that his/her sinuses are able to tolerate pressure changes once cleared.** A “functional check” is invaluable in testing whether the member will do well upon returning to flying. Although it seems obvious that the functional check is necessary in someone who had suffered barotrauma previously, it is also necessary in post-surgery patients who never had barotrauma since it is possible for the surgery to result in scarring that can compromise sinus ventilation. A hyperbaric chamber run down to 60 feet or a flight in an aircraft (not in control) that includes touch and go landings from 5,000’ and

10,000' will demonstrate that the individual is able to tolerate pressure changes. However, any approximation to a mission flight profile on their current platform (e.g. tilt rotor or rotary) may suffice. Hypobaric chambers are still in use by the Army and the Air Force, so if you are near one of their hypobaric chambers, you could arrange a hypobaric functional chamber run.

The Navy Diving Medicine Community developed the following process (BUMEDNOTE 6410, 10 Feb 2017) which can be used to evaluate patients for a return to aviation duties once cleared for full duty by the patient's physician or surgeon:
"(Aviation) personnel do not require a diving duty physical exam but must have a current aviation duty physical exam and be otherwise cleared for aviation duty by a Flight Surgeon prior to pressure testing. Upon receipt of a written referral or consultation from a designated Flight Surgeon, the cognizant Undersea Medical Officer will coordinate performance of the pressure test with the local Navy recompression chamber."

**For Class III and Class IV aviators** (Air Traffic Controllers, Flight Deck Personnel, UAV operators) a history of chronic sinusitis is not necessarily disqualifying "unless symptomatic and requiring frequent treatment." (MANMED 15-94) Thus, Class III or Class IV personnel that require chronic treatment or sinus surgery to manage their symptoms would be NPQ. A waiver will be considered when the patient reports that his/her symptoms have significantly improved on stable medical management or after surgery. **A demonstration of ability to tolerate pressure changes is not required for non-flying personnel.**

**Applicants** with a history of chronic sinusitis or sinus surgery are NPQ. A waiver may be requested after he or she is free of disease, as indicated by a recent ENT consultation with documentation of an endoscopic examination and/or a sinus CT – if performed. If surgery has been done, enclose any pre- and postoperative notes as well as the operative report. In addition, **some evidence of the applicant's ability to handle pressure changes should be documented, regardless of treatment method**. Pressure chambers are not generally accessible to civilians, so look for a history of recent successful SCUBA diving or aerobatic flying. Many individuals have not done either of these, so please include documentation of their ability to tolerate commercial flights or diving to a depth of 10-12' of water. Make every attempt to have military applicants perform a barofunction test in a chamber or functional test flight.

***THERE IS NO REQUIREMENT FOR A POST-OPERATIVE CT SCAN IN PATIENTS WHO HAVE BEEN TREATED WITH SURGERY FOR CHRONIC SINUSITIS.*** Individuals who have had successful surgery will often have persistent changes on a CT scan that are of no clinical significance. We are more interested in the functional outcome. If the surgeon has documented a good surgical result with an endoscopic exam and the individual has demonstrated a good functional result with a functional test, a waiver is generally recommended and usually granted. Depending on the severity of their disease and extent of surgery, aviators must have an annual ENT consultation with nasal/sinus endoscopy for a period before requesting a routine submission if the patient remains asymptomatic. The following is the usual provision in the waiver endorsement from NAMI: "Annual ENT evaluation with endoscopy. After (2 or 3) years, if patient there is no evidence of recurrent sinus disease, may request change to routine submission. After that time ENT evaluation is necessary only if clinically indicated."

**INFORMATION REQUIRED (INITIAL WAIVER):**

1. Detailed information on the events that led to the diagnosis.
2. Physical examination and ENT consultation notes.
3. CT scan report(s) - if performed.
4. Details on the treatment provided or operation performed.
5. If surgery performed, copies of the pre- and post-op notes and dictated operation report.
6. If surgery performed, postoperative findings and clearance recommendations, including endoscopic examination findings.
7. Documentation of successful post-treatment/post-surgical barofunction via functional flight, hyperbaric chamber, or other means (for class I and II only).

In many cases, it is appropriate for a Local Board of Flight Surgeons to return the member to a flying status while awaiting the waiver if they meet the above criteria. ***REMEMBER: Grounding physicals are required for any condition resulting in a grounding of greater than 60 days and Local Boards of Flight Surgeons are not appropriate after grounding by the Waiver Authority.***

**ICD-10 CODES:**

**J32.0** Chronic Maxillary Sinusitis
**J32.1** Chronic Frontal Sinusitis
**J32.2** Chronic Ethmoid Sinusitis
**J32.3** Chronic Sphenoidal Sinusitis
**J32.4** Chronic Pansinusitis
**J32.8** Other chronic sinusitis
**J32.9** Chronic sinusitis unspecified

**CPT Codes for Functional Endoscopic Sinus Surgery (FESS):**

**31240** Nasal/sinus endoscopy, surgical; with concha bullosa resection
**31253** Nasal/sinus endoscopy, surgical with ethmoidectomy; total (anterior and posterior), including frontal sinus exploration, with removal of tissue from frontal sinus, when performed
**31254** Nasal/sinus endoscopy, surgical with ethmoidectomy; partial (anterior)
**31255** Nasal/sinus endoscopy, surgical with ethmoidectomy; total (anterior and posterior)
**31256** Nasal/sinus endoscopy, surgical, with maxillary antrostomy
**31257** Nasal/sinus endoscopy, surgical with ethmoidectomy; total (anterior and posterior), including sphenoidotomy
**31259** Nasal/sinus endoscopy, surgical with ethmoidectomy; total (anterior and posterior), including sphenoidotomy, with removal of tissue from the sphenoid sinus
**31267** Nasal/sinus endoscopy, surgical, with maxillary antrostomy; with removal of tissue from maxillary sinus
**31276** Nasal/sinus endoscopy, surgical with frontal sinus exploration, including removal of tissue from frontal sinus, when performed
**31287** Nasal/sinus endoscopy, surgical, with sphenoidotomy
**31288** Nasal/sinus endoscopy, surgical, with sphenoidotomy; with removal of tissue from the sphenoid sinus

**CPT Codes for Balloon Sinuplasty:**

**31295** Nasal/sinus endoscopy, surgical, with dilation (eg, balloon dilation); maxillary sinus ostium, transnasal or via canine fossa
**31296** Nasal/sinus endoscopy, surgical, with dilation (eg, balloon dilation); frontal sinus ostium
**31297** Nasal/sinus endoscopy, surgical, with dilation (eg, balloon dilation); sphenoid sinus ostium
**31298** Nasal/sinus endoscopy, surgical, with dilation (eg, balloon dilation); frontal and sphenoid sinus ostia

## 6.3 NASAL/SINUS POLYPS

Last Revised: Oct 2024 Last Reviewed: Oct 2024

**AEROMEDICAL CONCERN:** Chronic rhinosinusitis with nasal polyps (CRSwNP) is an inflammatory condition of the nose and paranasal sinuses that leads to development of nasal polyps. In this condition, nasal polyps arise as painless, benign growths that may gradually enlarge to restrict or block sinus drainage and ventilation. This commonly results in chronic rhinorrhea, nasal congestion, a decreased "sense of smell", and frequent infections. Obstructed sinuses pose a significant risk for sinus barotrauma that can lead to in-flight incapacitation and prolonged periods of grounding. Decreased olfaction also compromises the timely identification of hazardous odors, fumes, and smoke that may occur in the aviation environment.

**FS MANAGEMENT:**
CRSwNP is commonly diagnosed in aviators with a history of allergic rhinitis, chronic sinusitis, sinus barotrauma, or those with decreased olfaction. This condition may also be discovered in the asymptomatic patient during a routine flight physical examination. When aviators are suspected of having nasal polyps, an ENT referral should be pursued. ENT endoscopic evaluation will determine disease severity, help guide medical management, and may identify sinonasal abnormalities that require early surgical intervention.

Initial medical management is directed towards treating any underlying inflammatory or infectious conditions that may lead to resolution of obstructive nasal polyps. Routine therapies includes: (a) avoidance of known allergens, (b) nasal saline irrigations, (c) nasal steroids, (d) oral/nasal antihistamines, and (e) oral/nasal antibiotics. Depending upon etiology, systemic steroids and allergy immunotherapy may be used as adjunctive therapies. If medical therapy is effective in eliminating obstructive polyps, a post-treatment endoscopic exam and sinus CT will be required to ensure complete resolution of sinus disease for waiver determination.

If CRSwNP is refractory to routine medical management, then surgery is often recommended. Functional Endoscopic Sinus Surgery (FESS) is a minimally invasive surgery which uses endoscopes to remove obstructive nasal polyps and enlarge sinonasal drainage pathways. The improved sinus ventilation allows for easier access of topical medical therapies and a potential return of normal function. Since surgical treatment is highly effective in removing obstructive disease and post-operative recovery usually occurs within 4 weeks, aviators commonly pursue early surgical intervention to resume flying sooner.
Whether medically or surgically treated, CRSwNP is a chronic inflammatory condition that often requires continued medical management and surveillance. If symptoms are well controlled with aviation approved medications and ENT surveillance exams demonstrate effective treatment, an aviator would be eligible for a waiver. For aviation, effective treatment occurs when sinus drainage pathways are clear and when nasal polyp burden is either eliminated or determined to be minimal and non-obstructive on an ENT endoscopic exam.

In severe cases of CRSwNP (where significant disease recurs after conventional medical management AND completion of a comprehensive FESS procedure), prolonged courses of systemic steroids and/or biologics may be recommended. If the need for systemic steroids is

infrequent (<1 course/year) and there have been no occurrences of sinus barotrauma, the member may still be eligible for a waiver. If systemic steroid use is prevalent, a waiver is less likely to be recommended.

**Biologic agents** are a newer treatment modality that uses monoclonal antibodies to target specific molecular pathways of inflammation. In 2018, Dupilumab (aka-Dupixent), Omalizumab and Mepolizumab are the only FDA approved add-on maintenance treatment for adults with inadequately controlled CRSwNP. Dupilumab is prescribed as a self-injectable medication that is delivered subcutaneously every 2 to 4 weeks. Although long term efficacy and safety data is unknown, clinical trials have demonstrated its ability to reduce polyp burden and improve subjective symptoms with very few adverse side effects. Dupilumab and other emerging biologic therapies are clinically promising. Yet, as a maintenance therapy, availability of these medications in forward-deployed operational environments may be challenging.
**Since biologics are used to control severe, refractory cases of CRSwNP, they are disqualifying for all aviation classes with duties involving flying.**

**Radiologic Imaging Requirements and Comments**:
1. CRSwNP patients managed *only with medical therapy* **do** require a post-treatment non-contrast CT scan of the sinuses to determine significant improvement with ostiomeatal (OMC) complex patency, or resolution of CRS.
2. *** *Surgically treated* CRSwNP patients **do not** require a post-operative CT scan unless clinically indicated. ****
3. Maxillary mucous retention cysts (MMRC) are routinely found as an incidental finding on various imaging modalities. When visualized on plain x-ray film, it may be difficult to determine whether a small, ovoid soft tissue density in the maxillary sinus is a MMRC versus a sinonasal polyp. If there are no clinical indicators to suggest CRSwNP (ie. recurrent sinusitis, recurrent barotrauma, polyps identified on exam), it is most likely a benign MMRC that does not require further evaluation and is NCD. If there is suspicion for underlying pathology, additional imaging with a CT scan or an ENT referral is recommended.

**WAIVER:** CRSwNP is considered disqualifying for all aviation duties involving flying (Class 1&2) and will require a waiver.

Applicants:

1. Presence of nasal polyps on a current exam is CD WNR.
2. Current use of biologic agent to control CRSwNP is CD WNR.
3. History of nasal polyps is CD with waiver consideration based on the following criteria:

A waiver may be considered if the polyps have been effectively treated with medical management or surgery (ie. Functional endoscopic sinus surgery) AND there is a one-year post treatment period with controlled symptoms and no evidence of polyp recurrence.

Designated:

1. Waivers are considered if the polyps have been effectively treated with medical management or surgery (ie. Functional endoscopic sinus surgery) AND the member is cleared by ENT to resume flying duties.
2. In designated aviators who meet clinical indications for Dupilumab or other biologic therapy, a waiver may be considered on a case-by-case basis.

**Both Applicants and Designated:**
**1. Must demonstrate control of sinonasal symptoms on Aviation approved medications.**
**2. Must successfully complete a barofunction challenge to include a Chamber ride or functional test flight (backseat ride).**

**AMS information required for a CRSwNP waiver submission**:
A. ENT evaluation
B. All Surgical Reports
C. Any Imaging Reports (ie. CT scans)
D. Surgeon's Post- Operative Notes. Usually 4-6 weeks s/p surgery, the note should include an endoscopic examination and recommendations for ongoing medical therapy and follow up.
E. Barofunction Test: Must Pass a Hyperbaric/Hypobaric chamber ride or functional test flight. If treated with surgery- Test should be completed no sooner than 4wks after the surgery and after the ENT surgeon gives clearance to fly. (see ARWG 6.2)

**ICD-10 CODES:**

**J33.9** Nasal polyps, unspecified

**J32.0** Chronic Maxillary Sinusitis

**J32.1** Chronic Frontal Sinusitis

**J32.2** Chronic Ethmoid Sinusitis

**J32.3** Chronic Sphenoidal Sinusitis
**J32.4** Chronic Pansinusitis

**J32.8** Other chronic sinusitis

**J32.9** Chronic sinusitis unspecified

**J70.8** Respiratory conditions due to other specified external agents (AERD)

**09BK4ZZ** Excision Nasal Mucosa and Soft Tissue, Percutaneous Endoscopic Approach

## 6.4 DISORDERS OF THE SALIVARY GLANDS

Last Revised: April 2025 Last Reviewed: April 2025

**AEROMEDICAL CONCERNS:** Pain or discomfort will usually result from retained salivary stones, especially after eating or drinking. Tumors may interfere with oxygen mask fit.

**WAIVER:** Following successful treatment of salivary stones or tumors, a waiver may be granted provided there is no facial deformity or nerve damage that would interfere with flight duties.

**INFORMATION REQUIRED:**

1. Copies of all pertinent consultations
2. CT/MRI reports
3. Operative report (if applicable)
4. Pathology reports (if applicable)

If pathology reports indicate a malignant process, the following information is also required:

1. Oncology evaluation

**TREATMENT:** Stone removal or gland excision (partial or total) is compatible with waiver, as are most cases of benign tumor removal. Extensive surgery for malignancy may not be, so each case of malignancy will be considered in detail by NAMI ENT before a recommendation can be made.

**DISCUSSION:** Mixed tumors (pleomorphic adenomas) comprise 70% of all salivary gland tumors; only a small number of these (5-6%) are malignant. The great majority of salivary tumors (85%) occur in the parotid gland, and 70% of these are the benign mixed type. Another benign tumor, the Warthin's tumor, accounts for 10% of parotid neoplasms, while malignant tumors (in descending order of frequency: mucoepidermoid carcinoma; malignant mixed tumor; acinous cell, adenoid cystic, and squamous cell carcinomas), and other rare lesions account for the remaining 20%. Benign mixed tumors have a recurrence rate of approximately 2%, usually due to incomplete removal or seeding at the time of removal. Malignant tumors have a much higher rate of recurrence. With adenoid cystic carcinoma, 40% have metastasized by the time of diagnosis; 5-year survival is 45-82%, depending on the study, falling to as low as 13% at 20 years. The corresponding figure for adenocarcinoma is 49-75% at 5 years, with a drop to 41-60% at 10 years.

**ICD-10 CODES:**
**C08 Malignant neoplasm of the other and unspecified major salivary glands**
**D11 Benign neoplasm of major salivary glands**
**D11.0 Benign neoplasm of the parotid gland**
**D11.7 Benign neoplasm of other major salivary glands**
**K11.2 Sialoadenitis**
**K11.3 Abscess of the salivary gland**
**K11.4 Fistula of the salivary gland**
**K11.5 Sialolithiasis**
**K11.8 Other diseases of salivary glands (includes stenosis and strictures)**
**K11.9 Disease of the salivary gland, unspecified (includes sialoadenopathy)**

## 6.5 HEARING LOSS

Last Revised: April 2025 Last Reviewed: April 2025

**AEROMEDICAL CONCERN:** The inability to clearly hear cockpit radio transmissions and warning tones can have a significant impact on flight safety.

**WAIVER: Waivers for hearing loss will be considered based on the degree of hearing loss and the member's resulting functional capability.**

**DISCUSSION:**

Conductive hearing loss: Waivers following surgical treatment of conductive hearing loss may or may not be necessary, depending on the underlying pathology, extent of surgery, and final hearing results.

**Uncomplicated repair of a traumatic tympanic perforation resulting in full correction and normal hearing is NCD.**

Otosclerosis:
Stapedectomy or stapedotomy to treat otosclerosis is CD and requires a waiver.

- ***a.*** Designated pilots are grounded for three months following stapedectomy before a waiver would be recommended to SG1.
- ***b.*** For NFO and other Class II of Class III personnel who undergo a stapedectomy, a waiver is also considered for duty involving flying after three months.
- ***c.*** Bilateral stapedotomy will be considered for a waiver on a case-by-case basis.
- **d. Applicants with otosclerosis and a history of stapedotomy or stapedectomy are NPQ. Waivers may be considered on a case-by-case basis.**

Otosclerosis treated with observation is disqualifying and waiver required if the hearing falls below standards.

Vestibular Dysfunction or progressive sensorineural hearing loss: No waiver will be recommended if there are active signs of vestibular dysfunction, spontaneous nystagmus (see chapter 6.6), or if progressive sensorineural hearing loss (SNHL) is present in individuals with hearing loss of any variety.

Sudden Sensorineural Hearing Loss (SSNHL): **Be suspicious of sudden SNHL and have a low threshold for using tuning forks and requesting an urgent audiogram or ENT consult**. The longer it takes for SSNHL to be recognized, the less likely it is that intervention will be successful to restore hearing. Management includes oral or transtympanic steroids and/or hyperbaric oxygen. Some patients will recover most of their hearing with no intervention. The percentage of patients who recover serviceable hearing is improved with steroid treatment. Some patients with sudden SNHL will not recover and this will have a significant impact on their quality of life and may not be compatible with aviation duties.

A patient who has suffered a sudden SNHL may be considered for a waiver following ENT evaluation/treatment and after a suitable interval has elapsed in order to establish the stability of their hearing level (30 days at a minimum). Waivers may be considered after SSNHL based on underlying pathology (if identified), personnel class, hearing and speech reception scores following treatment, and results of functional hearing testing. If an individual has suffered severe sudden hearing loss and does not recover function despite aggressive treatment, it is less likely that a waiver will be recommended.

Asymmetric Hearing Loss: Unilateral sensorineural hearing loss presents few operational problems, but new or progressive unilateral loss can have significant medical implications and ENT consultation is necessary to rule out such conditions as a vestibular Schwannoma (see chapter 6.8).
It is important to recognize when asymmetry is present and be sure that it receives appropriate consideration and evaluation if indicated. Restriction from flying is not required during this workup. The guidelines for when to refer a patient for MRI of the IACs and/or ENT evaluation of asymmetric hearing loss are:

- Three contiguous frequencies that are each 10 dB or more worse than the same frequencies in the other ear,
- Two contiguous frequencies that are 15 dB or more worse than the same frequencies in the other ear, or
- One frequency that is 25 dB worse than the same frequency in the other ear.

Hearing Aid Use: Wearers of hearing aids will require a cockpit/in-flight hearing evaluation to demonstrate the ability of the subject to communicate adequately in that environment. Air traffic controllers will also need to have a functional hearing test completed by their supervisor or other qualified individual to document that they are able to communicate effectively with the aircraft that they are controlling and with tower personnel. Newer hearing aids that sit entirely within the ear canal are comfortable enough to be compatible with in-flight use, although they may not improve one's ability to hear in that environment and may be detrimental. ***All equipment must be tested for use in the aviation environment to make sure that it is compatible with systems.*** Therefore, an **in-flight hearing test should be performed both with and without the aid(s), if the individual intends to wear them.**

**TREATMENT:** Hearing loss may be improved with amplification (hearing aids) if surgical treatment is not indicated or reasonable, or the individual does not desire to pursue surgery. The use of hearing aids in flight is not necessarily advantageous due to possible interference with wearing of the helmet and the perceived lack of benefit in the noisy cockpit environment. Hearing aid users will often do well without the aids in the cockpit if they have a properly fitting helmet, wear noise attenuating plugs or Communication Ear Plugs (CEPs), and carefully adjust their radio volumes. Hence an in-flight hearing test provides the most information if performed both with and without the aid(s).

**INFORMATION REQUIRED:** *(Refer to ManMed section 15-85 for current hearing standards for applicants and designated personnel.)*

1. Audiology consult (audiogram must include speech reception thresholds and speech discrimination scores)
2. ENT consult
3. Surgical report (s) (if applicable)
4. Result of functional/cockpit hearing test if hearing loss persists following treatment/surgery that exceeds designated standards:

| Hz | 500 | 1000 | 2000 | |
|---|---|---|---|---|
| dB | 35 | 30 | **50** | **(worse ear)** |
| dB | 35 | 30 | 30 | (better ear) |

Functional Hearing Assessment: Testing in a multiplace aircraft will suffice for testing of aviators normally assigned to single seat aircraft, provided ambient noise levels are similar. It may be most practical to have the member repeat a list of common aviation phrases, such as checklist items and responses, air traffic control commands, air-to-air communications, etc. The list of phrases can be tailored to the aircraft and its mission. A third party with normal hearing can take the test at the same time so that there will be some means of comparison. Such testing should not be necessary unless the member fails to meet SG1 hearing standards that are listed above or is interested in trying a hearing aid in flight. Testing should also be considered in the rare instance of an aircrew member who is having communication difficulties in the aircraft despite an audiogram that shows pure tone thresholds to be above standards. A sample submission narrative for a functional hearing test follows.

Adjust this statement as necessary:

NARRATIVE STATEMENT FOR FUNCTIONAL HEARING TEST:

On (date) the subject, (name) had a functional hearing test performed at (location). The test was performed in (aircraft type) on the ground with the engine functioning and with the aircraft capable of achieving flight. (name) demonstrated that he/she was able to communicate clearly and effectively with the air traffic control personnel on the radio as well as with aircrew and ground crew personnel on the intercom. There were no errors in communication and he/she demonstrated effective understanding of instructions given over the radio. I was present during this test and witnessed his performance. (Alternatively you could state the pilot's name, or whoever it was, who witnessed the test and verified the performance.)

**ICD-10 CODES:**

**H90.0 Conductive hearing loss, bilateral**
**H90.1 Conductive hearing loss with unrestricted hearing on the contralateral side**
**H90.11 Conductive hearing loss, right ear, with unrestricted hearing on the contralateral side**
**H90.12 Conductive hearing loss, left ear, with unrestricted hearing on the contralateral side**
**H90.2 Conductive hearing loss, unspecified**
**H90.3 Sensorineural hearing loss, bilateral**
**H90.4 Sensorineural hearing loss unilateral with unrestricted hearing on the contralateral side**
**H90.41 Sensorineural hearing loss, unilateral, right ear, with unrestricted hearing on the contralateral side**
**H90.42 Sensorineural hearing loss, unilateral, left ear, with unrestricted hearing on the contralateral side**
**H90.5 Unspecified sensorineural hearing loss**
**H90.6 Mixed conductive and sensorineural hearing loss, bilateral**
**H90.7 Mixed conductive/sensorineural hearing loss unilateral, unrestricted hearing on contralateral side**
**H90.71 Mixed conductive/sensorineural hearing loss right ear, unrestricted hearing on contralateral side**
**H90.72 Mixed conductive/sensorineural hearing loss left ear, unrestricted hearing on contralateral side**
**H80.8 Other otosclerosis**
**H80.81 Other otosclerosis, right ear**
**H80.82 Other otosclerosis, left ear**
**H80.83 Other otosclerosis, bilateral**
**Z96.29 Presence of other ontological and audiological implants (includes stapes replacement)**
**09B8 Excision of auditory ossicle, right**
**09BA Excision of auditory ossicle, left**

## 6.6 PERIPHERAL VERTIGINOUS DISORDERS

Revised: March 2025 Reviewed: March 2025

**AEROMEDICAL CONCERNS:** All forms of vertigo involve some degree of incapacitation and safety risk. Aeromedical decision making to return personnel to flight duties should consider risk of recurrence, mission, platform, and flight responsibilities. Waiver recommendations will be considered on a case-by-case basis.

**SUMMARY:**

| | **Risk of recurrence** | **Minimum time asymptomatic** |
|---|---|---|
| **Vestibular neuritis** | Minimal | 4 weeks |
| **Labyrinthitis** | Minimal | 4 weeks |
| **BPPV** | Variable | 12 weeks (class I), 4 weeks |
| **Meniere's disease** | Variable/moderate | 6 months |
| **Superior semicircular canal dehiscence** | <5% lifetime risk post-surgery | 6 months (to SG3)<br>12 months (to SG1) |

**DISCUSSION:**
A precise diagnosis is not always possible in vertigo cases. Waiverability is easier to determine in vertigo cases with diagnostic certainty. Cases of unexplained vertigo, dizziness or disequilibrium with no definitive diagnosis are generally not recommended for aeromedical waiver due to inability to accurately assess future recurrence risk.

**VESTIBULAR NEURITIS:**

- Vestibular neuritis (or neuronitis) is a common form of vertigo in young and otherwise healthy aviation personnel. It presents as isolated vertigo, lasting hours to days, and frequently preceded by a viral illness. Occasionally, the vertigo can be disabling enough to require vestibular suppressants such as diazepam or meclizine, which are not compatible with flight. Patients with vestibular neuronitis commonly have a protracted course of non-vertiginous imbalance lasting weeks to months after an episode. The use of vestibular suppressants can delay central compensation, so it is recommended that patients use them sparingly and only during the initial, acute vertiginous phase.
- The risk of recurrence for vestibular neuritis is low.
- If an individual has a viral illness associated with a brief (1-3 day) period of vertigo or disequilibrium followed by complete recovery of function and a normal neurologic evaluation (no evidence of vestibular dysfunction), then this can be classified as NCD. The individual may be returned to flight duties without need for a waiver if they remain completely free of symptoms for at least 4 weeks.
- More protracted cases of vertigo following viral illnesses should be fully evaluated with advanced vestibular testing, particularly in higher-risk personnel such as SG1 aviators. If an uncompensated vestibular deficit is identified, they will need to demonstrate complete

central compensation as indicated by vestibular testing performed by an audiologist or specialized physical therapist.
- Vestibular rehabilitation therapy improves recovery of patients with a protracted course of vertigo and referral is recommended.

**LABYRINTHITIS:**

- Vestibular considerations are the same for those with vestibular neuritis, however, labyrinthitis presentation includes sudden sensorineural hearing loss. This is an ENT emergency, requiring urgent ENT referral with aggressive oral steroid taper, transtympanic steroids treatment and/or hyperbaric oxygen.
- Degree of recovery of hearing (see ARWG section 6.5) and vestibular function will dictate the potential for a waiver. Consideration for a waiver will require, at minimum, a 4-week asymptomatic period, normal or compensated results of vestibular testing.

**BENIGN PAROXYSMAL POSITIONAL VERTIGO (BPPV):**

- Lifetime prevalence of BPPV was 2.4 percent (Brevern et al., 2007). Recurrences are common at 20-30% within the first year, and 50% of recurrences occurring over the first 6 months. Recurrence in USAF aviators reported at less than 1% in the first year and approximately 24% in five years after 6 months of remission (U.S. Air Force School of Aerospace Medicine, 2024).
- Canalith repositioning maneuvers (e.g. Epley Maneuver) expedite recovery. Advanced vestibular testing and/or therapy is not usually required but may be beneficial in cases with protracted symptoms or when the diagnosis is uncertain.
- Waivers for BPPV will be considered on a case-by-case basis, considering aviation personnel class, platform and mission. Aviation personnel with BPPV may be considered for a waiver when their symptoms have been completely resolved without recurrences for at least 4 weeks. A longer symptom-free period of 12 weeks should be considered for Class I, SG1 aviators, or in cases where there is diagnostic uncertainty.

**MENIERE'S DISEASE:**

- The exact pathophysiology resulting in "endolympatic hydrops" and Meniere's disease (MD) is unknown. MD results in unpredictable, recurrent symptoms of vertigo, aural fullness, tinnitus and fluctuating hearing loss that may progress to a significant and permanent impairment with the potential to become bilateral.
- Treatment includes low sodium diet, thiazide diuretics, and stress management. Vestibular sedatives such as diazepam or meclizine may be used for active vertigo, however these medications are not compatible with duties involving flight. Despite treatment, the underlying condition persists and is typically not waiverable. Surgery for MD or transtympanic middle-ear gentamicin therapy has variable results on vertigo. These treatments have not routinely been considered for waiver and will require one-on-one communication with the NAMI ENT Department or designated specialty SME.

- Waivers for MD are rarely recommended. They are considered on a case-by-case basis in those with prolonged remission, long term stability of symptoms, and normal function on vestibular testing using aeromedically appropriate non-sedating medical management or ablative therapy. If a waiver is granted for a pilot, he or she will have to demonstrate at least 6 months of being symptom free and will generally be recommended for SG3 only.

**SUPERIOR SEMICIRCULAR CANAL DEHISCENCE (SSCD):**

- SSCD can result in vertigo provoked by loud noises or pressure-changing maneuvers such as coughing, straining (including anti-G straining maneuvers), or sneezing. Other symptoms include aural fullness and autophony in the affected ear.
- Diagnosis can be confirmed with temporal bone CT imaging, audiogram (may show conductive hearing loss) and vestibular testing.
- Definitive treatment is surgical resurfacing or plugging of the superior semicircular canal.
- Waivers are considered on a case-by-case basis after successful treatment. Class I personnel will likely be limited to SG3, non-ejection seat aircraft.

**NEUROLOGIC CONSIDERATIONS:**

- Vestibular migraine: dizziness is a common symptom in patients with migraine.
    - Patients may have episodic symptoms described as vertigo, unsteadiness, or lightheadedness. These symptoms may be triggered by head movements, visual stimuli, and other common migraine triggers (stress, sleep deprivation, etc.).
    - There is wide variability reported in the temporal association of vertigo to the headache (before, during or after headache phase), but commonly the vertigo is associated with other migraine features (photophobia, phonophobia, nausea).
    - Symptomatic vestibular migraine is considered for a waiver on a case-by-case basis given the unpredictability of the symptoms, high prevalence of interictal symptoms, and non-aeromedically compatible medications typically recommended for treatment. See ARWG 10.5 for further headache waiver guidance.

**WAIVER REQUIREMENTS:**

1. Complete history components:
    a. Frequency
    b. Duration
    c. Severity
    d. Character of vertiginous attacks
    e. Type of maneuvers that provoke symptoms
    f. Presence or absence of associated symptoms such as hearing loss, aural fullness, tinnitus, headaches, or focal neurologic symptoms.
    g. Include past history of syphilis, mumps or other serious infections, inflammation of the eye, autoimmune disorder or allergy, and ear surgery.

2. Current physical including ENT and neurologic examination findings: nystagmus, balance, and results of Dix-Hallpike testing.

3. ENT evaluation.

4. Audiology evaluation including speech discrimination, tympanometry and acoustic reflexes.

5. Vestibular function testing (if completed): rotary chair testing, video nystagmography (VNG), vestibular evoked myogenic potentials (VEMP), electrocochleography (Ecog), dynamic posturography or dynamic visual acuity. Not every test is indicated and will depend on availability.

6. Results of vestibular rehabilitation therapy (if performed).

7. Results of follow up vestibular function testing with demonstration of resolution or compensation as indicated by vestibular testing (if applicable).

8. Neurology consult can be considered and should be included if completed.

9. Laboratory testing (when clinically indicated): consider CBC, ESR, TFTs, lipids, glucose, and syphilis serology.

10. Imaging (if indicated by diagnosis): pre/post-contrast MRI of the brain and internal auditory canal (IAC) to rule out retrocochlear pathology such as cerebello-pontine angle (CPA) tumors, multiple sclerosis, anatomical variants, etc. and/or temporal bone CT to rule out superior semicircular canal dehiscence.

**ICD-10 CODES:**
**H81.0 Meniere's disease**
**H81.01 Meniere's disease, right ear**
**H81.02 Meniere's disease, left ear**
**H81.03 Meniere's disease, bilateral**
**H81.09 Meniere's disease, unspecified ear**
**H81.1 Benign positional vertigo**
**H81.10 Benign positional vertigo, unspecified**
**H81.11 Benign positional vertigo, right ear**
**H81.12 Benign positional vertigo, left ear**
**H81.13 Benign positional vertigo, bilateral**
**H81.39 Other peripheral vertigo**
**H81.391 Other peripheral vertigo, right ear**
**H81.392 Other peripheral vertigo, left ear**
**H81.393 Other peripheral vertigo, bilateral**
**H81.399 Other peripheral vertigo, unspecified**
**H81.4 Vertigo of central origin**

**H81.2 Vestibular neuronitis**
**H81.20 Vestibular neuronitis, unspecified**
**H81.2 Vestibular neuronitis, right ear**
**H81.2 Vestibular neuronitis, left ear**
**H81.2 Vestibular neuronitis, bilateral**

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## 6.7 CHOLESTEATOMA

Last Revised: January 2023 Last Reviewed: January 2023

**AEROMEDICAL CONCERNS:** Cholesteatoma is a concern in aviation personnel due to potential for hearing loss, risk of recurrence, and the possibility of labyrinthine and intracranial involvement in severe cases. It is often – but not always - associated with chronic Eustachian tube dysfunction, which on its own presents a risk for otic barotrauma in flight.

**WAIVER:** A history of cholesteatoma is considered disqualifying. Most cholesteatomas must be surgically removed before a waiver can be considered. Recurrence rates of cholesteatoma are approximately 12%- 25%, hence they require long-term follow-up. Initial waivers should be annual and Otolaryngology evaluations must be submitted for waiver consideration. Persistence of cholesteatoma maybe cause for waiver withdrawal, pending the outcome of further surgery. Routine waivers may be recommended in cases of a remote history of surgery and / or established lack of persistent cholesteatoma on repeat annual specialty evaluations. Waivers for applicants will be considered on a case-by-case basis.

**INFORMATION REQUIRED:**
1. Otolaryngology evaluation, including post-operative clearance and follow-up plan for initial request. Subsequent evaluations confirming lack of recurrence for annual submissions.
2. Pre and post-operative audiology evaluation (formal audiogram with tympanometry, bone conduction and word recognition testing)
3. Operative report (s)

Since cholesteatoma surgery involves the middle ear and – usually- the mastoid cavity, there is risk to hearing, balance, and facial nerve function. Any impairment in these areas should be addressed in the waiver request.

**Post-operative hearing that is below standards will also require a waiver (see section on Hearing Loss).**

**TREATMENT:** Surgical removal.

**DISCUSSION:** Given the relatively high recurrence rate of cholesteatomas, it is important that every attempt is made by the surgeon to ensure that there is no residual disease after surgery. Occasionally, the surgeon will plan (or advise) a re-exploration of the ear, usually in 6-12 months, or the middle ear and mastoid followed radiographically (MRI, CT or both). Recurrent or continuous drainage following surgery may indicate the presence of persistent cholesteatoma. **If the clinical, surgical or radiographic follow-up is concerning for residual cholesteatoma, the waiver process must be repeated.** As a rule, each time residual cholesteatoma is found, the surgeon will recommend re-exploration until no further cholesteatoma is found. There is no maximum number of repeat surgeries before a waiver is permanently revoked. The extent of disease, co-existing Eustachian tube dysfunction, hearing outcome, likelihood of recurrence, and any complications will all be taken into account in each case.
.
**Code NA05 and NAMI ENT shall be notified each time a surgery is performed for recurrent cholesteatoma.**

**ICD-10 CODES:**
**H71 Cholesteatoma of middle ear**

**H71.9 Unspecified cholesteatoma of middle ear**
**H71.90 Unspecified cholesteatoma of middle ear, unspecified ear**
**H71.91 Unspecified cholesteatoma of middle ear, right ear**
**H71.92 Unspecified cholesteatoma of middle ear, left ear**
**H71.93 Unspecified cholesteatoma of middle ear, bilateral**
**09BD8ZZ Excision of right inner ear, via natural or artificial opening, endoscopic**
**09BE8ZZ Excision of left inner ear, via natural or artificial opening, endoscopic**

## 6.8 VESTIBULAR SCHWANNOMA / ACOUSTIC NEUROMA

Last Revised: January 2023 Last Reviewed: January 2023

**AEROMEDICAL CONCERNS:** Progressive hearing loss, tinnitus, trigeminal paresthesia, imbalance, and occasionally vertigo have all been attributed to vestibular Schwannomas. Profound hearing loss / deafness, labyrinthine dysfunction, and facial nerve weakness or paralysis can occur after surgical excision. Following treatment with radiation or proton beam therapy, some patients experience a gradual, but significant, decrement in hearing (up to 75% of patients in one study). Facial nerve weakness is less common, but possible, following radiation therapy.

**WAIVER:** A waiver may be considered if there are no serious sequelae one year following successful excision of a unilateral tumor. Individuals treated with observation may be eligible for a waiver after an initial 6-month period of observation, as long as there is no evidence of clinically significant vestibular dysfunction. Class I Aviators will be considered for an SG3 waiver initially. Vertigo, ataxia, and facial paralysis are examples of unacceptable complications. Unilateral hearing loss, even deafness, is common following treatment (surgical or with radiation therapy) and may well be waiverable provided adequate hearing remains in the other ear and the hearing loss is compatible with the member's mission.

Waivers for applicants are generally NOT recommended.

**INFORMATION REQUIRED:**
1. ENT consult
2. Audiology consult
3. MRI (serial reports if indicated)
4. Neurology consult
5. Neurosurgery consult
6. Surgical report
7. Pathology report (if tumor was resected)
8. Radiation oncology report (if treated with radiation)
9. Post-operative vestibular evaluation including dynamic posturography and dynamic visual acuity testing to demonstrate complete compensation of any permanent vestibular deficit.
10. Functional cockpit hearing test if there is significant hearing loss present
11. Include a copy of all Medical Boards which have been written for the member (if applicable).

Untoward postoperative symptoms, such as recurrent headaches, as well as complications (CSF leak, facial paralysis, etc.), need to be especially well documented in the Aeromedical Summary and waiver request.

**TREATMENT:** Observation with serial MRI, surgical excision, stereotactic radiotherapy, stereotactic radiosurgery, or proton beam therapy.

**DISCUSSION:** Vestibular schwannomas arise from the superior or inferior branch of the vestibular division of the eighth nerve within the internal auditory canal. Although patients may describe some degree of unsteadiness, true vertigo is not a very common presenting complaint due to central compensation of the gradually progressive loss of vestibular function on the affected side. Asymmetric hearing loss is the most common presenting symptom, followed by tinnitus. Large tumors can extend from the internal auditory canal into the cerebellopontine angle as they enlarge and impact cranial nerves in that region such as the trigeminal nerve, resulting in facial paresthesia. Other neurologic dysfunction is possible, so a thorough neurologic evaluation is critical. Most vestibular Schwannomas are unilateral. In patients with neurofibromatosis (NF2), neuromas can occasionally be bilateral. Vestibular schwannomas are virtually always benign. Operative morbidity is related to the size of the tumor, and hearing is often affected. Up to 50% of patients will have no useful hearing in the involved ear after surgery, although hearing preservation following surgical treatment of small tumors can be higher than with stereotactic radiosurgery. Other cranial nerves also may be damaged during surgery (i.e. trigeminal and facial). Facial paralysis may make wearing of an oxygen mask difficult, may result in speech problems, and can cause eye symptoms due to inability to close the eyelids. Radiotherapy is not without risk and although complications may take longer to develop, patients can still develop a significant hearing loss. There is a slight risk of benign cyst development and a rare possibility of malignant transformation. Persistent tumor growth occurs in roughly 5% of patients following various forms of radiation treatment and will require surgical excision. Treatment choice will be up to the patient and the available resources.
In the aviation community - where all individuals are part of the hearing conservation program - asymmetric hearing loss may be the first noticeable sign of concern. Small vestibular Schwannomas may not have a significant effect on the individual's ability to function. Many may be completely asymptomatic. In these cases, it may be completely appropriate for a patient to elect observation as treatment as approximately 50% of these lesions will not progress any further. The tumor will usually be observed with serial MRIs at 6 to 12 month intervals. Generally, the tumor is either removed surgically or treated with stereotactic radiation therapy if it increases in size, there is further decrement in the hearing on the affected side, or facial weakness, imbalance or vertigo develop. If the tumor demonstrates growth at a rate greater than 2.5mm per year, the individual is at greater risk of hearing loss and should receive treatment sooner than later.

**This guide does not recommend a specific treatment for vestibular Schwannomas. A waiver can be considered regardless of treatment modality – including observation - if the treatment is effective and the patient demonstrates a good recovery without significant complications, normal or compensated vestibular function and adequate hearing.**

**ICD-10 CODE:**
**D33.3 Benign neoplasm of cranial nerves**

**H93.3X Disorders of acoustic nerve**

## 6.9 OVAL/ROUND WINDOW PERILYMPH FISTULA

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**AEROMEDICAL CONCERNS:** A perilymph fistula (PLF) can result in either or both episodic vertigo and sudden onset or fluctuating sensorineural hearing loss. It may mimic Meniere's disease.

**WAIVER:**

1- A history of fistula is CD, no waiver, for all applicants.
2- In Designated Naval Aviators, ground for six months, SG3 for six months, then SG1 if remains asymptomatic.
3- For NFO's and all Class II or III personnel, ground for six months, submit a waiver request if remain asymptomatic. Call NAMI ENT in the rare case of bilateral fistulae.

**INFORMATION REQUIRED:**

1. Copies of all records involving the initial clinical presentation
2. All ENT consults, notes, tests, operation reports, etc.
3. Audiology report
4. Vestibular test results

**TREATMENT:** Initial treatment is conservative, with avoidance of lifting, straining or exposure to significant barometric pressure changes, especially ones that might require a Valsalva maneuver. If a medevac is necessary, it will be important to limit altitude changes. If hearing and vestibular symptoms don't improve, and certainly if they worsen, exploratory tympanotomy is indicated. If a fistula is present, it can be surgically sealed.

**DISCUSSION:** While fistulae may occur spontaneously, most are associated with head injury or barotrauma, especially in the active-duty population. Many patients with a "fresh" PLF from barotrauma will complain of vertigo coming in waves in a crescendo/decrescendo pattern accompanied by a progressive or fluctuating sensorineural hearing loss. This pattern of symptoms/findings occurs as perilymphatic fluid is forced through a tear in the round window (RW) membrane or through the annular ligament of the stapes in the oval window (OW). The tear may partially seal itself until more perilymphatic fluid is produced and forces its way through the defect. Perilymphatic fluid is thought to be produced as a filtration product of cerebrospinal fluid, so there is a bit of a pressure head that tends to force more fluid out through the defect in either the RW or OW.

PLFs may also occur as a result of Q-tip misadventure or improper cerumen irrigation technique. These will be associated with injury to the tympanic membrane and probably the ossicular chain. These patients will most likely have a conductive hearing loss in addition to the sensorineural loss that is caused by the PLF.

It will be of critical importance to know the timing of symptom onset in relation to the patient's flight profile in order to distinguish a PLF from Type II decompression sickness. Barotrauma of sufficient severity to cause a PLF generally only occurs during descent. If the onset of vertigo and/or hearing loss occurs during or after ascent (or a rapid decompression), consideration must be given to the more likely onset of DCS, in which case hyperbaric oxygen therapy is indicated. The descent involved in HBO treatments will make a PLF worse.

As surgery does not always seal the fistula, and recurrence is possible, various waiting periods are prescribed for different classes of personnel. The longest period is for designated Naval Aviators, as there is a considerable safety issue should acute vertigo occur during flight.

**ICD-10 CODE:**
**H83.1 Labyrithine fistula**
**H83.11 Labyrithine fistula, right ear**
**H83.12 Labyrithine fistula, left ear**
**H83.13 Labyrithine fistula, bilateral**
**H83.19 Labyrithine fistula, unspecified ear**

## 6.10 EUSTACHIAN TUBE DYSFUNCTION

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**AEROMEDICAL CONCERN:** Eustachian tube dysfunction (ETD) may lead to chronic ear symptoms that could adversely affect flight performance and result in disqualifying middle ear conditions. When challenged with rapid pressure changes commonly experienced during flight; even mild forms of Eustachian tube dysfunction (ETD) may lead to significant barotrauma. The sudden ear pain can be incapacitating and poses a significant risk for flight safety.

**WAIVER:** Chronic Eustachian tube dysfunction with the inability to equalize middle ear pressure is considered disqualifying for all aviation duties involving flying. Waivers will be considered after the ETD is fully evaluated and successfully using current clinical best practices that includes ENT consultation.

1. Applicants: Chronic ETD is CD and waivers are rarely considered unless ETD is completely resolved. Normal otoscopy findings and TM mobility need to be demonstrated at least 6 months after medical or surgical intervention. Ear tubes are CD for applicants and waivers will rarely be considered in this case.

2. Designated: Chronic ETD is CD and waivers will be considered on a case-by-case basis.

**INFORMATION REQUIRED:**

A. History – symptoms (when on the ground and flying), duration. Treatment.
B. Physical – HEENT including Valsalva.
C. ENT consultation. Include any surgical reports if applicable.
D. Audiology with Impedance test (tympanometry) consultation report.
E. Barofunction Test - Must Pass a Hyperbaric/Hypobaric chamber ride or functional test flight after treatment. If treated with Balloon Dilation of the Eustachian Tube (BDET)- Test should be completed no sooner than 8 weeks after the procedure and after ENT surgeon gives clearance to fly.

**DISCUSSION:** The Eustachian tube (ET) is a narrow passageway that connects the nasopharynx to the middle ear space. It functions to: a) equalize pressure between the middle ear and the environment, b) clear secretions from the middle ear, and c) protect the middle ear from pharyngeal pathogens and sounds. At rest, it is normally collapsed. Aided by muscles associated with swallowing or yawning, the ET will transiently open to ventilate the middle ear space and equilibrate it to the surrounding atmospheric pressure. Eustachian tube dysfunction (ETD) can be classified as Obstructive (OETD) or Patulous (PETD).

A: OETD occurs when the ET does not properly open to ventilate or clear secretions from the middle ear space. Characteristics include: aural fullness, ear discomfort, tinnitus, and hearing loss. When clinically significant, it is commonly associated with persistent negative middle ear pressure that may lead to chronic otitis media, tympanic membrane (TM) retractions, perforations, and sometimes cholesteatoma. When subclinical, it may only become apparent with rapid barometric pressure changes that occur during flight. This baro-challenge induced ETD is frequently identified during aircraft descent. Since OETD is more common and

significant for members with duties involving flying, the remainder of this discussion will focus on this subtype.

B: PETD occurs when the ET remains in an open configuration. The middle ear and nasopharynx maintain a constant pressure environment that exposes the middle ear to pharyngeal pathogens and sounds. Typical findings include aural fullness, audible respirations, voice autophony, and/or pulsatile tinnitus. Although aviation barotrauma is not a major concern with PETD, an ENT evaluation is recommended if symptoms are persistent and/or bothersome.

**Aviation Evaluation of ET Function:**
Most aviators are assumed to have good ET function based on successful repetitive exposures to barometric pressure changes. However, ET function is a dynamic process that is easily altered by transient or newly developed chronic medical conditions. Therefore, an assessment of ET function should be performed during every flight physical.

Key Elements when Assessing ET Function: ** Routine exam should document a benign ear history and normal otoscopic exam with TM mobility. **

*Ear History*:
**1. Ask about difficulty clearing ears when flying, diving, or with other baro-challenge experiences.**
2. Document any history of ear barotrauma, aural fullness, hearing loss, otalgia, tinnitus, dizziness, recurrent ear infections, ear perforations, or ear surgery.
3. Determine if any comorbid conditions exist: Allergic rhinitis, sinusitis, chronic ear disease, gastroesophageal reflux.

*Physical Exam*:
1. Ensure a normal **Otoscopic exam and TM mobility**. TM mobility can be demonstrated with swallowing, Toynbee maneuver (swallowing with nose/mouth closed), or Valsalva maneuver (forceful expiration against closed nose/mouth).
2. Additional Testing: (if available)
   - **Pneumatic Otoscopy** may be useful in assessing TM mobility, TM retractions, and/or middle ear effusions.
   - **Diagnostic audiogram with tympanometry** may provide useful information regarding middle ear function and an indirect assessment of ET function. This can be especially helpful when TM mobility is not visualized, and ET function is uncertain (ie. the new aviator with a normal otoscopic exam but minimal baro-challenge history or the designated aviator recovering from an acute inflammatory condition).

**Aviation Management of ET Dysfunction:**
If there is concern for ET dysfunction on routine exam or during a specific flight event, the flight surgeon should focus on determining and treating the underlying etiology.

1. **Acute ETD** is commonly due to infectious or inflammatory disorders that affect the upper airway (ie. allergic rhinitis, rhinosinusitis, pharyngitis, laryngopharyngeal reflux). Once the underlying etiology is medically managed, the ET should revert to its normal function. *Acute ETD is Not Considered Disqualifying*. It should be managed conservatively with temporary grounding until symptoms resolve and normal ET function is demonstrated. In cases where ETD results in barotrauma, the condition is still NCD if normal function returns, and recurrence is unlikely. **Repetitive ear barotrauma is treated as a chronic condition and will require ENT consultation and subsequent waiver determination.**

2. **Chronic ETD** is frequently associated with anatomic abnormalities: narrow ET or palatal dysfunction, chronic inflammatory conditions, and/or obstructive masses (adenoid hypertrophy, neoplasm). ***All cases of chronic ETD are Considered Disqualifying for members with duties involving flying (Class I, II).*** The flight surgeon will typically identify chronic ETD when members: a) fail to demonstrate tympanic membrane mobility despite appropriate medical management, b) report frequent difficulty equilibrating ear pressure during flying, and/ or c) show signs of chronic ear disease on routine otoscopic exam. **Chronic ETD will require ENT consultation and subsequent waiver determination.**

A typical ENT evaluation for recurrent barotrauma with or without chronic ETD should include ear microscopy, nasopharyngeal endoscopy, and formal audiologic exam with tympanometry. Initial treatment focuses on managing comorbid conditions such as allergic rhinitis, chronic sinusitis, ear disease, and other inflammatory disorders. If medical management does not resolve ETD, surgical procedures such as a) balloon dilation of the eustachian tube or b) tympanostomy (ear tube) placement may be recommended.

A). **Balloon Dilation of the Eustachian Tube (BDET)** was approved by the FDA for use in 2016 and has shown encouraging results in improving Obstructive ET Dysfunction. After optimal management of comorbid conditions, BDET has demonstrated improvement of ET dysfunction through various outcome measures. In some studies, successful BDET resulted in normalized tympanograms and the ability to demonstrate a normal Valsalva maneuver. Long term outcomes are still being evaluated.

B) **Tympanostomy Tubes** placed within the tympanic membrane are used to ventilate the middle ear space and effectively bypass a poorly functioning ET. Although a common and relatively benign procedure, ear tubes in military aviation can present significant challenges. Most will require permanent tubes that must remain patent. This is difficult when working in a rigorous environment where the ear canal is occluded with hearing protection and amplification devices. Common adverse outcomes include; ear tube failures (clogged, extruded), recurrent otorrhea, infections, granulation, and sometimes large central perforations. Another challenge is that subspecialty ENT care is not readily available to manage ear tube issues in the deployed setting. This may adversely affect mission performance. For these reasons, ear tubes are considered a final treatment option for managing OETD in the military aviator. The FS should seek NAMI guidance before the “designated” member proceeds with ear tube placement to ensure all options have been explored.

**ICD-10 Codes:**

**H68.0X Unspecified Eustachian salpingitis**
**H68.1X Unspecified Obstruction of the Eustachian tube**
**H69.0X Patulous Eustachian tube**
**H69.8X Other specified disorder of the Eustachian Tube**
**H69.9X Eustachian Tube Disorder, unspecified**
**T70.0 Otic barotrauma**
**Z96.22 Tympanostomy tube(s) status; history of tympanostomy tubes**

## 6.11 OTOLARYNGOLOGY - HEAD AND NECK SURGICAL PROCEDURES THAT DO NOT REQUIRE A WAIVER

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Assuming that recovery is uncomplicated and there are no other significant factors, the following surgical procedures do not require a waiver. If there is any question regarding suitability for aviation duties following one of these procedures, please communicate with NAMI ENT.

### NASAL SURGERY

***If any of the following procedures are done in conjunction with sinus surgery or balloon sinuplasty (refer to 6.2 and 6.3), then the patient will require a waiver.***

**Septoplasty with or without inferior turbinate reduction:** (any means of reducing the size of the inferior turbinates, such as cautery, debridement, coblation, cryotherapy, radiofrequency ablation, etc.). May return to flight duties when cleared by surgeon. Typically, within two weeks of surgery.

**Septorhinoplasty**: When postoperative tenderness has resolved so that the nose can be manipulated without discomfort (this can take up to 4-6 weeks) and cleared by surgeon the patient can return to flight duties. There can also be a risk of bleeding that can last up to three weeks or so.

### EAR SURGERY

**Otoplasty**: This procedure will frequently involve placing sutures to hold the auricle in a certain position until it can scar in place and retain that position. The patient should not be manipulating the ears (as would occur when putting on and taking off a helmet) until cleared by the surgeon, which again may take up to six weeks.

**Uncomplicated tympanoplasty for an otherwise uncomplicated tympanic membrane perforation**: If it is the second (or subsequent) attempt to repair a perforation, or if there is a history of chronic drainage or cholesteatoma, a waiver will be required. If the history is in some way complicated by duration or symptoms, then a waiver will probably be required. As an example of the type of surgery that would not require a waiver is the simple repair of a simple traumatic perforation, such as one caused by a slap injury. When in doubt, contact NAMI ENT.

### THROAT SURGERY

**Tonsillectomy**
**Adenoidectomy**
Tonsillectomy for benign indications, eg. recurrent tonsillitis or tonsil stones, is NCD.

**Uvulopalatopharyngoplasty** (UPPP) for primary snoring. [If the patient has obstructive sleep apnea and undergoes pharyngeal surgery, a waiver will be required. See the neurology section of the waiver guide for OSA waiver requirements.]

**Palatal stiffening procedures for treatment of primary snoring** (cautery, palatal implants, coblation, radiofrequency ablation, etc.). Primary snoring refers to the individual who snores, but does not have any evidence of obstructive sleep apnea. This is considered a "cosmetic" problem and may be a nuisance but does not require a waiver. The surgical procedures to correct it do not require waivers unless there is some sort of complication that has an impact on aviation capabilities.

## NECK PROCEDURES

**Removal of submandibular salivary gland** if there is no malignancy. The marginal mandibular branch of the facial nerve is sometimes injured during this procedure. If it results in no difficulties eating or using a mask this is not disqualifying.

**Parotidectomy** if there is no malignancy. Again, the facial nerve can be injured in this procedure with potentially significant functional deficits. If this has occurred, it will probably require a waiver and may be permanently disqualifying.

**Removal of a branchial cleft cyst** if there is no debilitating nerve injury or other complication.

**Removal of other embryologic remnants** such as a thyroglossal duct cysts**.**

## MISCELLANEOUS CONDITIONS

**Nasal Fractures** typically do not interfere with sinus function and even if the fracture is not reduced, the patient usually retains an adequate airway. As soon as the patient can wear a mask without pain or distraction from tenderness, he/she may return to flight duties. This can take 4-6 weeks.

**Isolated fracture of the anterior wall of the maxillary sinus** (softball to the face is a common cause). These fractures do not require a waiver as long as the upper medial wall of the maxillary sinus, where the drainage pathway is located, is uninvolved. Again, it may take 4-6 weeks for tenderness to resolve to the point of being able to tolerate a mask or other safety equipment.

**Peritonsillar abscess.** If the patient chooses not to have an interval tonsillectomy (often done ~6 weeks after drainage of the abscess) he/she may return to aviation duties when free of pain and off medications, typically 2-3 weeks.

**Face lift, or other cosmetic procedures** (facial nerve injuries can also occur with this procedure and if so, must not interfere with function of masks or other equipment).

**ICD-10 CODES:**

**J36 Peritonsillar abscess**

**090K0XZ Alteration of nasal mucosa and soft tissue, external approach (rhinoplasty)**
**090K3ZZ Alteration of nasal mucosa and soft tissue, percutaneous approach (rhinoplasty)**
**09QM3ZZ Repair nasal septum, external approach**
**09BM3ZZ Excision of nasal septum, percutaneous approach**
**09BM0ZZ Excision of nasal septum, open approach**
**09Q0XZZ External ear, right, external approach**

**09Q1XZZ External ear, left, external approach**
**09Q2XZZ External ear, bilateral, external approach**
**09Q74ZZ Repair right tympanic membrane, percutaneous endoscopic approach**
**09Q84ZZ Repair left tympanic membrane, percutaneous endoscopic approach**
**0CBPXZZ Excision of tonsils, external approach**
**0CBQXZZ Excision of adenoids, external approach**
**0CB80ZZ Excision of right parotid gland (lesion), open approach**
**0CB90ZZ Excision of left parotid gland (lesion), open approach**
**0CBB0ZZ Excision of right parotid duct (lesion), open approach**
**0CBC0ZZ Excision of left parotid duct (lesion), open approach**
**0CBD0ZZ Excision of right sublingual gland (lesion), open approach**
**0CBF0ZZ Excision of left sublingual gland (lesion), open approach**
**0CBG0ZZ Excision of right submaxillary gland (lesion), open approach**
**0CBH0ZZ Excision of left submaxillary gland (lesion), open approach**
**0CBJ0ZZ Excision of minor salivary gland (lesion), open approach**
**0CQ23ZZ Repair hard palate, open approach**
**0CQ3XZZ Repair soft palate, open approach**
**0JB40ZZ Excision right neck subcutaneous tissue and fascia, open approach**
**0JB50ZZ Excision left neck subcutaneous tissue and fascia, open approach**
**0JB40ZZ Excision anterior neck subcutaneous tissue and fascia, open approach**

# 7.0 GASTROENTEROLOGY

Last Revised: February 25 Last Reviewed: FEB 25

## 7.1 EOSINOPHILIC ESOPHAGITIS (EOE)/PPI-RESPONSIVE ESOPHAGEAL EOSINOPHILIA (PPI-REE)

Significant changes: 1) Addition of PPI-REE as a differential diagnosis; 2) Biopsies of the antrum or duodenum are no longer required unless clinically indicated; 3) Allergy consultation no longer required, only if clinically indicated.

| | Applicant | Class I | | | Class II | Class III | Class IV |
|---|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | | |
| **CD** | X | X | X | X | X | X | X |
| **NCD** | | | | | | | |
| **WR** | case-by-case [1] | case-by-case [1] | case-by-case [1] | case-by-case [1] | case-by-case [1] | case-by-case [1] | case-by-case [1] |
| **WNR** | | | | | | | |
| **LBFS** | No | No | No | No | No | No | No |
| **EXCEPTIONS** | | | | | | | |
| **LIMDU/PEB** | **May be required for esophagitis when it is persistent and not responsive to therapy (SECNAVINST 1850.4 series, encl (8)).** | | | | | | |

1. Current or history of esophageal disease is considered disqualifying. Waivers are considered on a case-by-case basis.

**AEROMEDICAL CONCERNS**: The condition or its sequelae can adversely affect flight performance, mission, or safety. Symptoms relevant to aviation include dysphagia, food impaction, nausea, vomiting, chest and or abdominal pain. The symptoms are of concern primarily due to the potential impact while operating the aircraft or their effects on mission completion. They may also require additional evaluations and specialty follow up.

**ICD-9 Code/DIAGNOSIS:**
**530.13 Eosinophilic esophagitis**
**530.19 Other Esophagitis**

**SERVICE MEMBER MUST COMPLETE PRIOR TO INITIATING WAIVER**

- Released from *Gastroenterology or Internal Medicine* care with recommendation of return to flight status and no restrictions **documented** on last clinical note (electronic or paper).
- If *Gastroenterology or Internal Medicine* recommends restrictions, then documentation of physical and/or mental limitations and expected duration (permanent vs temporary).
- *Gastroenterology or Internal Medicine* recommendation for follow on care **documented** on last clinical note (electronic or paper).
- *Allergy* consultation, **if clinically indicated**.
- Copies of any prior PEB.
- Email or provide administrative information to include command UIC, command address, personal address, phone number, designator, flight hours (total and last 6 months), primary aircraft flown, and years of service.

**AEROMEDICAL SUMMARY REQUIRED DOCUMENTATION BY FLIGHT SURGEON**

All associated documentation.

| FOLLOW UP REQUIREMENTS | Annual Submission |
|---|---|

Flight Surgeon comment regarding interval history & symptomatic control.
Specialist Evaluation: Gastroenterology, Internal Medicine, or Family Practice, unless otherwise specified by Code NA05.
Medication Stable Dose: PPI, swallowed steroids, non-sedating approved antihistamines, or cromolyn if necessary for management

## APPENDICIES

**References**:

Dellon ES, Gonsalves N, Hirano I, et al. ACG clinical guideline: Evidenced based approach to the diagnosis and management of esophageal eosinophilia and eosinophilic esophagitis (EoE). Am J Gastroenterol 2013; 108:679.

## 7.2 CROHN'S DISEASE

| | Applicant | Class I | | | Class II | Class III | Class IV | Class V |
|---|---|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | | | |
| **CD** | **X*** | **X** | **X** | **X** | **X** | **X** | **X** | **X** |
| **NCD** | | | | | | | | |
| **WR** | | **case-by-case** | **case-by-case** | **case-by-case** | **case-by-case** | **case-by-case** | **case-by-case** | **case-by-case** |
| **WNR** | **X** | | | | | | | |
| **LBFS** | **No** | **No** | **No** | **No** | **No** | **No** | **No** | **No** |
| **EXCEPTIONS** | | | | | | | | |
| **LIMDU/PEB** | **May be required when significantly affecting nutritional status or requiring significant dietary restrictions (SECNAVINST 1850.4 series, encl (8)). All members requiring repeated surgery or use of biologic medications must have a PEB finding them fit for full duty before waiver consideration** | | | | | | | |

*****Class V applicants are eligible for waiver consideration on a case-by-case basis.

**AEROMEDICAL CONCERNS**: Crohn's disease presents a broad clinical spectrum ranging from mild, well-controlled disease to severe, relapsing, or penetrating disease. Aeromedical risk varies substantially depending on disease phenotype (inflammatory, stricturing, or penetrating), anatomic location (large vs. small bowel involvement), response to therapy, and the presence of complications.

Frequent bowel movements, urgency, or abdominal discomfort may interfere with mission execution and can be difficult to manage in the aviation environment. Abdominal pain, obstruction, or gastrointestinal bleeding may result in performance degradation or, in more severe cases, sudden incapacitation. Chronic inflammation may also produce anemia, malnutrition, or fatigue, which can impair endurance and cognitive performance in demanding operational settings.

However, many individuals can achieve clinical and endoscopic remission through dietary changes, medical therapy (aminosalicylates, immunomodulators, and biologic agents), or even upfront surgical treatment with ileocolonic resection. When remission is sustained, free of complications, and medication regimen is well-tolerated, the aeromedical risk is substantially reduced.

Favorable conditions for waiver consideration include all of the following: sustained clinical remission, endoscopic remission, no history of strictures, fistulas, abscesses, or obstruction, no aeromedically significant anemia or malnutrition, stable on steroid-free therapy for 90 days or greater, and no extraintestinal manifestation affecting visual, musculoskeletal, or cognitive function.

Grounding is required for a new diagnosis, disease flare, change in treatment, or new complication.

**DIAGNOSIS/ICD-9 Code:**
**555.9 Crohn's Disease**

**SERVICE MEMBER MUST COMPLETE PRIOR TO INITIATING WAIVER**

- Released to routine care from *Gastroenterology* care with recommendation of return to flight status and no restrictions documented on last clinical note (electronic or paper).
- If *Gastroenterology* recommends restrictions, then documentation of physical and/or mental limitations and expected duration (permanent vs. temporary).
- *Gastroenterology* recommendation for follow on care documented on last clinical note

- Copy of any colonoscopy report with biopsy results.
- Copies of any prior PEB.
- Email or provide administrative information to include command UIC, command address, personal address, phone number, designator, flight hours (total and last 6 months), primary aircraft flown, and years of service.

| **AEROMEDICAL SUMMARY REQUIRED DOCUMENTATION BY FLIGHT SURGEON** |
|---|

All associated documentation.

| **FOLLOW UP REQUIREMENTS** | **Annual Submission** |
|---|---|

Flight Surgeon comment regarding interval history & symptomatic control.
Specialist Evaluation: Gastroenterology, unless otherwise specified by code NA05.

Updated: March 2026

## 7.3 DIVERTICULAR DISEASE (DIVERTICULITIS)

| | Applicant | Class I | | | Class II | Class III | Class IV |
|---|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | | |
| **CD** | X | X | X | X | X | X | X |
| **NCD** | | | | | | | |
| **WR** | | X | X | X | X | X | X |
| **WNR** | X | | | | | | |
| **LBFS** | No | Yes | Yes | Yes | Yes | Yes | Yes |
| **EXCEPTIONS** | **Recurrent diverticulitis in applicants is CD, WNR** | | | | | | |
| **LIMDU/PEB** | **May be required in severe cases of diverticular disease when associated with significant nutritional deficiency, treatment, or dietary restriction (SECNAVINST 1850.4 series, encl (8)).** | | | | | | |

**AEROMEDICAL CONCERNS**: The condition or its sequelae can adversely affect the flight performance, mission, or safety. Diverticular disease is associated with diverticulitis. Any history of diverticulitis is disqualifying. Diverticulitis is associated with pain, gastrointestinal motility dysfunction functional, abscess, and hemorrhage. Diverticulitis has a recurrence risk of 25% with an increasing risk of complications with each recurrence.

**DIAGNOSIS/ICD-9 Code:**
**562.11 Diverticulitis of Colon**

**SERVICE MEMBER MUST COMPLETE PRIOR TO INITIATING WAIVER**

- Released from *Gastroenterology, Internal Medicine, or Surgery* care with recommendation of return to flight status and no restrictions **documented** on last clinical note (electronic or paper).
- Surgery/Procedure Note (electronic or paper) if performed including flexible sigmoidoscopy, colonoscopy, laparotomy, hemicolectomy.
- Hospital narrative summary if admitted.
- Copies of any prior PEB.
- Email or provide administrative information to include command UIC, command address, personal address, phone number, designator, flight hours (total and last 6 months), primary aircraft flown, and years of service.

**AEROMEDICAL SUMMARY REQUIRED DOCUMENTATION BY FLIGHT SURGEON**

All associated documentation.

| **FOLLOW UP REQUIREMENTS** | **Routine Submission** |
|---|---|

Flight Surgeon comment regarding interval history & symptomatic control.
Specialist Evaluation: Gastroenterology, Internal Medicine, or Family Practice, unless otherwise specified by code 53 HN.

## 7.4 CHOLELITHIASIS AND CHOLECYSTITIS

| | Applicant | Class I | | | Class II | Class III | Class IV |
|---|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | | |
| CD | X | X | X | X | X | X | X |
| NCD | | | | | | | |
| WR | X | X | X | X | X | X | X |
| WNR | | | | | | | |
| LBFS | No | +/-[1] | +/-[1] | +/-[1] | +/-[1] | +/-[1] | +/-[1] |
| EXCEPTIONS | A history of cholecystectomy, either open or laparoscopic, is NCD for applicants after 6 months from surgery. | | | | | | |
| LIMDU/PEB | Typically not required. | | | | | | |

1. LBFS is authorized for asymptomatic cholelithiasis and uncomplicated symptomatic cholelithiasis or cholecystitis successfully treated with cholecystectomy.

**AEROMEDICAL CONCERNS**: The condition or its sequelae can adversely affect the flight performance, mission, or safety. Current or history within the last six months of symptomatic cholelithiasis and/or cholecystitis are disqualifying. Asymptomatic gall stones are not disqualifying, but need special consideration in applicants. Aviators with symptomatic gall stones should be grounded until the stones are removed by open or laparoscopic cholecystectomy. Extracorporeal shock wave lithotripsy (ESWL) is not recommended in aviators because 35% of patients undergoing ESWL have 1 or more episodes of biliary colic before the clearance of all stone fragments. The member with a history of ESWL may apply for a waiver after a 6-month period free of biliary colic. Cholecystectomy is disqualifying for the first six month postoperative for aviation except Air Traffic Controllers. For Air Traffic Controllers, cholecystectomy is NCD once the condition is resolved and the member is asymptomatic.

**DIAGNOSIS/ICD-9 Code:**
**574.2 Gallstones**
**574.0 Gallstones with acute cholecystitis**
**574.2 Gallstones without cholecystitis**
**575.0 Acute Cholecystitis**
**575.11 Chronic Cholecystitis**
**P51.22 Cholecystectomy**

**SERVICE MEMBER MUST COMPLETE PRIOR TO INITIATING WAIVER**

- Released from *specialist* care with recommendation of return to flight status and no restrictions **documented** on last clinical note (electronic or paper).
- If *specialist* recommends restrictions, then documentation of physical and/or mental limitations and expected duration (permanent vs temporary).
- *Specialist* recommendation for follow on care **documented** on last clinical note (electronic or paper).
- Surgery/Procedure Note (electronic or paper).
- Completed *specialist* recommended course of *physical therapy/rehabilitation/counseling* and provide end of care summary.
- Copies of any prior PEB.
- Email or provide administrative information to include command UIC, command address, personal address, phone number, designator, flight hours (total and last 6 months), primary aircraft flown, and years of service.

| AEROMEDICAL SUMMARY REQUIRED DOCUMENTATION BY FLIGHT SURGEON |
|---|
| All associated documentation. |

| FOLLOW UP REQUIREMENTS | Routine Submission |
|---|---|

Flight Surgeon comment regarding interval history & symptomatic control.

## 7.5 GASTRITIS, DUODENITIS

| | Applicant | Class I | | | Class II | Class III | Class IV |
|---|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | | |
| CD | X | X | X | X | X | X | X |
| NCD | | | | | | | |
| WR | | X | X | X | X | X | X |
| WNR | X | | | | | | |
| LBFS | No | No | No | No | No | No | No |
| EXCEPTIONS | | | | | | | |
| LIMDU/PEB | May be required when condition is not responsive to therapy or requires hospitalization (SECNAVINST 1850.4 series, encl (8)). | | | | | | |

**AEROMEDICAL CONCERNS**: The condition or its sequelae can adversely affect the flight performance, mission, or safety. Current gastritis or non-ulcerative dyspepsia requiring maintenance medication is disqualifying. Gastritis is an inflammatory process resulting in mucosal injury and is frequently associated with infections such as *Helicobacter pylori*. Gastropathy is mucosal damage without inflammation resulting from alcohol, aspirin, and NSAIDS. Both gastritis and gastropathy can cause abdominal pain, vomiting and Mallory-Weiss tears, gastrointestinal hemorrhage, and anemia (acute blood loss, iron deficiency, pernicious).

**DIAGNOSIS/ICD-9 Code:**
**535.50 Gastritis/Duodenitis**
**535.3 Acute Gastritis**
**535.6 Acute Duodenitis**

**SERVICE MEMBER MUST COMPLETE PRIOR TO INITIATING WAIVER**

- Released from *Gastroenterology or Internal Medicine* care with recommendation of return to flight status and no restrictions **documented** on last clinical note (electronic or paper).
- If *Gastroenterology or Internal Medicine* recommends restrictions, then documentation of physical and/or mental limitations and expected duration (permanent vs temporary).
- *Gastroenterology or Internal Medicine* recommendation for follow on care **documented** on last clinical note (electronic or paper).
- Surgery/Procedure Note (electronic or paper).
- Copies of any prior PEB.
- Email or provide administrative information to include command UIC, command address, personal address, phone number, designator, flight hours (total and last 6 months), primary aircraft flown, and years of service.

**AEROMEDICAL SUMMARY REQUIRED DOCUMENTATION BY FLIGHT SURGEON**

All associated documentation.

| FOLLOW UP REQUIREMENTS | Routine Submission |
|---|---|

Flight Surgeon comment regarding interval history & symptomatic control.

## 7.6 GILBERT'S SYNDROME

| | Applicant | Class I | | | Class II | Class III | Class IV |
|---|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | | |
| **CD** | | | | | | | |
| **NCD** | X | X | X | X | X | X | X |
| **WR** | | | | | | | |
| **WNR** | | | | | | | |
| **LBFS** | No | Yes | Yes | Yes | Yes | Yes | Yes |
| **EXCEPTIONS** | | | | | | | |
| **LIMDU/PEB** | Not required. | | | | | | |

**AEROMEDICAL CONCERNS**: No significant aeromedical concerns.

**DIAGNOSIS/ICD-9 Code:** ***(Do not list any NCD diagnosis or codes.)***
277.4 Gilbert's Syndrome

**SERVICE MEMBER MUST COMPLETE PRIOR TO INITIATING WAIVER**

- Released from *Gastroenterology or Internal Medicine* care with recommendation of return to flight status and no restrictions **documented** on last clinical note (electronic or paper).
- Email or provide administrative information to include command UIC, command address, personal address, phone number, designator, flight hours (total and last 6 months), primary aircraft flown, and years of service.

**AEROMEDICAL SUMMARY REQUIRED DOCUMENTATION BY FLIGHT SURGEON**

All associated documentation.

| | |
|---|---|
| **FOLLOW UP REQUIREMENTS** | **Routine Submission** |

## 7.7 VIRAL HEPATITIS

| | Applicant | Class I | | | Class II | Class III | Class IV |
|---|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | | |
| CD | X | X | X | X | X | X | X |
| NCD | | | | | | | |
| WR | | case-by-case [1] | case-by-case [1] | case-by-case [1] | case-by-case [1] | case-by-case [1] | case-by-case [1] |
| WNR | X | | | | | | |
| LBFS | No | No | No | No | No | No | No |
| EXCEPTIONS | | | | | | | |
| LIMDU/PEB | **May be required with persistent symptoms, persistent evidence of impaired liver function, or presence of chronic biomarkers indicating chronic condition (SECNAVINST 1850.4 series, encl (8)).** | | | | | | |

1. Acute viral hepatitis requires grounding while member is symptomatic and is CD when resolved with waivers recommended on case-by-case basis.

**AEROMEDICAL CONCERNS**: The condition or its sequelae can adversely affect the flight performance, mission, or safety. Current viral hepatitis or unspecified hepatitis is disqualifying. History of hepatitis in the preceding six months is disqualifying. The symptoms of acute and chronic hepatitis relevant to aviation are mainly fatigue, malaise, and nausea; other symptoms may occur which could be distracting in flight. Cases may progress to cirrhosis, which has its own aeromedical significance. Care should be taken to identify whether or not alcohol has contributed to the disease. Public health concerns of hepatitis A transmission should be paramount in the flight surgeon's thought process. Significant advances in antiviral therapy for chronic HBV and HCV infections have resulted in improved cure rates and greater potential for waiver consideration.

**DIAGNOSIS/ICD-9 Code:**
**070.1 Viral hepatitis A without coma**
**070.3 Viral hepatitis B without coma**
**070.54 Chronic viral hepatitis C without coma**

**SERVICE MEMBER MUST COMPLETE PRIOR TO INITIATING WAIVER**

- Released from *Infectious Diseases/GI* care with recommendation of return to flight status and no restrictions **documented** on last clinical note (electronic or paper).
- If *Infectious Diseases/GI* recommends restrictions, then documentation of physical and/or mental limitations and expected duration (permanent vs temporary).
- *Infectious Diseases/GI* recommendation for follow on care **documented** on last clinical note (electronic or paper).
- Copies of any prior PEB.
- Email or provide administrative information to include command UIC, command address, personal address, phone number, designator, flight hours (total and last 6 months), primary aircraft flown, and years of service.

**AEROMEDICAL SUMMARY REQUIRED DOCUMENTATION BY FLIGHT SURGEON**

All associated documentation.

| | |
|---|---|
| **FOLLOW UP REQUIREMENTS** | **Annual Submission** |

Flight Surgeon comment regarding interval history & symptomatic control.
Specialist Evaluation: Gastroenterology, Infectious Diseases, or Internal Medicine, unless otherwise specified by code 53 HN.

## 7.8 IRRITABLE BOWEL SYNDROME

| | Applicant | Class I | | | Class II | Class III | Class IV |
|---|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | | |
| CD | X | X | X | X | X | X | X |
| NCD | | | | | | | |
| WR | case-by-case | case-by-case | case-by-case | case-by-case | case-by-case | case-by-case | case-by-case |
| WNR | | | | | | | |
| LBFS | No | No | No | No | No | No | No |
| EXCEPTIONS | NCD if asymptomatic and controlled by diet alone. | | | | | | |
| LIMDU/PEB | Typically not required. | | | | | | |

**AEROMEDICAL CONCERNS**: The condition, its sequelae, or treatment can adversely affect the flight performance, mission, or safety. Irritable bowel syndrome is disqualifying unless asymptomatic and controlled by diet alone. The urgency and frequency of defecation, together with the discomfort felt by many patients, can be distracting in flight and can be inconvenient when living in field conditions. Many treatments are incompatible with flying duties. There is a tendency for the syndrome to be associated with depression and anxiety.

**DIAGNOSIS/ICD-9 Code:**
**564.1 Irritable Bowel Syndrome**

**SERVICE MEMBER MUST COMPLETE PRIOR TO INITIATING WAIVER**

- Released from *Internal Medicine or Gastroenterology* care with recommendation of return to flight status with no restrictions **documented** on last clinical note (electronic or paper).
- Email or provide administrative information to include command UIC, command address, personal address, phone number, designator, flight hours (total and last 6 months), primary aircraft flown, and years of service.

**AEROMEDICAL SUMMARY REQUIRED DOCUMENTATION BY FLIGHT SURGEON**

All associated documentation.

| FOLLOW UP REQUIREMENTS | Annual Submission |
|---|---|

Flight Surgeon comment regarding interval history & symptomatic control.
Specialist Evaluation: Gastroenterology or Internal Medicine, unless otherwise specified by code 53 HN.

## 7.9 PEPTIC ULCER DISEASE

| | Applicant | Class I | | | Class II | Class III | Class IV |
|---|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | | |
| CD | X | X | X | X | X | X | X |
| NCD | | | | | | | |
| WR | | case-by-case | case-by-case | case-by-case | case-by-case | case-by-case | case-by-case |
| WNR | X | | | | | | |
| LBFS | No | No | No | No | No | No | No |
| EXCEPTIONS | | | | | | | |
| LIMDU/PEB | Typically not required. | | | | | | |

**AEROMEDICAL CONCERNS**: The condition, its sequelae, or treatment can adversely affect the flight performance, mission, or safety. Peptic or duodenal ulcer disease is disqualifying. The major concern is the risk of acute hemorrhage or perforation in flight. Chronic blood loss can cause iron deficiency anemia, which can then lead to subtle or sudden incapacitation, or cardiorespiratory compromise in flight.

**DIAGNOSIS/ICD-9 Code:**
**531.9 Gastric Ulcer**
**532.9 Duodenal Ulcer**

**SERVICE MEMBER MUST COMPLETE PRIOR TO INITIATING WAIVER**

- Released from *Gastroenterology or Internal Medicine* care with recommendation of return to flight status and no restrictions **documented** on last clinical note (electronic or paper).
- If *Gastroenterology or Internal Medicine* recommends restrictions, then documentation of physical and/or mental limitations and expected duration (permanent vs temporary).
- *Gastroenterology or Internal Medicine* recommendation for follow on care **documented** on last clinical note (electronic or paper).
- Email or provide administrative information to include command UIC, command address, personal address, phone number, designator, flight hours (total and last 6 months), primary aircraft flown, and years of service.

**AEROMEDICAL SUMMARY REQUIRED DOCUMENTATION BY FLIGHT SURGEON**

All associated documentation.

| FOLLOW UP REQUIREMENTS | Annual Submission |
|---|---|

Flight Surgeon comment regarding interval history & symptomatic control.
Specialist Evaluation: Gastroenterology or Internal Medicine, unless otherwise specified by code 53 HN.

## 7.10 GASTROESOPHAGEAL REFLUX DISEASE (GERD) & HIATAL HERNIA

| | Applicant | Class I | | | Class II | Class III | Class IV |
|---|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | | |
| CD | X | X | X | X | X | X | X |
| NCD | | | | | | | |
| WR | case-by-case | case-by-case | case-by-case | case-by-case | case-by-case | case-by-case | case-by-case |
| WNR | | | | | | | |
| LBFS | No | Yes | Yes | Yes | Yes | Yes | Yes |
| EXCEPTIONS | | | | | | | |
| LIMDU/PEB | May be required when severe and not responsive to therapy (SECNAVINST 1850.4 series, encl (8)). | | | | | | |

**AEROMEDICAL CONCERNS**: The condition, its sequelae, or treatment can adversely affect the flight performance, mission, or safety. GERD is disqualifying. Retrosternal pain associated with either condition can be distracting in flight. Exposure to -Gz may exacerbate the symptoms of both esophagitis and hiatus hernia.

**DIAGNOSIS/ICD-9 Code:**
**530.81 Esophageal reflux**
**530.11 Reflux esophagitis**
**530.3 Esophageal stricture**
**530.7 Mallory-Weiss tear**
**553.3 Hiatal Hernia**

**SERVICE MEMBER MUST COMPLETE PRIOR TO INITIATING WAIVER**

- Released from *Gastroenterology or Internal Medicine or Family Medicine* care with recommendation of return to flight status and no restrictions **documented** on last clinical note (electronic or paper).
- If *Gastroenterology or Internal Medicine or Family Medicine* recommends restrictions, then documentation of physical and/or mental limitations and expected duration (permanent vs temporary).
- *Gastroenterology or Internal Medicine or Family Medicine* recommendation for follow on care **documented** on last clinical note (electronic or paper).
- Copies of any prior PEB.
- Email or provide administrative information to include command UIC, command address, personal address, phone number, designator, flight hours (total and last 6 months), primary aircraft flown, and years of service.

**AEROMEDICAL SUMMARY REQUIRED DOCUMENTATION BY FLIGHT SURGEON**

All associated documentation.
Include the GERD Worksheet (WS-GERD) – uploaded to AERO.

| FOLLOW UP REQUIREMENTS | Routine Submission |
|---|---|

Flight Surgeon comment regarding interval history & symptomatic control.

## 7.11 ULCERATIVE COLITIS

| | Applicant | Class I | | | Class II | Class III | Class IV |
|---|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | | |
| CD | X | X | X | X | X | X | X |
| NCD | | | | | | | |
| WR | | case-by-case | case-by-case | case-by-case | case-by-case | case-by-case | case-by-case |
| WNR | X | | | | | | |
| LBFS | No | No | No | No | No | No | No |
| EXCEPTIONS | | | | | | | |
| LIMDU/PEB | **May be required when significantly affecting nutritional status or requiring significant dietary restrictions (SECNAVINST 1850.4 series, encl (8)). All members requiring surgery for control of the disease must have a PEB finding them fit for full duty before waiver consideration.** | | | | | | |

**AEROMEDICAL CONCERNS**: The condition, its sequelae, or treatment can adversely affect the flight performance, mission, or safety. Ulcerative colitis or ulcerative proctitis is disqualifying. There is a small risk of subtle or sudden in-flight incapacitation. Discomfort and fatigue persist between episodes, which can detract from operational performance and availability. Patients may have diarrhea and considerable urgency of defecation. Iritis is a complication in up to 3% of patients.

**DIAGNOSIS/ICD-9 Code:**
**556.9 Ulcerative Colitis**
**556.1 UC controlled with Azulfidine**

**SERVICE MEMBER MUST COMPLETE PRIOR TO INITIATING WAIVER**

- Released from *Gastroenterology* care with recommendation of return to flight status and no restrictions **documented** on last clinical note (electronic or paper).
- If *Gastroenterology* recommends restrictions, then documentation of physical and/or mental limitations and expected duration (permanent vs temporary).
- *Gastroenterology* recommendation for follow on care **documented** on last clinical note (electronic or paper).
- Copies of any prior PEB.
- Email or provide administrative information to include command UIC, command address, personal address, phone number, designator, flight hours (total and last 6 months), primary aircraft flown, and years of service.

**AEROMEDICAL SUMMARY REQUIRED DOCUMENTATION BY FLIGHT SURGEON**

All associated documentation.

| FOLLOW UP REQUIREMENTS | Annual Submission |
|---|---|

Flight Surgeon comment regarding interval history & symptomatic control.
Specialist Evaluation: Gastroenterology, unless otherwise specified by code 53 HN.

# 8.0 HEMATOLOGY

## 8.1 ANEMIA

**AEROMEDICAL CONCERNS:** Anemia reduces tissue oxygenation and can be associated with widespread organ dysfunction, particularly when the hemoglobin concentration falls below 10 g/dl or the hematocrit is less than 30%. Work capacity and the compensation to conditions of hypoxia are also reduced. In acute blood loss, cardiovascular decompensation can occur from volume loss, leading to loss of +Gz tolerance and syncope.

**WAIVER:** The standards for aviation are derived from healthy aviators, not from hospital patients. Hence, our "abnormal" values are generally still within most hospital norms. Acceptable values for hematocrit are 40-52% in males and 37-47% in females. If the average of three hematocrits (*from three separate blood draws, not from the same sample analyzed three times*) falls below the normal range but between 38.0% and 39.9% for males (35.0% - 36.9% for females), the following work-up should be completed:

1. Thorough history (with emphasis on any personal or family history of anemia, ethnicity, blood loss, diet, menstruation, medications, and ETOH)
2. Focused physical (ensure no hepatosplenomegaly or lymphadenopathy)
3. CBC with RBC count, RBC indices, manual differential, RBC morphology, and reticulocyte count
4. Iron studies (serum iron, serum ferritin, and TIBC)
5. Chem 7
6. Liver function tests
7. TSH

If history, physical exam, and all labs are within normal limits as defined below (for labs not listed, use laboratory reference ranges), the member is PQ and no waiver is required. The accepted ranges are:

**Acceptable Lab Values:**

- RBC count - Male: 4.0-7.0, Female: 3.8-5.3
- Differential – Segs 40-80, Bands 0-10, Lymphs 20-50, Eos 0-10, Basos 0-3, Monos 0-10
- RBC indices - MCV 80-100 fl, MCH 26-36 pg, MCHC 31-38%, Retic count 0.5%-2.0%, RDW 11.0%–16.0%
- Iron studies - Ferritin 20-300 ng/ml, Iron 40-180 ug/dl, TIBC 240-460 ug/dl

If any abnormality exists, or if the average of three hematocrits falls below 38% or above 52% for males (below 35% or above 47% for females), the member is NPQ and a hematology or internal medicine consultation is required. Additional anemia work-up at that time may include hemoglobin electrophoresis, fecal occult blood tests, endoscopy, serum vitamin B12 level, serum or RBC folate level, and/or bone marrow biopsy depending upon the initial findings. This work-up may be initiated by the flight surgeon, depending upon his or her comfort level, so that

laboratory data will be available for the consulting physician. If unsure whether or not a test is indicated, do not order it. Waivers will be considered on a case-by-case basis in light of the underlying diagnosis.

**NOTE:** Blood donation of 450 cc (1 pint) requires grounding for at least 4 days. Flight personnel in combat or flying in a shipboard environment shall not donate blood within 4 weeks prior to such flying (per General NATOPS). Air Traffic Controllers who donate blood should only be in a down status for 24 hours immediately following blood donation.

**INFORMATION REQUIRED:**

1. Full clinical history
2. Physical examination
3. Laboratory evaluation as outlined above
4. Hematology and/or Internal Medicine consult

**TREATMENT:** Oral iron supplements are compatible with flying status, but require a waiver if needed to maintain a hematocrit within standards. Any cause that precipitated the iron deficiency must be rectified before a waiver recommendation would be considered.

**DISCUSSION:** The World Health Organization recommends that anemia should be considered to exist when hemoglobin levels fall below 13 g/dl in males and 12 g/dl in females. Chronic blood loss from the bowel or uterus of 15-20 ml/day will produce a state of negative iron balance in the body, which will eventually lead to anemia. A full hematological response to iron therapy is indicated by a rise in hemoglobin level of 1 g/dl/week.

**ICD-9 CODES:**
**280.1 Iron Deficiency Anemia**
**285.9 Anemia, unspecified**

## 8.2 HEMOCHROMATOSIS

**AEROMEDICAL CONCERNS:** Symptomatic cases typically present with the classic triad of diabetes mellitus, hepatomegaly, and skin hyperpigmentation. Cardiac complications manifest primarily as congestive heart failure in young patients that can rapidly progress to death if untreated. CNS complications have been reported but, other than lethargy, are rare.

**WAIVER:** Waiver recommendations for hemochromatosis are not routinely made.

**INFORMATION REQUIRED:**

1. Internal medicine or hematology consult
2. Histocompatibility locus antigen (HLA) typing
3. Serum iron
4. Serum ferritin
5. Total iron body content
6. Transferritin saturation
7. Liver biopsy (if indicated)
8. Family studies (if indicated)
9. Cardiology consult
    a. Holter monitor
    b. Echocardiogram

**TREATMENT:** Frequent phlebotomy and/or treatment with chelating agents such as desferrioxamine are not compatible with waiver.

**DISCUSSION:** Phenotypic expression of the idiopathic hemochromatosis gene usually occurs between the ages of 20 and 40, with symptoms mainly occurring after the age of 50. Patients have the condition for an average of 3-5 years before the diagnosis is made. Hepatic fibrosis is unusual in patients younger than 35, but it will occur sooner and progress more rapidly to cirrhosis in heavy drinkers. Hypogonadism will occur in 25% of male patients and primary hypoaldosteronism in 10%. Cardiac failure and arrhythmias are common presenting features in younger patients. Up to 50% of patients over 40 years old have ECG irregularities and 43% of autopsied hearts from hemochromatosis patients show iron deposits in the AV node and conduction system.

Arthropathy is present in 30-50% (commonly in the proximal interphalangeal and metacarpophalangeal joints although 10% of patients have destructive arthropathy of the hip and knee joints). Phlebotomy 2-3 times a week until hemoglobin <10 g/dl, serum iron is less than normal, or ferritin is in the low normal range, followed by maintenance phlebotomy every 2-4 months, will reduce the incidence of complications other than arthropathy and the eventual appearance of hepatoma. However, this treatment is not compatible with waiver. The death rate at 5 and 10 years with phlebotomy is 66 and 32%, compared to 18 and 6% without treatment.

**ICD-9 CODE:**
**275.0 Hemochromatosis**

## 8.3 SICKLE CELL DISEASE/TRAIT

**AEROMEDICAL CONCERNS:** Patients with sickle cell disease have a severe risk of splenic infarct and other vaso-occlusive episodes involving the viscera, lungs, kidneys, or nervous system when exposed to hypoxia, infection, dehydration, or cold temperatures.

**WAIVER:** By direction from the SECNAV, sickle cell trait (SCT) is not disqualifying for any aviation, undersea or general duty program. Sickle Cell Disease and a history of sickling on exposure to altitude in flight or in a decompression chamber are disqualifying. A completed long form physical (SF-88) should be submitted to NOMI whenever an adverse physiologic event is recognized.

**INFORMATION REQUIRED:**

1. Hemoglobin electrophoresis documenting the percentage of hemoglobin S
   a. Hemoglobin S greater than hemoglobin A is disqualifying for general duty
2. Information on coexistent hemoglobinopathies.

**TREATMENT:** Patients requiring treatment for the condition are disqualified from flying.

**DISCUSSION:** The condition occurs often in African American populations, and sporadically in those of Mediterranean, Middle Eastern, or Indian descent. Between 7 and 9% of African Americans have sickle cell trait (SCT). Cases of sickling have been reported at altitudes as low as 2,500 feet, although patients with SCT are unlikely to sickle below 21,000 feet. Exercise and dehydration predispose to sickling. In addition to the classic sickle cell crisis, transient episodes of bone marrow aplasia can occur in response to infection and sequestration of erythrocytes in the liver and spleen that can also be life threatening. Patients with SCT should be counseled about the dangers of recreational diving and risks of anesthetics.

**ICD-9 CODES:**
**282 Sickle Cell**
**282.5 Sickle Cell Trait**
**282.6 Sickle Cell Disease**

## 8.4 SPLENECTOMY

**AEROMEDICAL CONCERNS:** There is risk of serious, overwhelming infection in patients with co-morbid diseases who have had a splenectomy. Examples include ITP and lymphoproliferative diseases (leukemia, etc.). In such cases, the time between onset of symptoms and death can be rapid (i.e. just a few hours). In cases where splenectomy is performed due to traumatic rupture, these serious complications occur much less frequently.

**WAIVER:** Waivers are considered on a case-by-case basis after splenectomy, provided there is full recovery from the condition necessitating the operation. This includes splenectomy following traumatic splenic rupture and diagnostic splenectomy for Hodgkin's disease (see section 9.7 – Hodgkin's disease for further waiver requirements).

**INFORMATION REQUIRED:**

**Initial Waiver:**

1. Detailed history of the circumstances that led to splenectomy
2. Focused physical exam
3. CBC
4. Confirmation of the absence of malaria, infectious mononucleosis, and leukemia (in cases of spontaneous rupture of the spleen)
5. Fit for Full Duty determination from surgeon

**Follow-up:**

1. CBC (when co-morbid conditions exist)

**Note:** In cases where traumatic rupture necessitated splenectomy, no specific follow-up is required, provided there is no resulting compromise of the immune system.

**TREATMENT:** Prophylactic antibiotics may be acceptable in certain circumstances. Immunizations against pneumococcus, meningitis, and Hemophilus B are compatible with flying status, and should be administered before elective splenectomy if at all possible.

**DISCUSSION:** Following therapeutic splenectomy, the course is that of the disease requiring the splenectomy. The overall mortality rate is around 3%, of which infections account for 11% of the deaths. Mortality for isolated injury to the spleen is <1%. Late sepsis after splenectomy for Hodgkin's disease occurs in 11.5% of patients, with a 5% mortality rate. This is related to the chemotherapy rather than the splenectomy. In adults who have had a splenectomy, the mortality from pneumococcal pneumonia is 17% despite administration of antibiotics. If the patient is older than 50, the mortality rate is 28%.

**ICD-9 CODES:**
**P41 Splenectomy**
**P41.5 Splenectomy (complete)**
**P41.43 Splenectomy (partial)**

## 8.5 THALASSEMIAS

**AEROMEDICAL CONCERNS:** Thalassemias produce a low-grade anemia that can cause problems at altitude. Splenic enlargement and worsening of the anemia can occur under conditions of stress.

**WAIVER:** Aviation personnel must meet the hematocrit standards previously listed in the Anemia section (section 8.1). Personnel with beta thalassemia minor (heterozygous carriers – beta thalassemia trait) or with alpha thalassemia minor (1 or 2 gene loci absent) may be considered for waiver provided there are no other hemoglobinopathies present. Any anemia must be limited to a mild, microcytic anemia. Patients who have required splenectomy because of their thalassemia are permanently disqualified from military flying.

**INFORMATION REQUIRED:**

1. Establishment of the detailed diagnosis
   a. Estimation of HbA2, HbF, serum Fe and ferritin and by quantitative electrophoresis
2. Focused physical exam
3. Internal medicine or hematology consult (if obtained)

**NOTE:** The diagnosis of thalassemia cannot reliably be made in the face of iron deficiency, hence iron studies must be provided that document normal iron status with submission of the waiver request.

**TREATMENT:** N/A.

**DISCUSSION:** The thalassemias probably constitute the world's largest genetic disorder. Beta thalassemia occurs widely in a belt extending from Southeast Asia, through India, the Middle East, the Mediterranean (as far north as Romania and Yugoslavia), and to north and west Africa. Carrier frequencies can vary from 2 to 30% in these populations. Beta thalassemia also occurs sporadically in all racial groups. Splenectomy results in a greater risk of overwhelming infection and of severe malaria, which can affect an aviator's fitness to deploy. The flight surgeon will often make the diagnosis of thalassemia after chart review turns up a chronic, low grade microcytic anemia that does not respond to iron therapy. Patients with homozygous beta thalassemia or deletions in more than two of the alfa chains are almost always severely symptomatic or anemic, and as such rarely make it into the military.

**ICD-9 CODE:**
**282 Thalassemias**

# 9.0 MALIGNANCIES

## 9.1 GENERAL INFORMATION

**Classification:** Classification of tumors into categories facilitates decision making and aeromedical disposition. The minimal requirements for return to flight status are an accurate diagnosis, indication of tumor size, differentiation and local invasion, and confirmation of the presence or absence of lymph node or distant metastases.

The American Joint Commission on Cancer (AJCC) **TNM classification** of malignant disease allows a reasonably accurate standardization of the staging of the malignancy, which should allow greater consistency in the aeromedical disposition. In review, T refers to the size of the primary tumor with subscripts to quantify the size, N with subscripts 0 or 1 identifies absence or presence of spread to the lymph nodes and M with subscripts 0 or 1 identifies absence or presence of distant spread. Other classification systems and protocols for staging cancer exist and may be used.

To provide standardization in aeromedical disposition, it is recommended that the histological diagnosis be confirmed by the Armed Forces Institute of Pathology (AFIP). Note: we have seen at least two cases where aviators were treated inappropriately due to a misdiagnosis.

**Effects of Treatment:** Aeromedical disposition requires knowledge of the primary tumor, the clinical or surgical stage, and interventions that are currently being used, or have been previously used.

Assuming complete healing, surgery itself is not disqualifying for aviation provided major organ dysfunction does not exist. The condition for which the surgery was performed may, however, be disqualifying. Surgical procedures for the removal of cancer will require a variable period of grounding. The length of grounding will depend on the chance of cure, the likelihood that recurrence will cause a flight safety hazard or otherwise interfere with the military task, and on the site and extent of operation.

Radiation therapy is generally delivered to a localized area for a limited time. The immediate side effects of nausea, neutropenia, and other dose-related effects usually disappear a few weeks after completion of therapy. Until then, the patient should be disqualified from flying. Return to flying status will then depend on other factors. Follow-up is required because of the risk of developing another primary cancer. Any complications of radiation therapy (radiation proctitis, xerostomia) may be permanently disqualifying, without recommendation for waivers.

Chemotherapy is incompatible with flying until full recovery from side effects such as anemia, thrombocytopenia, granulocytopenia, nausea, and vomiting has occurred. The use of steroids or hormone therapy for the treatment of tumors is also disqualifying, although waivers can be recommended for their use as replacement therapy. Return to flying duties after completion of drug therapy will then depend on other factors. Follow-up may be required for long term side

effects of chemotherapy such as cardiac or pulmonary toxicity and the development of second malignancies.

**Waiver Consideration:** Waiver recommendation for applicants with a history of cancer is done on a **case-by-case basis**. Survivors of childhood leukemia or lymphoma are generally considered cured if their disease-free survival is for more years than their age at diagnosis. We occasionally receive requests on such individuals. Recommendation is based on the type of tumor and any residual effects of chemotherapy.

With the exception of basal cell carcinoma, all malignancies require medical board dictation. The board may find the member fit for full duty immediately, as would be expected after excisional biopsy of a low level malignant melanoma, or it may place the member in limited duty status for some period of time. **A member must be on full duty before waiver consideration for flight status or other special duty is appropriate.** Moreover, AFIP confirmation of the diagnosis is necessary. It is helpful to our reviewers if an objective assessment by the oncologist of the chances of cure, the risks, likely nature and ease of detection of recurrence, and recommendations for follow-up are included. Of particular interest is an estimate of the 5 year survival rate.

In general terms, it will be appropriate to recommend a return to restricted flying status provided there is a minimal risk of incapacitation as a result of recurrence of the malignancy. This decision will include an assessment of survival and recurrence rates, in conjunction with the tendency for recurrences to present catastrophically.

The necessity for continued follow-up will almost certainly interfere with operational requirements unless the follow-up is at greater than 6-month intervals, or the tests required for follow-up are very simple (e.g. CBC). In such cases, LIMDU is the only realistic option for these individuals, as the deployed environment may result in a recurrence being overlooked at a curable stage. Medical board dictation is the only way to achieve this restriction on deployability.

In most cases upgrading to full duty, and hence a waiver to full flight status, can be considered 2 years after completion of therapy provided there is no recurrence. Specific exceptions to this are addressed on the individual data sheets.

## 9.2 BLADDER CANCER

**AEROMEDICAL CONCERNS**: Urinary frequency and urgency may be distracting in flight. Pain can occur if obstruction is caused by clots. Metastasis to bone can give rise to pathological fractures.

**WAIVER**: A waiver request can be considered after initial therapy, provided the tumor is confined to the epithelium. Cystectomy or the requirement for repeated catheterization results in disqualification, with no waiver recommended.

**INFORMATION REQUIRED**:

1. Medical Board
2. Tumor Board recommendations
3. AFIP confirmation of histology
4. Full long-form flight physical
5. CXR
6. Cystoscopy
7. Contrast studies of the entire urinary tract
8. CT scanning of the abdomen and pelvis.

**FOLLOW-UP:** Annual submission to include:

1. Annual oncology/nephrology and/or urology consult

**TREATMENT**: Ongoing therapy is not compatible with flying status.

**DISCUSSION**: The overall 5 year survival rate is 67%; transitional cell tumors have a 5 year survival rate of <50% and squamous cell tumors have a worse prognosis. However, carcinoma in situ or papillary noninvasive carcinomas are associated with a high probability of cure. Recurrence is primarily local and no sudden symptoms except hematuria occur. The disease is strongly associated with cigarette smoking.

**ICD-9 CODES:**
**188.9 Bladder Cancer**
**223.3 Benign neoplasm of the bladder**

## 9.3 BREAST CANCER

**AEROMEDICAL CONCERNS:** There is an unpredictable chance of developing brain metastases, which may cause seizures. Bone metastases may also occur.

**WAIVER:** Request for waiver may be submitted upon recovery from treatment for early stages of breast cancer. Patients with spread to lymph nodes or more distant sites will not normally be considered for waiver.

**INFORMATION REQUIRED:**

1. Medical Board
2. Tumor Board recommendations
3. AFIP confirmation of the histology
4. Surgical/oncology consult

**FOLLOW-UP:** Annual submission to include:

1. MRI scan of the brain
2. Bone scan
3. CT scan of the liver
4. Mammography of the opposite breast are

**TREATMENT:** The patient is grounded during treatment.

**DISCUSSION:** At the time of detection, about half of breast cancers have metastasized to lymph nodes. Of those detected by screening, 42% are too small to detect by physical examination. Up to 80% of those detected by screening have negative axillary lymph nodes. Of patients with up to 3 affected nodes, 60% will relapse by 10 years. Even the earliest stage of breast carcinoma carries a relapse rate of 20% by 5 years. The average time to relapse is 3-4 years in patients with 1-3 involved nodes and 1-2 years if more nodes are involved. From the point of view of comfort when wearing restraint harnesses, it may be necessary to delay return to flying duties until after breast reconstruction has been carried out in cases where simple mastectomy rather than "lumpectomy" has been performed. The site of metastasis is bone in 27% of cases, local in 26% and pulmonary in 21%.

**ICD-9 CODES:**
**217.0 Benign neoplasm of male and female breast**
**74.9 1Malignant neoplasm of breast, female**
**175.9 Malignant neoplasm of breast, male**

## 9.4 CERVICAL CANCER

**AEROMEDICAL CONCERNS**: Later manifestations of the disease include anemia, weakness, and weight loss. Distracting pain may be caused by invasion of the pelvic nerves.

**WAIVER**: Waiver is not required for carcinoma in situ or for those cases treated as outpatients by laser or cauterization; however, a 4 week grounding period is mandatory following these surgical treatments. For other patients without evidence of spread, waiver can be considered 6 weeks after operation. Aircrew with evidence of metastasis are grounded but may be considered for waiver 2 years after completion of therapy as long as there is no evidence of recurrence.

**INFORMATION REQUIRED**:

1. Medical Board
2. Tumor Board recommendations
3. AFIP confirmation of the histology
4. Gynecology/oncology consult

**FOLLOW-UP:** Annual submission to include:

1. Current gynecology/oncology consult

**TREATMENT**: Continuation of therapy is incompatible with flying status.

**DISCUSSION:** For carcinoma in situ, there is an almost 100% survival rate with therapy. The 5 year survival rate for patients with localized but invasive carcinoma of the cervix is about 82% while for all groups as a whole it is 59%.

**ICD-9 CODES:**
**180.9 Malignant neoplasm of the cervix**
**219.0 Benign neoplasm of the cervix**

## 9.5 COLORECTAL CARCINOMA

**AEROMEDICAL CONCERNS**: Carcinoma of the colon presents as an emergency (obstruction, perforation) in up to 30% of cases. Rectal carcinoma rarely presents as an emergency. Both can cause anemia to a degree that can cause problems in flight if undetected.

**WAIVER**: Waiver can be considered after successful resection of the tumor and completion of any adjuvant chemotherapy. It is suggested to wait 2 years before requesting initial waiver recommendation.

**INFORMATION REQUIRED**:

1. Medical Board
2. Tumor Board
3. AFIP confirmation of the diagnosis
4. Liver scan
5. Liver enzyme tests
6. Colonoscopy
7. Serum carcinoembryonic antigen measurements

**FOLLOW-UP:** Annual submission to include:

1. GI/oncology follow-up every six months
2. Colonoscopy report

**TREATMENT**: Surgery, with or without additional radiotherapy or chemotherapy. Continuing treatment is incompatible with waiver. Colostomy is not compatible with military aviation. (Remember the balloon in the low pressure chamber?)

**DISCUSSION**: Colorectal cancer accounts for more than 12% of all carcinomas and is the most common malignancy in the USA after skin cancer. On average, 30% arise in the rectum, 30% in the sigmoid colon and 30% in the proximal colon. The distribution of metastases is liver >60%, lung >50%, peritoneum 15% and bone 15%.

There is a 20% incidence of coexisting benign or malignant neoplasm elsewhere in the colon. The overall survival for patients with Duke's Stage I/II/III (i.e. confined to mucosa or submucosa/confined to the wall of the colon or rectum/penetrating all layers including serosa) tumors has been reported as 80/50/30%. Most metastases occur within the first few years and can be predicted up to 6 months in advance by serum carcinoembryonic antigen estimation in 60% of cases. Up to 20% of single hepatic or pulmonary metastases can be cured by resection. Liver function tests (LFT) can remain within normal limits until quite advanced disease exists.

The primary care physician (the flight surgeon) plays an integral role in the detection of curable colon malignancies. Annual rectal examination with guaiac testing can provide substantial benefits, particularly in individuals who are asymptomatic and are most likely to be cured by intervention.

**ICD-9 CODES:**
**153.9 Malignant neoplasm of the colon**
**154.1 Malignant neoplasm of the rectum**
**211.3 Benign neoplasm of the colon**
**211.4 Benign neoplasm of the rectum**

## 9.6 OTHER GASTROINTESTINAL TUMORS

**AEROMEDICAL CONCERNS**: Esophageal carcinoma carries a risk of sudden hemorrhage and aspiration. Gastric carcinoma has the risk of incapacitating hemorrhage, anemia, or metastasis to brain, bone, or lungs. Hemorrhage is also a risk in primary hepatic carcinoma. Pancreatic carcinoma is associated with a risk of developing diabetes mellitus, thrombophlebitis, and serious psychiatric illness.

**WAIVER**: Waiver may be considered for aircrew members who have survived 5 years after treatment without symptoms or recurrence.

**INFORMATION REQUIRED**:

1. Medical Board
2. Tumor Board recommendations
3. AFIP confirmation of the histology
4. Full flight physical
5. Oncology/internal medicine review
6. CXR
7. CT scan of mediastinum and abdomen
8. Endoscopy (if indicated)

**TREATMENT**: Any treatment modality is acceptable provided the patient remains symptom-free 5 years after cessation of therapy.

**DISCUSSION**: The 5 year survival rates for the various carcinomas are as follows: esophagus 3%, stomach 12% (although 90% with early detection and resection has been reported), liver <1%, gall bladder 2%, and pancreas 1%. Three disorders occur in pancreatic carcinoma that could affect aircrew efficiency. Diabetes mellitus occurs in 10-20% of patients. Thrombotic disorders including thrombosis of the splenic vein (15% of cases) or pulmonary embolism (10%) may also occur. Serious psychiatric disorders, particularly depression, can be the presenting symptom and occur in over 75% of patients. Primary lymphoma of the bowel is treated as other lymphomas are. Colonic polyps are also considered separately.

**ICD-9 CODES:**
**150.9 Malignant neoplasm of the esophagus**
**151.9 Malignant neoplasm of the stomach**
**157.9 Malignant neoplasm of the pancreas**
**211.0 Benign neoplasm of the esophagus**
**211.1 Benign neoplasm of the stomach**
**211.6 Benign neoplasm of the pancreas**

## 9.7 HODGKIN'S DISEASE

**AEROMEDICAL CONCERNS**: There is little risk of incapacitation with active disease or in those undergoing therapy. More advanced cases can exhibit thrombocytosis or anemia.

**WAIVER**: Waiver is possible 2 years after completion of treatment of Stage I and IIA Hodgkin's disease with no evidence of recurrence. Patients with IIB through IVB disease have a greater recurrence rate with up to 75% achieving median length of remission of 3 years, and can be considered for a waiver 5 years after completion of therapy.

**INFORMATION REQUIRED**:

1. Staging using Ann Arbor classification
2. AFIP confirmation of histology
3. Tumor Board report
4. Medical Board
5. Confirmation that the chemotherapy has not caused residual toxicity
6. Full pulmonary functions testing including DLCO and an echocardiogram with ejection fraction to confirm lack of pulmonary and cardiac toxicity (A gated radionuclide cardiac study can also be provided)
7. Neurological exam for peripheral neuropathy

**FOLLOW-UP:** Annual submission to include:

1. Oncology/internal medicine evaluations
2. CBC
3. Sedimentation rate
4. CXR are required

**NOTE:** Formal neuropsychological testing may be required in some cases, as there is an effect of chemotherapy on cognition.

**TREATMENT**: Patients must be grounded when undergoing therapy.

**DISCUSSION**: The incidence of Hodgkin's disease is bimodal, with one peak in the mid 20s. Because of the risks of long term complications of therapy, patients should be followed at least quarterly for the first 2 years, then every 6 months for the next 8 years and annually thereafter. After 3 years of remission, there is an 80% chance of permanent cure, which rises to 96% after 5 years. Second malignancies are not unheard of, especially in patients that have received alkylating agents in their initial therapy.

**ICD-9 CODES:**
**201.9 Hodgkin's Disease**

## 9.8 KIDNEY TUMORS

**AEROMEDICAL CONCERN**S: Renal cell carcinoma tends to metastasize to the brain, with seizure as the initial presentation. Bone metastases carry a risk of pathological fracture.

**WAIVER:** Waiver recommendations may be considered 2 years after successful resection of a renal carcinoma provided that the disease was confined to the kidney and that there has been no recurrence. Since applicants for flight training with congenital absence of one kidney are rejected, it follows that applicants with a history of nephrectomy for Wilms tumor will be treated the same way.

**INFORMATION REQUIRED**:

1. Medical Board finding the member fit for full
2. Tumor board appraisal
3. AFIP confirmation of the histology
4. Full flight physical
5. Oncology/nephrology consult
6. CXR
7. CT scan of abdomen and retroperitoneum
8. MRI scan of the brain

**FOLLOW-UP:** Annual submission to include:

1. Flight physical
2. Oncology/nephrology consult
3. CXR
4. CT scan of abdomen and retroperitoneum
5. MRI scan of the brain

**TREATMENT**: Ongoing therapy is not compatible with flying status. Chemotherapy results for treatment of renal cell carcinoma have been dismal.

**DISCUSSION**: With localized disease, the 5 year survival rate is reported as 72%. The smallest tumors that exhibit minimal caliceal distortion and are surrounded by normal renal parenchyma have a good prognosis after surgery but they are at risk for relapse. One third of patients already have disseminated disease at diagnosis, involving the lung in 50% of cases, bone in 30%, liver in 30%, and brain in 25%. Brain metastases from kidney cancer are reported to be particularly susceptible to hemorrhagic degeneration with abrupt onset of headache and neurological compromise. Hypertension occurs in about 30% of cases with renal cell carcinoma (hypernephroma) and a polycythemia syndrome occurs in 2-3%. Hematuria may be the only manifestation of renal tumors, and as such renal tumors should enter into the differential diagnosis of protracted hematuria.

**ICD-9 CODES:**
**189.0 Kidney Tumors**
**223.9 Benign neoplasm of the kidney**

## 9.9 LARYNGEAL CANCER

**AEROMEDICAL CONCERNS**: Airway compromise and speech difficulties.

**WAIVER**: Early diagnosis (T1N0M0) and treatment not involving laryngectomy, with no evidence of recurrence or speech dysfunction, will be considered for a waiver 12 months after completion of treatment.

**INFORMATION REQUIRED**:

1. Surgical and/or radiation reports
2. Medical Board
3. Tumor Board recommendations
4. AFIP confirmation of histology
5. Current ENT/oncology consult

**FOLLOW-UP:** Annual submission to include:

1. ENT/oncology consult

**TREATMENT**: Laryngectomy is CD, no waiver considered, but other types of treatment will be considered once treatment is completed and there is no airway compromise or speech dysfunction. Treatment, depending on site of lesion and its extent, can range from local laser excision to total laryngectomy with neck dissection and post-operative radiation therapy. Pre-operative chemotherapy is also used in selected advanced cases.

**DISCUSSION**: Overall, early laryngeal cancer carries a 5 year survival of 76%, but localized glottic cancer has a figure of 90%. Recurrence is primarily local. Early laryngeal carcinoma (all sites) has a 5 year survival of 76% while localized true vocal cord carcinoma has a 5 year survival of 90%. Recurrence is primarily local.

**ICD-9 CODES:**
**161.9 Laryngeal Cancer**
**212.2 Benign neoplasm of the larynx**

## 9.10 LEUKEMIA

**AEROMEDICAL CONCERNS**: Most of the leukemias present with lethargy, malaise, infection, anemia or hemorrhage. Disseminated intravascular coagulation as a complication of acute lymphocytic leukemia (ALL) can give sudden, fatal cerebral hemorrhage or disabling bone pain. A relapse of ALL can present in the CNS. Prophylactic CNS radiation in cases of ALL can produce leukoencephalopathy, the symptoms of which can include ataxia and confusion.

**WAIVER**: A history of ALL as a child is compatible with waiver. Patients with other leukemias may be considered for waiver recommendation, provided they have been free of symptoms and off treatment for 2 years. Aircrew with satisfactory response to treatment for early hairy cell leukemia may be considered for waiver on completion of treatment.

**INFORMATION REQUIRED**:

1. Tumor Board recommendations
2. Medical Board disposition
3. AFIP confirmation of the diagnosis
4. Neuropsychological review and testing (in patients who have had prophylactic CNS radiation)

**FOLLOW-UP:** Annual submission to include:

1. Oncology consultation.

**TREATMENT**: Ongoing therapy is not compatible with waiver. Patients who have had bone marrow transplantation are not likely candidates for waiver, unless they are asymptomatic and on no medications.

**DISCUSSION**: Overall, the requirement for frequent assessment may interfere with military mobility. Adult ALL has a high relapse rate and long term survival is uncommon. CNS relapse occurs in 50% of cases, although this figure is reduced to 5% with chemical or radiation prophylaxis. Although 60-80% of cases of acute myelogenous leukemia (AML) go into remission, this is short (15 months on average) and there is a high relapse rate, particularly to the CNS. Long term survival without bone marrow transplant is rare but the addition of this technique to the therapeutic armamentarium has increased long term survival of AML to 50%. Chronic myelogenous leukemia (CML) usually requires cytotoxic therapy during the chronic phase; the development of a blast crisis is unpredictable and may be sudden. Chronic granulocytic leukemia (CGL) is rare; 10% of patients exhibit an accelerated progression with death occurring in weeks. Bone marrow transplant can produce long term survivors. Patients with chronic lymphocytic leukemia (CLL) may progress unpredictably from one stage to another; cytotoxic therapy is often needed and the risk of incapacitation from cytopenia is serious. Up to 20% of patients with CLL have another, coexisting malignancy. Hairy cell leukemia, on the other hand, may be clinically benign; patients may live for many years without impairment although the results of chemotherapy can range from disappointing with some drugs

to a relapse rate of <1% in 5 years with pentostatin; splenectomy can also increase long term survival. Relapse in hairy cell leukemia can usually be identified by regular CBC.

**ICD-9 CODES:**
**204.9 Lymphoid leukemia**
**205.9 Myeloid leukemia**
**206.9 Monocytic leukemia**

## 9.11 LUNG CANCER

**AEROMEDICAL CONCERNS**: The major concern for aviators is the risk of cerebral metastasis with the development of seizures. There is also the likelihood of diminished pulmonary function producing symptoms in flight or, more rarely, hemorrhage leading to incapacitation. Chest discomfort is a presenting feature in 40% of cases and this may be exacerbated by the pressure of a restraint harness. Depending on the tumor subtype, there may also be associated neuropathies or endocrine disturbances.

**WAIVER**: Aviators with carcinoma of the lung are CD, no waiver. Patients with successful resection of early stage carcinoma could be considered for waiver recommendation after 5 years without recurrence.

**INFORMATION REQUIRED**:

1. Tumor Board recommendations
2. Medical Board
3. AFIP confirmation of the diagnosis
4. Oncology consult
5. CXR
6. MRI of the brain
7. Full physical exam
8. Pulmonary function testing

**TREATMENT**: Patients who have had lobectomy may be considered for waiver provided the criteria listed above are met. Pneumonectomy will inevitably result in permanent disqualification.

**DISCUSSION**: Overall, lung cancer has a 5 year survival rate of 9%; between 17-20% survive 1 year after diagnosis. Even those who have curative surgery for localized cancer of the lung, and in whom all disease is confined to the lung without any spread to any lymph nodes, have a 5 year survival rate of only 42% and a 10 year survival rate of 16-18%. The 5 year survival rate for resected Stage I carcinoma has been reported as 70%. However, most recurrences are distant suggesting that micrometastasis has already occurred by the time of diagnosis. The rate of cerebral metastasis for the varying types of lung carcinoma has been reported to range from 14-30%.

**ICD-9 CODE:**
**162.9 Lung Cancer**

## 9.12 MALIGNANT MELANOMA

**AEROMEDICAL CONCERNS:** Melanoma has become an epidemic cancer. Incidence has increased over 300 percent in the last 40 years. Of the cancers causing mortality in the 15-34 year old age group, melanoma ranks fourth. There is a risk of visceral metastases to lung, liver, brain, bone and gastrointestinal tract, in order of decreasing occurrence. Brain metastases may present as a seizure disorder, raising concerns of acute in-flight incapacitation. There is no specific evidence that melanoma sequelae have been directly implicated in any aviation mishap. However, in an examination of 584 AJCC stage Ill patients, one third of metastases were noted to be in the brain or liver. The CNS frequently appears as a sanctuary for melanoma because immune defenses have difficulty crossing the blood-brain barrier. In clinical series, the CNS is involved in 12-20% of the time, and this incidence increases to 36-54% in autopsy series. Other research shows that 75% of lesions found at autopsy are asymptomatic in the clinical setting. Behavioral changes are most frequently seen, followed by focal neurological deficits. Due to the vascular nature of melanoma, these tumors hemorrhage easily, at a rate of 19% in one study of head CT features in 28 brain metastatic melanoma patients. Asymptomatic screening contrast MRI represents a necessary screening tool for safety of flight concerns in our population.

**WAIVER:** Malignant melanoma or a history of malignant melanoma is disqualifying for aviation duties. Applicants are generally not considered for waivers, but may be evaluated on a case-by-case basis if greater than 5 years disease-free. Waivers may be considered for designated personnel after treatment is complete, using the AJCC staging system as a guide.

**T-CATEGORY**

– 1.00 mm (T1) a= no ulceration
– 2.00 mm (T2) b = ulceration
– 4.00 mm (T3)
> 4.00 mm (T4)

**AJCC Stage IA (T1a < 1.00 mm, Clark II or III):** 95% 5-year survival. Return to SG I flight status when surgical wounds are healed, provided no interference with function or flight equipment as determined by local flight surgeon or aerospace physiologist. Follow up mucocutaneous skin examinations submitted every six months for two years, then annually. Examinations should be done annually by a Dermatologist and should include a careful history and physical with emphasis on skin, lymph node, and neurological exams. All semi-annual exams may be submitted with the annual physical.

**AJCC Stage lB (T1b < 1.0 mm, T2a: 1.0 - 2.0 mm, Clark IV or V):** 91% 5-year survival. Same as above, but mucocutaneous skin examinations should be every six months for three years, then annually. Examinations should be done annually by a Dermatologist and should include a careful history and physical with emphasis on skin, lymph node, and neurological exams. All semi-annual exams may be submitted with the annual physical.

**AJCC Stage IIA (T2b, T3a: 2.0-4.0 mm):** 60-80% 5-year survival. Because of increased morbidity and mortality associated with these lesions, additional diagnostic information should

be applied. Analysis of sentinel node for melanoma metastasis has been shown to predict nodal involvement in 96% of cases, and should be obtained prior to consideration for return to flight. The pathologic indicators of mitotic rate, tumor-infiltrating lymphocytes, and histological regression have been shown to alter the probabilities of long-term survival and should be obtained in these intermediate cases if possible. Readily available clinical data such as age, gender, anatomic site, ulceration of the lesion, and growth pattern can also be submitted, as they have been shown to more accurately predict outcomes than tumor thickness alone. Lesions that are classified as IIA without evidence of ulceration or nodal involvement may be considered for waiver for SG I after complete excision. A semi-annual physical exam with specific attention to the skin and lymph nodes for three years then annually, with an annual dermatology consultation, is required. All semi-annual exams may be submitted with the annual physical.

**AJCC Stage IIB (T3b, T4a > 4.0 mm):** 60-80% 5-year survival. Because of increased morbidity and mortality associated with these lesions, additional diagnostic information should be applied. Analysis of sentinel node for melanoma metastasis has been shown to predict nodal involvement in 96% of cases, and should be obtained prior to consideration for a return to flight. The pathologic indicators of mitotic rate, tumor-infiltrating lymphocytes, and histological regression, have been shown to alter the probabilities of long-term survival and should be obtained in these intermediate cases if possible. Readily available clinical data such as age, gender, anatomic site, ulceration of the lesion, and growth pattern can also be submitted, as they have been shown to more accurately predict outcomes than tumor thickness alone. Consideration of SG Ill status can be entertained in aviators with predicted greater than 80% disease free five-year survival. Otherwise, a downing period of at least five years is appropriate prior to consideration to SG I. Follow up examinations submitted semi-annually for five years, then annually thereafter. Annual Dermatology consult is required. All semi-annual exams may be submitted with the annual physical. All aviators with a diagnosis of Stage IIB need an MRI with and without contrast prior to consideration to return to flight status (SG I – SG III).

**AJCC Stage IIC, Ill A/B/C (IIC: T4b > 4.0 mm, III: regional nodes):** All aviators with the diagnosis of Stage IIC or Stage III A/B/C will be considered for a waiver on a case-by-case basis after a minimum of 5-years disease free from completion of treatment. All required follow up care is in accordance with the guidelines for Stage IIB.

**AJCC Stage IV (distant metastasis, elevated serum LDH):** 5-25% 5-year survival. Because of the relatively poor prognosis and high likelihood of recurrent disease over time, waivers will not be routinely entertained.

**INFORMATION REQUIRED:**

1. Complete mucocutaneous examination performed by a dermatologist and lymph node exam with particular attention to the primary draining nodal area
2. Neurological exam (performed by the flight surgeon for Stage IIA and lower)
3. Serum chemistries
4. CBC
5. CXR

6. Tissue examination performed by a dermatopathologist. If a dermatopathologist is not available then tissue specimens should be sent to AFIP for confirmation of diagnosis. Must include comment about presence or absence of ulceration and Breslow depth
7. Tumor board report and medical board report returning the member to full duty (if applicable)
8. All patients with a diagnosis of Stage IIB and higher tumors require MRI with and without contrast and a full Neurology exam performed by a neurologist

**TREATMENT:** The treatment of primary non-metastatic melanoma consists of complete local surgical excision to the underlying muscle fascia with a margin of normal appearing skin, usually 1-3cm.

**DISCUSSION**: The most common clinical presentation is a pigmented lesion changing in size, shape, or color. The diagnosis is based on an excisional biopsy whenever possible (i.e. the entire lesion is removed down to the subcutaneous fat). For disease confined to the skin at presentation, the treatment, prognosis, and follow-up recommendations are most accurately based on the tumor thickness and presence or absence of tumor ulceration (see average 5-year survivals above). However, other factors such as increasing age, male gender, and tumors of the palms or soles are associated with a worse prognosis. Pathologic factors that are associated with worsening survival are high mitotic rate, absent tumor-infiltrating lymphocytes, and presence of histological regression. These modifiers can be used in various mathematical models to more accurately predict outcomes and to make better aeromedical decisions.

Aviation-specific studies of morbidity and mortality are scarce, but there are many large studies derived from the general population that are the basis for these waiver guidelines. It should be noted that Stage I cases and Stage II cases associated with a favorable prognosis will in general be recommended for a waiver. Close follow-up as outlined above is required because recurrence rates have a linear slope over time and are not negligible (1-7% per year) even after a 10-15 year period. There is no point where it is safe to conclude that a melanoma patient is "cured." Aviation personnel on melanoma waivers and their flight surgeons must be cognizant of the potential for recurrence and maintain close follow-up.

Patients should be taught how to examine their own skin for the “ABCD” characteristics of melanoma and should be encouraged to do so on a monthly basis. **A** stands for asymmetry, **B** for border irregularity, **C** for differences in color within the lesion, and **D** for increasing diameter (>5 mm or about the size of a pencil eraser). Avoidance of midday sun, use of sunscreens with sun protection factor 15 or higher, and the use of protective clothing are all-important preventive measures.

**ICD-9 CODE:**
**172.9 Malignant Melanoma**

## 9.13 NEUROLOGICAL TUMORS

**AEROMEDICAL CONCERNS**: Brain tumors carry a risk of seizures and disability due to both tumor location and therapy. There is a risk of sudden dysfunction in tumors of the spinal cord.

**WAIVER**: Tumors of the spinal cord may receive a waiver recommendation 5 years after therapy provided there is no recurrence or sequelae. Waiver may be granted for tumors of the peripheral nervous system if there is no impairment of function. All tumors involving the brain or meninges, irrespective of therapeutic outcome, are CD with no waiver recommended.

**INFORMATION REQUIRED**:

1. Medical Board
2. Tumor Board recommendations
3. AFIP confirmation of the histology
4. All imaging studies performed
5. NAMI evaluation of the patient

**TREATMENT**: For those conditions that are waiverable, the aviator should be grounded during treatment.

**DISCUSSION**: Approximately 33% of all patients with malignant brain tumors experience unexpected and incapacitating seizures. Survival rates for malignant gliomas approach 20% after one year. The survival rates for other tumors vary, with some reaching as high as 90%, but in most there is a greater than 10% chance of recurrence. Those tumors with the best prognosis (i.e. the least chance for subsequent seizure disorders or loss of neurological function) are subtentorial, axial, and encapsulated. Those with the greatest chance of subsequent seizure disorder are the opposite (i.e. supratentorial, extra-axial and unencapsulated).

**ICD-9 CODES:**
**171.9 Malignant Neoplasm of the peripheral nervous system**
**191 Malignant neoplasm of the brain**
**192.2 Malignant neoplasm of the spinal cord**
**225.0 Benign neoplasm of the brain**
**225.3 Benign neoplasm of the spinal cord**
**225.4 Benign neoplasm of the spinal meninges**
**215.9 Benign neoplasm of the peripheral nervous system**

## 9.14 NON-HODGKIN'S LYMPHOMA

**AEROMEDICAL CONCERNS**: The major concern is that of poor prognosis, particularly in lymphocytic lymphoma, histiocytic lymphoma, and T-cell diffuse histiocytic lymphoma. Occasionally, patients present with CNS disease. Acute incapacitation is rare.

**WAIVER**: Waiver recommendations may be possible for aircrew with low-stage, non-Hodgkin's lymphomas if treated in the early stages of the condition. Interestingly, more aggressive disease carries a better chance for cure than indolent lymphomas. The low-grade lymphomas are not yet considered curable and do not normally warrant waiver recommendation, although waiver may be possible after 5 years of remission.

**INFORMATION REQUIRED**:

1. Medical Board
2. Tumor Board appraisal
3. AFIP confirmation of the histology
4. Oncologist/hematologist opinion
5. CT scans of the chest and abdomen
6. Confirmation that the chemotherapy has not caused residual toxicity
7. Full pulmonary functions testing including DLCO and an echocardiogram with ejection fraction to confirm lack of pulmonary and cardiac toxicity (A gated radionuclide cardiac study can also be provided)
8. Neurological exam for peripheral neuropathy

**FOLLOW-UP:** Annual submission to include:

1. Hematology/oncology consultation

**TREATMENT**: All forms of treatment are acceptable provided the patient remains symptom-free with no recurrence. Ongoing treatment is not compatible with flying.

**DISCUSSION:** Extranodal presentation occurs in 20-30% of patients. Primary lymphoma of the stomach represents up to 10% of all gastric cancers, with the presenting symptom being pain in 80% of cases and hemorrhage in 20%. Surgery with postoperative radiotherapy or chemotherapy yields a 5 year survival of 50%. Generally, the 5 year survival for low grade non-Hodgkin lymphomas is about 45% compared to 35% for high grade tumors.

**ICD-9 CODE:**
**202.8 Non-Hodgkin's Lymphoma**

## 9.15 ORAL CAVITY CANCER

**AEROMEDICAL CONCERNS:** Localized and referred pain can occur. Difficulties with speech or with the wearing of an oxygen mask are possible. Salivary control may be marginal. Cancer of the tongue can give rise to local pain and to earache.

**WAIVER:** Waiver will be considered on a case by case basis 12 months after completion of therapy for localized disease without recurrence, speech dysfunction, or airway obstruction. Pharyngeal cancer is CD, with no waiver recommended.

**INFORMATION REQUIRED:**

1. Surgical report
2. Pathology report
3. ENT consult
4. Oncology consult
5. Medical Board
6. Tumor Board recommendations
7. AFIP confirmation of the histology

**TREATMENT:** Ongoing treatment, such as chemotherapy or radiation therapy, is not compatible with waiver.

**DISCUSSION:** Cancer of the lower lip has the best prognosis of the oral cancers, with a 10 year survival rate for early cases of over 95%. Most recurrences (to the lip in 43% and cervical nodes in 43%) occur in the first 2 years. Up to 12% of patients with lip cancer develop a second primary lesion, usually of the mouth or pharynx. Cancers of the upper lip carry a 5 year survival rate of 58-73%. Stage I (T1N0M0) and Stage II (T2N0M0) cancers of the oral cavity carry 5 year survival rates of 76% and 65% respectively, but overall the 5 year survival rates are 25-35% for tongue, 20-40% for the floor of the mouth, 30-50% for cheek and 25% for oropharynx, palate and gingiva. Recurrence is primarily local, but up to 15% will metastasize while the local lesion is controlled. Up to 86% of those who have recurrence will manifest their metastases within 12 months. Between 15-35% of patients develop a second squamous carcinoma (head and neck 10-20%, esophagus 2-10%, bronchus 3-10%). Of those patients who have had a radical neck dissection, 30% develop a dropped shoulder because of sacrifice of the 11th cranial nerve causing weakness of the trapezius muscle; this may preclude flying duties. Pharyngeal cancers are usually diagnosed late and carry a 5 year survival of 33%.

**ICD-9 CODES:**
**145.9 Oral Cavity Cancer**
**528.6 Leukoplakia of oral soft tissues**
**210.4 Benign neoplasm of the oral cavity**

## 9.16 OVARIAN TUMORS

**AEROMEDICAL CONCERNS**: The vast majority of ovarian tumors are benign, and waivers are not necessary for benign ovarian disease. Because the majority of ovarian carcinomas have already metastasized by the time of diagnosis, the prognosis is usually grim.

**WAIVER**: Waiver may be considered 2 years after cessation of therapy provided the patient is symptom-free and has no evidence of recurrence. Waiver is not required for excised benign ovarian tumors.

**INFORMATION REQUIRED**:

1. Medical Board
2. Tumor Board recommendations
3. AFIP confirmation of the histology
4. Full physical exam
5. Gynecology/oncology consult
6. CT scan of the abdomen, retroperitoneum and pelvis
7. Intravenous pyelogram
8. Tumor markers (if obtained)

**TREATMENT**: Hormone replacement therapy after bilateral oophorectomy is acceptable for service members in aviation billets.

**DISCUSSION**: Almost 75% of ovarian tumors are benign. Of those with malignant disease, 80% will have metastases by the time of diagnosis. Metastasis of breast or colonic carcinoma to the ovary is more common than primary carcinoma of the ovary. The 5 year survival of early ovarian carcinoma can reach 90%.

**ICD-9 CODES:**
**183.0 Malignant neoplasm of the ovary**
**220 Benign neoplasm of the ovary**

## 9.17 PITUITARY TUMORS

**AEROMEDICAL CONCERNS**: The aeromedical complications largely center on the consequences arising from hormone hypersecretion. These include heat intolerance, diabetes mellitus, diabetes insipidus, hypercalciuria, hypothyroidism, nerve entrapment syndromes, hypertension, cardiomyopathy and spondylosis. Local effects from the tumor can also cause headache, cranial nerve palsies, and visual field defects.

**WAIVER**: Waiver may be considered provided sequelae are within acceptable limits. Diabetes insipidus (either as a result of posterior pituitary tumor or following surgery or Yttrium-90 implant) is not waiverable.

**INFORMATION REQUIRED**:

1. Medical Board disposition
2. Tumor Board recommendations
3. AFIP confirmation of the histology (in those cases where surgical removal has been carried out)
4. Endocrinology consult
5. Postoperative visual field studies

**FOLLOW-UP:** Annual submission to include:

1. Endocrinology consult

**TREATMENT**: Surgical removal of the tumor and insertion of Yttrium-90 implant are both compatible with aviation duties. Ongoing treatment with bromocriptine is not waiverable.

**DISCUSSION:** Cure rates of up to 80% for anterior pituitary tumors resulting in acromegaly can be expected with any of the treatment modalities. Prolactinomas have an even better success rate.

**ICD-9 CODES:**
**227.3 Benign neoplasm of the pituitary**
**194.3 Malignant neoplasm of the pituitary**

## 9.18 PLASMA CELL DYSCRASIAS

**AEROMEDICAL CONCERNS**: Plasma cell dyscrasias require frequent toxic therapy. They are also associated with side effects that can lead to sudden incapacitation, such as neurological impairment. Vertebral involvement is common in myelomas, giving rise to severe backache and increased susceptibility to injury on ejection. These individuals are immunocompromised, and are thus prone to life threatening infections.

**WAIVER**: Aviators who remain free of recurrence 3 years after treatment for a single plasmacytoma may be considered for waiver. Personnel with monoclonal gammopathy of unknown significance (MGUS) may be considered for waiver provided that the monoclonal spike comprises <2 g/dl of protein, there are fewer than 5% plasma cells in the bone marrow, the serum viscosity is normal, and there is no hematopoietic compromise or osteolytic lesions. Other plasma cell dyscrasias are not waiverable. These include amyloidosis associated with plasma dyscrasia, heavy chain disease, cold agglutinin disease, and cryoglobulinemia.

**INFORMATION REQUIRED**:

1. Oncology/hematology consult
2. Medical Board disposition
3. Tumor Board recommendations
4. AFIP confirmation of diagnosis

**FOLLOW-UP:** Annual submission to include:

1. Hematology/oncology consult

**NOTE:** Patients with benign monoclonal gammopathy require assessment every six months by hematology/oncology, and waiver request submission every six months.

**TREATMENT**: Continuing therapy is CD, no waiver.

**DISCUSSION**: The risks of benign monoclonal gammopathy are progression to multiple myeloma and increased serum viscosity leading to neurological impairment. The median survival for patients with gamma heavy chain disease is 12 months. Neurological involvement is insidious and, although usually a condition of older patients, has been reported in those a young as 23. Alpha heavy chain disease is associated with progressive and fatal abdominal lymphoma. There is a risk of sudden hemolysis in cold agglutinin disease, and a risk of sudden vascular accidents and neurological dysfunction in cases of cryoglobulinemia. Up to 60% of patients with myeloma present with skeletal pain, while anorexia and depression associated with hypercalcemia are present in 30%. About 10% present with paraplegia while others exhibit mental impairment or visual disturbance resulting from hyperviscosity. Amyloidosis is encountered in 5-10% of myeloma patients. Two year survival ranges from 9-76% depending on the stage of the disease at the time of diagnosis.

**ICD-9 CODE:**
**203.1 Plasma Cell Dyscrasias**

## 9.19 PROSTATE CANCER

**AEROMEDICAL CONCERNS:** Advances in screening for prostate cancer have resulted in most cases being asymptomatic at the time of diagnosis. In rare cases, a variety of symptoms capable of affecting safety of flight and/or mission completion may be present. These include hesitancy, urgency, frequency, urinary retention, dysuria, hematuria, and acute obstruction. Furthermore, metastatic disease can affect bony sites, most often the spine, which can result in pain and/or pathological fracture. In the military aviation population, which is relatively younger, healthier, and with better access to health care when compared to the general population, symptom occurrence as described above would be less likely.

**WAIVER:** Waivers are considered on a case by case basis. Waiver may be considered as early as six months post-treatment (radical prostatectomy or radiation therapy) for tumors staged as T2, Gleason 3+3. Individuals with lesions staged as T3 or higher or Gleason score greater than or equal to 7 may submit a waiver request, but due to their having a greater chance of local recurrence, the urology/oncology consult must specifically mention the likelihood of disease progression. Treatment by "watchful waiting" with quarterly PSA and biannual urology consultation and follow-up may be considered for waiver, however, member shall be restricted to current command and CONUS-only. In all cases, the member must be fully recovered, off all medications including estrogen compounds, and have no urinary incontinence. The wearing of absorbent undergarments (Depends) or intermittent self-catheterization is not compatible with full or special duty.

**INFORMATION REQUIRED:**

1. Initial history, with details of the presentation and treatment course
2. Medical Board disposition
3. Tumor Board recommendations
4. Pathological reports
5. AFIP confirmation of the histology (must include Gleason grade)
6. Primary definitive treatment reports (surgical or radiation as applicable)
7. Post-treatment urology or oncology consult
8. Renal function testing (including serum BUN and creatinine)
9. IVP (only required if BUN or creatinine are elevated)
10. Pre-treatment and serial PSAs every three months post-treatment
11. Remarks affirming that the member is free of symptoms/side effects and physical limitations, and retains full bladder continence and function
12. Remarks concerning future required follow-up (as per urology or oncology recommendations)
13. Bone scan (if recommended by the urologist/oncologist)

**NOTE:** Any residual or unresolved treatment complications or side effects (incontinence, anesthesia, DVT/PE) will make the waiver request more complex and will have to be considered separately as part of the complete waiver package. All individuals approved for a waiver will be required to have DRE and PSA every three months for the first post-treatment year, followed by

every six months indefinitely. A yearly follow-up by a flight surgeon will be required to ensure this is being performed.

**TREATMENT:** The choices for the treatment of prostate cancer involve multiple factors. The disease itself is most often slowly progressive, and when coupled with a number of well-documented side effects of therapy, recommended treatment options can be variable and are often individualized. Both surgery and radiation therapy offer the potential for complete cure, with surgery having a higher cure rate. Radiation, if not curative, will likely halt the progression of disease. Both therapies have their associated benefits, risks and side effects. Watchful waiting, which is not curative, is less often preferred but remains an acceptable choice in certain cases if the patient and specialist are in agreement. This therapy requires closer follow-up for progression of disease. Special cases involving newer therapies such as cryotherapy will be handled on a case by case basis. Individuals requiring chemotherapy/estrogen therapy will be considered NPQ/WNR.

**DISCUSSION:** Carcinoma of the prostate is the second leading type of cancer in men next to skin cancer. Increased incidence is seen with increasing age and in African American populations. Over their lifetime, approximately 15 percent of men in the United States will be diagnosed with prostate cancer, with the vast majority being over the age of 65 at the time of diagnosis. Being that the disease is usually slow growing, and that most treatment modalities are associated with significant risks and side effects, patients and health care providers are often left with no one definitive treatment decisions. Very low-grade tumors have an approximately 95% 15-year survival. Young African American individuals tend to have more poorly differentiated tumors and do less well than older African American patients. This age/severity correlation has not been definitively recognized in Caucasian males. The presence of related symptoms, rarely seen anymore, suggests locally advanced or metastatic disease. Hormonal therapy, when indicated, is known to have significant side effects. Patients must be made aware of the specific risk related to each agent being considered.

**ICD-9 CODES:**
**185 Malignant prostate cancer**
**233.4 Prostate carcinoma in situ**
**222.2 Benign neoplasm of the prostate**
**600 Benign prostate hypertrophy**
**H605 Status post radical prostatectomy**

## 9.20 SKIN CANCERS (NON-MELANOMA)

**AEROMEDICAL CONCERNS:** The lesion may be irritated by the wearing of protective equipment or, if it is on the face, may prevent adequate mask seal.

**WAIVER:** Waiver is not required for adequately treated basal cell carcinoma. Waiver may be required if grafting has been necessary, once the graft has settled adequately to allow wear of flight clothing or equipment and provided that there is no disability. Squamous cell carcinoma is CD, with waivers considered on a case-by-case basis.

**INFORMATION REQUIRED:**

1. AFIP confirmation of diagnosis is required
2. Dermatology consult

**TREATMENT:** The aircrew member should be grounded during treatment.

**DISCUSSION:** The incidence of metastasis varies. Primary cutaneous squamous cell carcinomas have a secondary rate of 3%, compared to 11% with mucocutaneous lesions and 10-30% with tumors secondary to inflammatory and degenerative processes. Metastases tend to be in the regional lymph nodes.

**ICD-9 CODES:**
**173.0 Skin Cancers (Non-Melanoma)**
**M8091 Multicentric Basal Cell Carcinoma**
**M809B Basal Cell Carcinoma**
**M8070 Squamous Cell Carcinoma**

## 9.21 TESTICULAR TUMORS

**AEROMEDICAL CONCERNS**: Treatment with bleomycin-based chemotherapy can lead to compromised pulmonary function. This is significantly exacerbated by breathing high concentrations of oxygen. Pulmonary metastases may eventually cause respiratory symptoms, which could be exacerbated by hypoxia. Very rarely, cardiac or cerebral metastases have been reported.

**WAIVER**:

**Seminoma:** Patients with Stage I or IIA seminomatous tumors treated by orchiectomy and/or external beam radiation may be considered for waiver after completion of radiation, provided tumor markers are absent. Stage IIB or III treated with orchiectomy plus chemotherapy must complete a 2 year LIMDU board, during which time no waiver will be considered. After completion of LIMDU, waiver may be considered provided patient is free from recurrence (normal physical exam, tumor markers negative) and pulmonary function tests show no evidence for oxygen toxicity/hypersensitivity.

**Non-Seminomatous Germ Cell:** Clinical Stage I or low volume Stage II treated with orchiectomy and retroperitoneal lymph node dissection and confirmed to be pathological Stage I or low volume Stage II may be considered for waiver after 6 months LIMDU board, provided patient is free from recurrence. If pathology is upstaged to Stage IIB, adjuvant chemotherapy is required, as well as a 2 year LIMDU board. Wavier may then be considered after completion of the 2 years of LIMDE. Patients with Stage III disease treated with orchiectomy and chemotherapy require a 2 year LIMDU board. After completion of LIMDU, waiver may be considered if the patient is free from recurrence (normal exam, tumor markers negative, abdominal CT scan free from residual masses) and pulmonary function tests are normal.

**INFORMATION REQUIRED:**

1. Medical Board disposition
2. Tumor Board recommendations (if available)
3. AFIP confirmation of histology
4. CXR and/or CT scan reports

**FOLLOW-UP:** Annual submission to include:

1. Urology consult
2. CXR, chem panel, tumor markers and physical exam as follows:
   a. Monthly for first year
   b. Bimonthly for second year
   c. Every 6 months for third year
   d. Annually after third year

**TREATMENT**: Treatment by orchiectomy with or without prosthetic implant, with or without surgical staging, radiotherapy, or chemotherapy can all be considered for waiver as described above.

**DISCUSSION**: Overall cure rate for all stages of testicular cancer is 98%. Seminoma is the most common cell type, seen in 40% of cases, with a peak incidence between the ages of 30 and 39 years. Embryonal carcinoma or teratocarcinoma is present in another 45-55% with a peak incidence of 25-35 years. 25% of seminomas and 50-70% of nonseminomatous tumors will have metastatic nodes at time of diagnosis. The addition of radiation therapy decreases the relapse rate for Stage I seminomas from 30% down to 5-10%. Retroperitoneal lymph node dissection results in a recurrence rate of 5% for pathological stage I and 5-20% for pathological low volume stage II nonseminomatous tumors. Two cycles of adjuvant chemotherapy for pathological stage IIB tumors lowers the recurrence rate from 30-40% down to <10%. Except in the cases of pure teratoma, where recurrence may occur out to five years, it is rare to see recurrence beyond two years.

**ICD-9 CODES:**
**186.9 Malignant testicular tumor**
**222.0 Benign neoplasm of the testes**

## 9.22 THYROID CARCINOMA

**AEROMEDICAL CONCERNS**: There is almost inevitable hypothyroidism after surgical treatment. The condition also carries a small risk of damage to the recurrent laryngeal nerves either from local invasion of the tumor and/or surgical damage. The parathyroid glands may also be involved, resulting in hypoparathyroidism.

**WAIVER:** Waiver will be considered after treatment of papillary or follicular carcinoma of the thyroid. Medullary or undifferentiated thyroid tumor will normally lead to permanent disqualification, with no waiver recommended. This is a reflection of the differing prognoses of the varied histologies.

**INFORMATION REQUIRED**:

1. Medical Board disposition
2. Tumor Board recommendations
3. AFIP confirmation of the histology
4. Confirmation of clinical and chemical euthyroid status
5. Evidence of TSH suppression
6. Endocrinology consult

**FOLLOW-UP:** Annual submission to include:

1. Confirmation of clinical and chemical euthyroid status
2. Evidence of TSH suppression
3. Endocrinology consult

**TREATMENT:** Surgery is generally the first line of therapy. Some authorities prefer to use radioiodine treatment. Surgical procedures have the risk of injuring the recurrent laryngeal nerve, resulting in voice changes. In addition, removal of the parathyroid glands may lead to symptomatic hypoparathyroidism.

**DISCUSSION:** Generally, men over 40 years old and women over 50 have a poorer prognosis. Another poor prognostic indication is a primary tumor over 5 cm. Papillary carcinoma is slow growing, spreading locally to the strap muscles of the neck, lymph nodes, and occasionally trachea, but it may metastasize to lungs or bone. Some 20% are said to be multicentric. Overall 5 and 10 year survivals of better than 95 and 90% respectively can be achieved. Because the growth rate is slow, there is no particular trend to early recurrence (recurrence rates from 10-24% have been reported); patients should be able to return to flying as soon as they are euthyroid. Follicular carcinoma tends to metastasize to lungs and bone rather than infiltrate locally. A major determinant of outcome is the extent of microinvasion. The usual treatment of choice is total thyroidectomy, because there is an 87.5% chance of the opposite lobe containing microscopic follicular carcinoma. For patients treated with total thyroidectomy and radioactive iodine, the death rate at 5 years is quoted as 11%, rising to 30% when treatment is by incomplete thyroidectomy alone. This can be largely explained by the fact that only total thyroidectomy allows subsequent accurate localization and treatment of distant metastases by Iodine-131.

Medullary carcinoma and undifferentiated carcinomas have a 10 year survival of 50 and 20% respectively.

**ICD-9 CODES:**
**193 Malignant neoplasm of the thyroid**
**226 Benign neoplasm of the thyroid**

## 9.23 UTERINE CANCER

**AEROMEDICAL CONCERNS:** Some cases develop anemia, but there are otherwise very few specific aeromedical concerns in carcinoma of the uterus.

**WAIVER:** Waiver may be considered 6 weeks after hysterectomy provided that there has been a full recovery and there is no indication of metastasis. Waiver may be requested 2 years after treatment of disseminated disease provided there is no evidence of sequelae or recurrence. Leiomyosarcoma of the uterus is not waiverable.

**INFORMATION REQUIRED:**

1. Medical Board disposition
2. Tumor Board recommendations
3. AFIP confirmation of the histology
4. Gynecology/oncology consult
5. Intravenous pyelogram
6. CT scan of the abdomen, retroperitoneum and pelvis

**FOLLOW-UP:** Annual submission to include:

1. Gynecology/oncology consult

**TREATMENT:** Aircrew are grounded during treatment and during the immediate postoperative period.

**DISCUSSION**: The earliest truly invasive carcinoma of the endometrium has a cure rate of 90%. Spread is usually slow and recurrence is usually local for long periods of time. However, recurrence for all stages is unpredictable. The incidence of leiomyosarcoma arising in uterine fibroids has been reported to be 0.1-0.6%, with a 5-year survival rate of 31%.

**ICD-9 CODES:**
**179 Malignant neoplasm of the uterus**
**219.9 Benign neoplasm of the uterus**

# 10.0 NEUROLOGY

Revised: April 2018 Reviewed: April 2018

## 10.1 CRANIAL NEURALGIA

Revised: April 2018 Reviewed: April 2018

**AEROMEDICAL CONCERNS:** The pain of cranial neuralgia can be incapacitating in flight. The symptoms of trigeminal neuralgia may be stimulated by the wearing of an oxygen mask. Glossopharyngeal neuralgia has been associated with syncope and cardiac arrest.

**WAIVER:** Because of the severity and chronic recurrent behavior of the neuralgias, these are CD, waiver usually not considered.

### INFORMATION REQUIRED:

1. Neurology or neurosurgical consultation

**TREATMENT:** Pharmacological treatments (Tegretol, Triavil, Prolixin, Mexitil), although effective, are not waiverable due to side effect profiles. Surgical "cures" (microvascular decompression) may be achieved, and waivers may then be considered on a case-by-case basis.

**DISCUSSION:** Although most cranial neuralgias are probably due to microvascular compression at the root entry zone, other etiologies need to be considered, especially in the young adult population in whom demyelinating disease, aneurysms, neoplasms, and infectious etiologies (post-herpetic, Lyme disease, etc) may be more common. The finding of sensory loss in the company of neuralgia should alert the flight surgeon to consider these other causes of cranial neuralgia.

### ICD-10 CODES:

**G50.0 Trigeminal Neuralgia**
**B02.22 Post Herpetic Trigeminal Neuralgia**
**M54.81 Occipital Neuralgia**
**G52.1 Glossopharyngeal neuralgia**

## 10.2 DECOMPRESSION SICKNESS

Revised: April 2018 Reviewed: April 2018

**AEROMEDICAL CONCERNS:** Residual neurological/neuropsychological impairment is a safety of flight issue. Most individuals who have suffered DCS make a full recovery and are not at increased risk for recurrent DCS. Decompression sickness with full recovery is not considered disqualifying (NCD) for flying duties. Type I or Type II DCS with residual symptoms after treatment is CD, however waiver may be considered on a case by case basis. Neurology (and possible neuropsychological examination) is required for waiver consideration.

**The flight surgeon with a patient with suspected DCS should:**

1. Make an aeromedical disposition after consulting with NAMI Neurology.
2. Document a normal evaluation by neurologist, DMO or HMA prior to returning a member to flight status.
3. Members with a history of DCS should be referred for hypoxic training using the Reduced Oxygen Breathing Device (ROBD).
4. Bubble contrast echo is offered to patient only as an option.

**Grounding requirements:**

1. Type I DCS: at least 3 days with no evidence of residual effects

Type II DCS: at least 14 days with no evidence of residual effects

**TREATMENT:** Recompression therapy is the standard, however many Type I patients will respond completely to surface oxygen therapy and may not require hyperbaric oxygen.

**DISCUSSION:** Often we err on the conservative side and treat patients whose findings and symptoms may be equivocal, especially in the training commands where students are instructed to report any and all symptoms that occur following low-pressure chamber flights. A high index of suspicion in this setting coupled with enthusiasm for treatment must be weighed in evaluating the outcome and disposition. Diving-related cases of DCS tend to be more straightforward, as well as more severe. These patients often receive relatively delayed treatment and are more likely to suffer permanent residual effects. Except for older age, no factors are clearly linked to increased risk for recurrent DCS. Individuals who do suffer recurrent DCS are probably at higher risk for reasons that cannot be defined or predicted and should not be considered for waiver without careful evaluation of the risk-benefit factors. The above recommendations adopt the policy used by the Navy diving community and consider DCS as a treatable occupational hazard that should have no adverse impact on a member's future career following full clinical recovery.

### ICD-10 CODES:

**T70.3 Decompression Sickness: Type I and II**
**T70.20 Unspecified effects of high altitude**
**T70.29 Other effects of high altitude**
**W94 Exposure to high and low air pressure and changes in air pressure**
**W94.23 Exposure to sudden change in air pressure in aircraft during ascent**
**W94.29 Exposure to other rapid changes in air pressure during ascent**
**W94.21 Exposure to reduction in atmospheric pressure while surfacing from deep water**

**AEROMEDICAL CONCERNS:** The aeromedical implication of a seizure in flight is severe.

**WAIVER:** A single, febrile seizure under age 5 is NCD. Two or more febrile convulsions are CD, waiver considered. A single seizure clearly attributable to a toxic cause may be considered for waiver. All other seizures are CD, no waiver. Myoclonic jerks associated with G-LOC are NCD.

## INFORMATION REQUIRED:

1. Neurological consultation
2. EEG
3. MRI scan

**TREATMENT:** N/A for waiver purposes.

**DISCUSSION:** The risk of having a first seizure falls from about 0.4% at age 20 to 0.06% at age 50, before rising sharply to 0.8% by age 70. The late rise is because of the increase in precipitating factors such as neuronal degeneration and cerebrovascular disease. After a single, unprovoked seizure in adults, the risk of a second episode while not taking anticonvulsants is 64% over 3 years and 80% at 5 years, with over two thirds of these occurring during the first year. With no risk factors, such as previous neurological insult or a sibling with epilepsy, the risk of a second seizure is 23% at five years. Relapse, even after many years of symptom-free existence without therapy, is possible. These figures apply to individuals living at one atmosphere and one +Gz. The risk for seizure recurrence associated with exposure to the physiological stressors of military aviation is likely to be much higher. Etiologies for seizures in the adult include alcohol (25%), brain tumor (16%), cerebral infarction (14%), trauma (4%), miscellaneous (5%) and unknown (36%). The EEG does not prove or disprove the diagnosis, although an unequivocally abnormal EEG with a good history of seizure does support the diagnosis. EEGs are normal in half of the patients with frank epilepsy. An epileptiform EEG does not, by itself, signify the presence of epilepsy.

## ICD-10 CODES:

**G40.3 Generalized idiopathic epilepsy and epileptic syndromes**
**G40.30 Generalized idiopathic epilepsy and epileptic syndromes, not intractable**
**G40.31 Generalized idiopathic epilepsy and epileptic syndromes, intractable**
**G40.4 Other generalized epilepsy and epileptic syndromes**
**G40.40 Other generalized epilepsy and epileptic syndromes, not intractable**
**G40.41 Other generalized epilepsy and epileptic syndromes, intractable**
**G40.5 Epileptic seizures related to external cause**
**G40.8 Other epilepsy**
**G40.89 Other seizures, including childhood epilepsy**
**G40.90 Epilepsy, unspecified, not intractable**
**G40.91 Epilepsy, unspecified, intractable**
**R56 Convulsions not elsewhere classified**
**R56.0 Febrile convulsions**
**R56.1 Posttraumatic seizures**
**R56.9 Unspecified convulsions**

## 10.4 GUILLAIN-BARRÉ SYNDROME (ACUTE INFLAMMATORY DEMYELINATING POLYNEUROPATHY – AIDP)

Revised: September 2024 Reviewed: September 2024

**AEROMEDICAL CONCERNS:** Muscle weakness (including extremities, axial or bulbar groups), sensory changes or ataxia evolving over several hours to days that can affect flying and aircrew abilities, creating safety of flight as well as mission completion concerns. The Miller-Fisher variant is comprised of ataxia, areflexia, and ophthalmoplegia (internal and external). Even subtle ophthalmoplegia may cause double vision and presents a safety of flight concern. Autonomic dysfunction may also be present, posing an additional concern regarding tolerance of gravitational force changes, blood pressure and heart rate variability, and cardiac rhythm disturbances that may be especially life-threatening in the aviation environment. Pain is also a common presenting feature that may be the initial presenting sign and persist beyond the acute course of the disease. Recurrence of symptoms is uncommon, and an alternative diagnosis should be considered.

**WAIVER:** Guillain-Barré syndrome is disqualifying for all classes. A waiver can be considered after recovery of strength, sensation, and autonomic nervous system function. Tendon-stretch reflexes may never return but would not prohibit waiver recommendation. Persistent pain, autonomic nervous system dysfunction, or neurological deficits affecting functional capacity would be considered disqualifying, and waiver not recommended. Applicants should be at least 6 months after symptom resolution to be considered for a waiver. Designated can be returned to flight 6 months or sooner on a case-by-case basis.

### INFORMATION REQUIRED:

1. Neurology consultation that includes quantified strength testing of all motor groups, sensory examination and assessment of autonomic nervous system function (if appropriate, referral for formal autonomic testing – tilt table, QSART, TST, HRDB) with recommendation to return to full physical activity. Reports should include results from laboratory studies, lumbar puncture, electrodiagnostic testing, and pertinent imaging studies.
2. Autonomic dysfunction worksheet, unless assessment of autonomic nervous system completed during neurology consultation.
3. Ophthalmology consultation if ophthalmoplegia among presenting symptoms.
4. Documentation of pain assessment.
5. Functional cockpit and egress testing should be completed after clearance to return to duty from neurologist.

**TREATMENT:** Typical treatment includes either intravenous immunoglobulin (IVIG) and/or plasma exchange therapy. Therapy is usually recommended to start as soon as possible to potentially curtail the weakness from progressing to the point of impairing walking or respiratory compromise. Steroid therapy is not beneficial and may worsen the outcome.

**DISCUSSION:** Typical Guillain-Barré syndrome is comprised of rapidly progressive, bilateral, ascending weakness. Other variants might present with cranial nerve involvement causing facial, oculomotor or bulbar weakness. Antecedent illness within four weeks prior to the onset of neurological symptoms occurs in approximately two thirds of cases. Cases also have been reported in proximity to vaccination. This syndrome has a broad spectrum of presentations ranging from minor (e.g. isolated mild sensorimotor deficits) to severe (e.g. complete paralysis of all muscle groups with respiratory and cardiovascular compromise). Recurrence of symptoms

is uncommon and alternative diagnoses such as chronic inflammatory demyelinating polyneuropathy (CIDP) should be considered. Patients with other disorders including infections (EBV, CMV, HIV, West Nile, Lyme, *C. jejuni*), autoimmune (SLE), or neoplastic (lymphoma) may present with AIDP. The presence of pleocytosis in the CSF is incongruous with AIDP and suggests alternative diagnoses (e.g. SLE, lymphoma, infection). Electrodiagnostic studies, ideally at least 2 weeks from symptom onset, can help discriminate between demyelinating and axonal subtypes. Axonal subtype typically has a poorer prognosis concerning recovery of strength given axonal regeneration can be irreversible in some cases. There is generally no contraindication to future vaccination of patients who previously had Guillain-Barre syndrome, however, refer to specialist for vaccine exemption recommendations.

## ICD-10 CODE:

**G61 Inflammatory polyneuropathy**
**G61.0 Guillain-Barré Syndrome**
**G65.0 Sequelae of Guillain-Barré Syndrome**

**References:** Willison HJ, Jacobs BC, van Doorn PA. Guillain–Barre syndrome. Lancet. 2016;388 (10045):717–27.

Name: _____ DODID: _____ Date:_____

# Autonomic Dysfunction Worksheet

Review of Systems:

Gen: Exercise Intolerance, Fatigue, Cold or Heat Intolerance, Decreased or Increased Sweating

CV/Pulm: Lightheadedness, Dizziness, Chest Pain, Palpitations, Shortness of Breath

GI/GU: Constipation, Diarrhea, Nausea, Early Satiety, Urinary Urgency or

Incontinence Neuro: Headaches, Neckache (coat-hanger pain)

## If POSITIVE for CV/Pulm, please complete orthostatic vital signs as below. Orthostatic Vital Signs Procedure Sheet

Date: _____ Time: _____

1. Recumbent Data: Ideally, patient should lie recumbent for 20 minutes for baseline testing.

Duration recumbent prior to measures (10-20 minutes): _

Blood Pressure: _____ Heart Rate: _____

2. Standing Data: Testing blood pressure and heart rate immediately upon standing and every minute for 10 minutes immediately after standing. Please record any symptoms or clinical signs in comment section.

| Time | Blood Pressure | Heart Rate | Comments/Patient Sx |
|---|---|---|---|
| 0 minutes | | | |
| 1 minutes | | | |
| 2 minutes | | | |
| 3 minutes | | | |
| 4 minutes | | | |
| 5 minutes | | | |
| 6 minutes | | | |
| 7 minutes | | | |
| 8 minutes | | | |
| 9 minutes | | | |
| 10 minutes | | | |

## 10.5 HEADACHES AND MIGRAINE

Revised: April 2026 Reviewed: April 2026

**AEROMEDICAL CONCERNS:** Severe headaches can be incapacitating in flight, while milder headaches may act as a distraction. Migraine may involve visual and other aura, nausea and vomiting, and transient neurological deficits that may include aphasia, hemisensory and hemi-motor impairment, vertigo, presyncope, dysarthria, confusion, and disorientation. These are of obvious concern in aviation personnel. Migraine aura may also manifest without a headache (typical aura without headache or TAH), which can be equally incapacitating during flight if significant visual aura is present. Cluster headaches and other trigeminal autonomic cephalalgias have incapacitating pain and may be associated with eyelid edema, lacrimation, and other distracting cranial autonomic symptoms. Episodic tension-type headaches commonly have a self-limited course, however, can become chronic or frequent requiring further evaluation for aeromedical disposition. If psychosocial stressors are apparent and related to headache severity or frequency, psychological evaluation should be considered.

Select secondary headaches may not require a waiver if they are self-limited and resolve with the underlying condition (i.e. headache associated with sinus infection). Other secondary headaches may uncover other disqualifying conditions (i.e. neoplasm, idiopathic intracranial hypertension, etc.).

**DISQUALIFYING CONDITION:** The key factor for determining whether a headache is disqualifying is the effect on general performance, special senses, and risk of recurrence. The aeromedical disposition of members with headaches will depend on the frequency and severity of the symptoms, the etiology, and the medication required to control the headaches.

**Only headaches that meet the criteria below are not considered disqualifying (NCD), all others require a waiver:**

1. Headache does not meet severity criteria (below)
2. Either no medication required OR over-the-counter medications only

**Severity criteria: A single headache or headache syndrome is considered disqualifying if it meets any of the following criteria:**

1. Interferes with or limits social, vocational, or academic activities.
2. Utilizes emergency department, hospital, or acute care for headache evaluation.
3. Associated with any neurologic or systemic symptoms such as impaired vision, hearing, balance or motor control.
4. Requires treatment beyond simple analgesics or non-pharmacologic methods for control.
5. Greater than two severe headache days per month.

# MIGRAINE

**Any diagnosis of migraine is considered disqualifying (CD) and requires a waiver**.

Any diagnosis of migraine with aura is CD, waivers for applicants may be considered on a case-by-case basis for flying classes other than SNA.

A service member with a past medical history of migraine without aura, who has been asymptomatic for > 5 years, may be considered for a waiver without additional work up (see number 2 in “Information Required for Waiver Submission” section).

**TREATMENT:** Over-the-counter analgesics are acceptable. Dietary supplements (magnesium and riboflavin per 19.4 dietary supplement policy), lifestyle changes, biofeedback, and relaxation therapy may be successful in reducing headache burden. Consideration of a pharmacotherapy waiver is contingent upon a prior determination that the underlying headache diagnosis is suitable for a waiver.

**ABORTIVE**: Aeromedically acceptable prescription abortive medications are restricted by efficacy and side effects.The chosen abortive medication should be effective in completely resolving the headache without the presence of side effects. Migraines treated with abortive medication will be considered for designated personnel only. Applicants other than SNA may be considered on a case-by-case basis.

The aviator should be on a stable dose of medication with symptom control for >3 months before waiver submission. **There is a requirement that all headache and associated migraine symptoms be resolved for at least 24 hours before returning to duties involving flight**. When using abortive medications, there may be additional post-dose observation time (no-fly period) based on the medication's half-life.

| Waiverable | Post-dose observation |
|---|---|
| Serotonin 5HT1 receptor agonists: Rizatriptan, Sumatriptan, Zolmitriptan | 24 hours |
| Serotonin 5HT1 receptor agonists: Eletriptan, Naratriptan, Frovatriptan | 48-72 hours |
| Small molecule CGRP receptor antagonists: Ubrogepant, Atogepant, Rimegepant | 24 hours |

*Not an all-inclusive list, reach out to NAMI neurology for recommendations on other medications in same classes.

**Non-waiverable abortive medications include (but not limited to)**: butalbital containing medications (i.e. Fioricet, Fiorinal), acetaminophen/isomethptene/dichloralphenozone (Midrin), ergot derivatives (i.e. Migranal), and opioid analgesics.

**PROPHYLACTIC**: Aeromedically acceptable options for prophylaxis are limited by side effects, particularly fatigue and cognitive effects. For migraine prevention, calcitonin gene-related peptide (CGRP) targeting therapies include monoclonal antibodies and small-molecule receptor antagonists. CGRP targeting therapies demonstrate a more favorable tolerability profile in comparison to non-specific prophylactic therapies for migraine. Migraines requiring prophylactic medication will be considered for designated personnel only. Waiver will be considered if treatment is successful in controlling migraines without side effects. The aviator should be on a stable dose of prophylaxis with symptom control for >3 months before waiver submission. Botulinum toxin treatment requires at least two treatment cycles completed before waiver consideration.

| Waiverable |
|---|
| Magnesium, Riboflavin (per 19.4 dietary supplement policy) |
| Lisinopril, Candesartan |
| Monoclonal antibodies targeting CGRP ligand or receptor[a] |
| Small-molecule CGRP receptor antagonists[a] |
| OnabotulinumtoxinA[b], IncobotulinumtoxinA[b] |
| Neuromodulator devices[c] |
| Frovatriptan, naratriptan, zolmitriptan (menstrual migraine)[d] |
| **G-Limited Waiverable[e]** |
| Metoprolol, Propranolol, Timolol, Atenolol, Nadolol |
| Verapamil |
| Coenzyme Q (CoQ10, per 19.4 dietary supplement policy) |

[a] Monoclonal Abs targeting CGRP requires 24-hour post-dose observation period. Small-molecule CGRP do not have post-dose observation when taken as prescribed for prophylaxis.

[b] Botulinum toxin injection waivers: aviators have a post-dose observation period of 72 hours (no-fly period) and must be evaluated by Flight Surgeon before return to flight status. Need at least two treatment cycles before waiver consideration.

[c] Neuromodulator devices may require post-dose observation period depending on the device and treatment regimen.

[d] See above for triptan post-dose observation period times.

[e] G-Limited Waiverable medications are limited to non-tactical aviators in airframes pulling less than 4 Gz.

**Non-waiverable prophylactic medications include (but not limited to):** antiseizure medications (i.e. topiramate, divalproex sodium, valproate sodium, carbamazepine, gabapentin, pregabalin), tricyclic anti-depressants (i.e. amitriptyline, nortriptyline), serotonin-norepinephrine reuptake inhibitors (i.e. venlafaxine, duloxetine), supplements (i.e. feverfew, alpha lipoic acid, butterbur, melatonin), and others (i.e. cyproheptadine, guanfacine).

# OTHER PRIMARY HEADACHE DISORDERS

All other primary headache disorders meeting severity criteria will be CD. This includes, but not limited to, trigeminal autonomic cephalalgias (cluster, paroxysmal hemicrania, etc.), new daily persistent headache, chronic tension type headache, post-traumatic headache, and cervicogenic headache. These headaches will be considered on a case-by-case basis for designated personnel only.

A service member with a past medical history of episodic tension type headache (that previously met severity criteria), who has been asymptomatic for > 5 years, may be considered for a waiver without additional work up (see number 2 in "Information Required for Waiver Submission" section).

# WAIVER

**Generally, a waiver may be considered when the following criteria are fulfilled:**

1. Less than one disqualifying headache day per month.
2. Negligible or mild functional impairment from pain, nausea, photophobia and phonophobia.
3. No associated neurologic dysfunction, deficit or significant aura.
4. Clinical stability on selected treatment

**Waivers may be recommended on a case-by-case basis when the above criteria are not met**.
**When submitting a waiver request, the AMS should include the following factors:**

1. Headache type
2. Frequency (# headache days/month)
3. Predictability
4. Severity
5. History of any incapacitation
    a. If visual aura present, detailed description of aura needed
    b. Other functional impairment from pain, nausea, etc.
6. Treatment selected (See "TREATMENT" section)
    a. Non-pharmacologic
    b. PRN abortive therapy
    c. Prophylactic therapy
    d. Length of period of stability on current therapeutic treatment
7. Diagnosis made by neurologist or headache specialist
8. Type of aircraft
9. Flight hours and experience
10. Status
    a. Applicant or designated
    b. Class I vs. Class II/III/IV/V

# INFORMATION REQUIRED FOR WAIVER SUBMISSION

1. Neurology or headache specialist consultation
    a. All documentation including treatment course, comments on current medical status, and any imaging as deemed necessary by the treating specialist.

2. For a service member with a past medical history of migraine without aura or episodic tension type headache who has been asymptomatic for > 5 years, the below requirements can be used in lieu of an updated neurology consultation:
    a. AMS to include detailed history describing prior headache type, frequency, severity, attestation to absence of visual aura, prior treatments required, and results of prior head imaging if completed.
    b. Consultation notes from the time the patient was symptomatic, if available.
    c. Completed Migraine and Tension Headache Worksheet for Applicants.

3. **Local Board of Flight Surgeons:** May be completed for designated personnel with a diagnosis of migraine without aura if the individual is considered low risk and has completed their neurology evaluation with no pending work-up. Must meet **ALL** the following criteria:
    1. Less than one disqualifying headache day per month
    2. No aura or other neurologic symptoms.

3. No significant functional impairment (secondary to disabling pain, visual disturbance, numbness, paresthesia, weakness, or distracting associated symptoms such as nausea, vomiting, pain, photophobia/phonophobia, etc.).
4. Uses **only** over the counter, approved dietary supplements or other approved migraine abortive treatments with complete responsiveness.

**DISCUSSION:** Migraine and other headache disorders are the second most common neurological conditions evaluated by the Naval Aerospace Medical Institute for waiver consideration. Retrospective studies of small Air Force aviation cohorts of pilot applicants, designated pilots and flight surgeons have shown low recurrence rate of migraine in applicants and low frequency of migraines in designated aviators allowing for the continuation of granted waivers.[1,2] This may represent a more benign disease course in the military population or suggest that symptoms are being underreported to return to flying.

Migraines often begin in adolescence with up to half of patients reporting onset before 20 years of age; however migraine is most prevalent between the ages of 25 to 55.[3] In adolescents, frequent weekly headaches, female sex, moderate to severe intensity, parental divorce, and comorbid pain or mental health conditions are associated with frequent headaches later in life.[4,5] When considering aeromedical risk for an applicant with an adolescent history of headache, these factors should be elucidated.

Overall, migraine prevalence is around 16% of the general population, with less than one-third of these patients having migraine with aura.[6] The most frequently identified triggers for migraine include sleep disturbances, stress, sensory stimuli (bright light, loud noise, odors), dietary factors (alcohol, caffeine, missing meals, certain foods), weather changes, and menstruation in women.[7] In a study evaluating migraine in a military pilot and flight surgeon population, self-reported positive response to trigger modification was seen in over half of the participants.[1] Use of a headache diary can assist in identifying triggers to be modified to aid in migraine treatment.

The CGRP neuropeptide has been identified as a key mediator for pain signaling and vasodilation associated with migraines.[8] In 2024, the American Headache Society updated their guidelines to recommend CGRP-targeting therapies as first-line approaches for both episodic and chronic migraine in addition to previously established migraine therapies.[9] CGRP-targeted therapy was first approved by the FAA for commercial pilot use in 2020.[10] While common adverse reactions like injection site reactions and constipation are unlikely to impact flight safety, post-marketing surveillance has revealed rare adverse events that pose a higher risk and necessitate close monitoring of aviators using these therapies.[7]

Cluster headaches pose severe safety of flight concerns due to the extreme intensity of pain and associated autonomic symptoms. These recurrent, severe unilateral headaches predominantly affect men in their second or third decade, with attacks lasting 15-180 minutes multiple times a day for weeks or months.[11] Acute treatment includes oxygen and subcutaneous triptans. While waivers are rarely considered given the severity of the pain and neurological symptoms, certain features of cluster headaches may be favorable for a waiver. These include predictable circadian patterns and the presence of a preictal phase with milder, non-disabling symptoms, which provides an opportunity for preemptive mitigation of more severe cluster symptoms.[11,12]

Recurrent tension headaches are often associated with other comorbidities such as mood disorders, sleep disturbances, and other local pain syndromes such as cervicalgia from spondylosis or disc degeneration. Typically, addressing the comorbidity will improve the tension-type headache frequency and severity. Exertional headaches, coital headaches, cough headaches, and immersion headaches may be associated with posterior fossa pathology (e.g. Arnold-Chiari Malformation) or vascular abnormalities, thus warranting a brain MRI and vessel imaging. Ultimately, the aeromedical disposition for these headache types is contingent upon a thorough evaluation and management of their underlying etiologies.

**ICD-10 CODES:**
**G44.019 Episodic cluster headache, not intractable**
**G44.029 Chronic cluster headache, not intractable**
**G44.009 Cluster headache syndrome, unspecified, not intractable**

**G43.009 Migraine without aura, not intractable, without status migrainousus**
**G43.109 Migraine with aura, not intractable, without status migrainosus**
**G43.829 Menstrual migraine, not intractable, without status migrainosus**
**G43.B Ophthalmoplegic migraine**
**G43.709 Chronic migraine without aura, not intractable, without status migrainosus**
**G43.E09 Chronic migraine with aura, not intractable, without status migrainosus**
**G44.21 Episodic tension-type headache**
**G44.22 Chronic tension-type headache**
**G44.52 New daily persistent headache (NDPH)**
**G44.86 Cervicogenic headache**
**R51 Headache**

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**AEROMEDICAL CONCERNS:** MS typically presents with visual disturbance, vertigo, lower body weakness, or sensory changes. The symptoms can present over a period of time as short as a few hours. Mild dementia may occur in 20% or more of patients. In some cases, paroxysmal events lasting less than 5 minutes (trigeminal neuralgia, abdominal "crises", myoclonus) can be the presenting feature.

**WAIVER:** A diagnosis of definite MS is permanently disqualifying without waiver. Waivers may be considered for uncertain diagnoses that may be classified as monosymptomatic demyelinating disease, possible MS, etc. Usually a period of grounding for observation of 6 to 12 months after full recovery from the "attack" of monosymptomatic disease is required. Laboratory findings are critical in predicting the likelihood of progression to MS.

## INFORMATION REQUIRED:

1. Neurology consultation
2. Multimodality evoked potentials
3. MRI scans (brain and spinal cord)
4. CSF (cells, protein electrophoresis, IgG, oligoclonal bands, myelin basic protein)
5. Monocular color vision testing
6. Visual fields
7. Retinal photographs (if indicated)
8. Neuropsychological testing (if indicated)

**TREATMENT:** High dose intravenous methylprednisolone (250 mg qid x 3 days) followed by eleven days of tapering prednisone (1 mg/kg) given ASAP for the first "attack" of MS may reduce or delay the subsequent progression to relapsing-remitting or chronic progressive MS. Beta Interferon may also have a prophylactic or delaying effect on the development of MS.

**DISCUSSION:** The average age of onset is 33 years, with a male:female ratio of 2:3. The onset is of a single CNS white matter lesion in 55% of cases, with optic neuritis (ON) occurring in 16-30% of initial presentations. ON will occur at some time during the disease in 30-70% of cases, and 25% of these will have a recurrence of ON. In 90% of persons with ON, recovery is complete. Up to 20% of cases follow a benign course with no permanent disability, 20-30% follow an exacerbating/remitting course, 40% follow a remitting/progressive course, and 10-20% show steady progression. In the early stage the attack rate is 0.5/year falling to 0.25/year in intermediate years. In 5% of cases, there is a latent period of several years between first and second attacks, while in a few cases the disease becomes totally quiescent. The features suggesting favorable prognosis are onset before 35 years, acute onset with only 1 symptom, and predominantly sensory symptoms. Poor prognosis is associated with onset at age greater than 35 years, more than 1 symptom with each attack, early onset of motor signs within 5 years, and male gender.

## ICD-10 CODES:

**G35 Multiple Sclerosis**
**G36 Other acute disseminated demyelination**
**G36.0 Neuromyleitis optica**
**G37 Other demyelinating dieases of central nervous**
**H46 Optic neuritis**

# 10.7 PERIPHERAL NEUROPATHY

Revised: April 2018 Reviewed: April 2018

**AEROMEDICAL CONCERNS:** Depending upon the nerve or nerves involved, peripheral nerve dysfunction may represent a trivial nuisance (e.g. meralgia paresthetica) or a grounding impairment (e.g. radial nerve palsy). Full recovery of neurological function, elucidation of the underlying etiology, and certainty regarding the prognosis are issues to be considered in the individual with peripheral nerve abnormalities.

**WAIVER:** Most conditions require grounding pending full recovery (if it occurs) and establishment of a firm diagnostic understanding of the cause of the patient's neuropathy.

## INFORMATION REQUIRED:

1. Neurology consultation
2. Supporting laboratory findings (where appropriate), such as EMG, NCV, evoked potentials, thyroid functions, Lyme serology, VDRL, HIV, B12, folic acid, ESR, protein electrophoresis, heavy metals, etc.

**TREATMENT**: Depends on the underlying cause, if known and if treatment exists.

## DISCUSSION:

**Bell's Palsy:** During the acute phase of the paralysis, grounding is required both as a result of the disabling nature of acute facial nerve weakness (difficulty speaking clearly, inability to blink and close the eye in response to visual threats) and because of the fact that not all Bell's palsies are mononeuropathies (i.e. may evolve into acute inflammatory demyelinating polyneuropathy a.k.a. Guillain-Barre, or may be associated with other systemic conditions such as Lyme disease or sarcoid). Once full function has returned, member is PQ. In the event of incomplete recovery or recurrence of facial palsy, waivers are considered on a case-by-case basis.

**Carpal Tunnel Syndrome:** Safety of flight concerns due to impaired fine motor coordination, strength, sensation, and abnormal sensations in the fingers and hands require grounding until adequate resolution of the neuropathy has been achieved. Waiver requests should include results of electrophysiological studies and functional demonstration of satisfactory recovery (e.g. performance in simulator, cockpit egress testing, operation of safety harness and parachute fittings, etc).

**Ulnar/Radial Neuropathy:** Same as for Carpal Tunnel Syndrome.

**Peroneal Neuropathy:** Must demonstrate sufficient return of strength to control rudder and brake pedals and safely egress from aircraft (documented by actual testing) to be considered for waiver. Please also submit electrophysiological test results.

**Sciatica:** Return of strength (as for peroneal neuropathy) in addition to disappearance of pain (off medication) is required for waiver consideration.

**Meralgia Paresthetica:** As this is only a sensory neuropathy, waiver can be recommended as long as the member is not disabled or impaired by discomfort and can tolerate the symptoms without need of medication.

## ICD-10 CODES:

**G51.0 Bell's Palsy**
**G57.1 Meralgia Paresthetica**
**M54.3 Sciatica**
**G56.0 Carpal Tunnel Syndrome**
**G58 Other mononeuropathies**
**G58.8 Other specified mononeuropathies (includes peroneal neuropathy)**

**AEROMEDICAL CONCERNS:** The major risk is rebleeding, but there is also a risk of developing hydrocephalus. Bleeding usually follows sudden increases in blood pressure, and it is likely that the anti-G straining maneuver could be just as effective in this as exercise, lifting, or defecation.

**WAIVER:** Waivers are not considered for patients who have undergone surgical repair of leaking intracerebral aneurysms or removal of AVM's. Patients who have recovered fully from idiopathic SAH with conservative measures may be considered for waiver after 2 years. **No waivers are considered for Applicants.**

## INFORMATION REQUIRED:

1. Neurosurgical opinion and confirmation of successful obliteration of the vascular anomaly
2. Neurological evaluation
3. Neuropsychological evaluation
4. MRI or CT scan to confirm absence of hydrocephalus or superficial siderosis

**TREATMENT**: Intracranial surgery is disqualifying for flying duties.

**DISCUSSION:** Most patients with this condition have ruptured a Berry aneurysm. Approximately 5% have bled from an AVM and 15% have no identifiable cause. About 25% of patients treated conservatively die within 24 hours of rupture of intracranial aneurysm and up to 25% die in the following 6 months from recurrent hemorrhage, cerebral infarction, or following vasospasm. In the survivors, the risk of rebleeding is just over 2% for the first year declining to almost 1%/year after that. Only 32% of such cases are reported to lead a normal life after the bleed. Those patients in whom no cause is found tend to have a better prognosis. Aneurysms are multiple in 10-20% of cases, and the rate of rebleeding for these is 3% a year. In those patients treated surgically, the risk of rebleeding is negligible if the aneurysm is solitary and has been successfully isolated from the cerebral circulation, but up to 20% of such patients exhibit cognitive or psychosocial decrements at one year. AVMs cause less early death (about 10%); the risk of rebleeding is 7% in the first year and 3% a year thereafter. In patients with AVMs who did not undergo operative repair and were followed for 20 years, there was a 42% incidence of hemorrhage, 29% incidence of death, 18% risk of epilepsy, and a 27% chance of having neurological impairment.

## ICD-10 CODE:

**I60 Nontraumatic subarachnoid hemorrhage (SAH)**
**S06.6 Traumatic subarachnoid hemorrhage (SAH)**

## 10.9 SYNCOPE

Revised: April 2018 Reviewed: April 2018

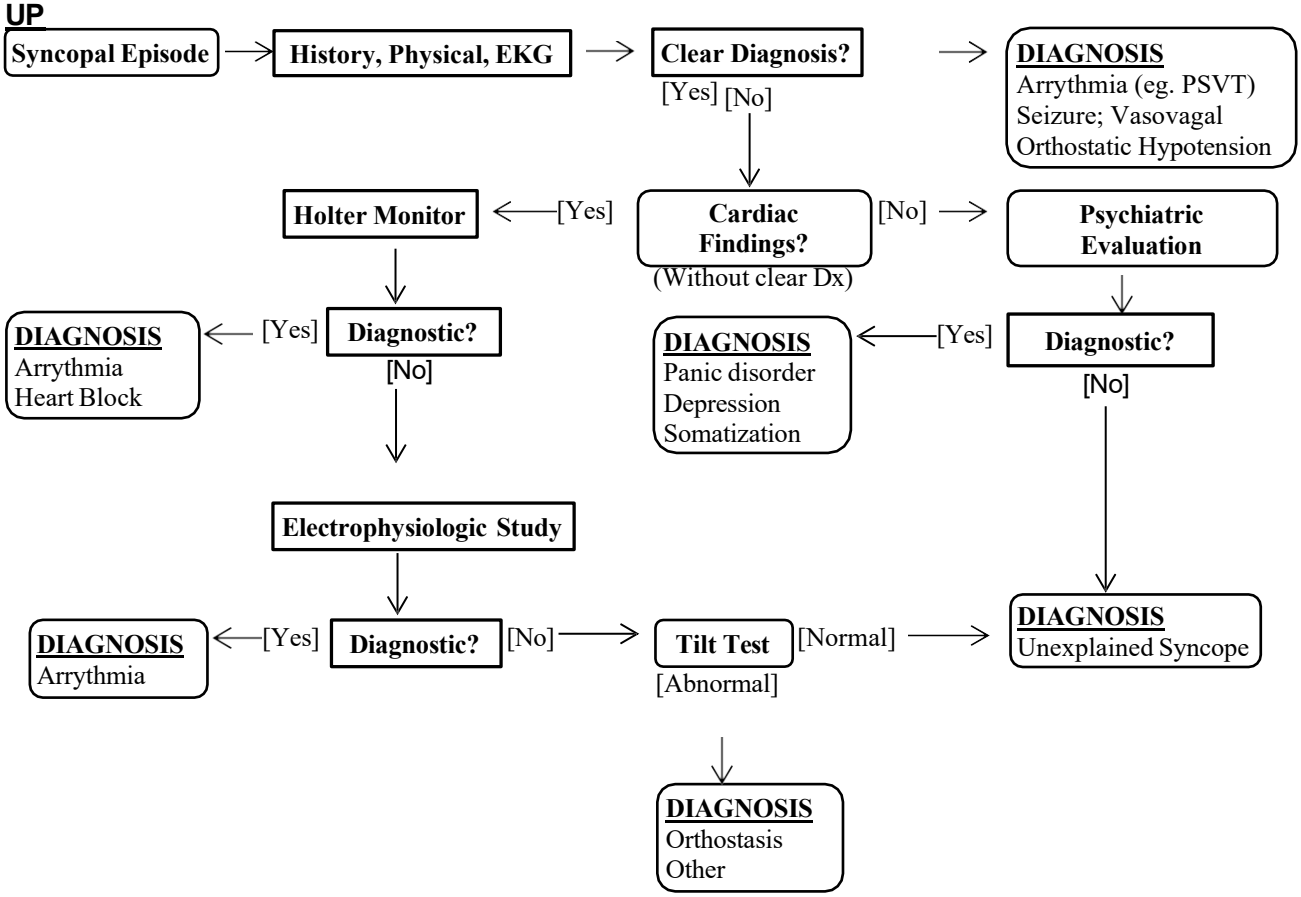
**AEROMEDICAL CONCERNS:** Loss of consciousness in flight.

**WAIVER:** A waiver is not required for simple episodes of vasovagal syncope, with known precipitating causes such as pain or the sight of blood. Normal physiological syncope in response to a training event (i.e. hypoxia demonstrated in a hypobaric chamber or G-induced loss of consciousness (G-LOC) in a centrifuge) does not require a waiver. A waiver is necessary for unexplained syncope, recurrent syncope, syncope associated with pathology (e.g. cardiac conduction or valvular defect), syncope with LOC > 1 minute, delay in recovery of normal function > 5 minutes, or G-LOC > 18 seconds, or syncope associated with convulsions lasting over 6 seconds. Non-waiverable situational syncope includes cough-, postural-, Valsalva-, and exertion-induced syncope. Other types of syncope with be considered for waiver on a case-by-case basis.

**INFORMATION REQUIRED:**

1. Detailed history of the event(s)
2. Physical exam
3. EKG
4. Additional cardiovascular studies as indicated (see Syncope algorithm)
5. Psychiatric evaluation (as indicated)

**SYNCOPE WORK-UP**



**TREATMENT:** Avoidance of known stressors (if possible).

**DISCUSSION:** In 12% of patients with syncope, some type of convulsive movement may occur. Careful history taking, the presence of facial pallor, and the rapid recovery without amnesia help to distinguish syncope from epilepsy. Head injury sustained during the fall may confuse the issue. Presence or absence of incontinence does not help in distinguishing between syncope and seizure. Tongue-biting is strong evidence supporting a seizure event and is unlikely in syncope events. Recurrent unexplained syncope often can be attributed to psychiatric causes, especially panic disorder, depression, and somatization. Brain scans, EEGs, carotid ultrasound, and lab tests are not usually helpful in arriving at a cause for syncope. If the history, PE, and EKG don't provide the diagnosis, it is unlikely that further studies will help. In cases of cough-, Valsalva- and exertion-induced syncope, remember to consider posterior fossa pathology, especially Arnold-Chiari malformation.

## ICD-9 CODE:

**R55 Syncope and collapse**

## 10.10 SLEEP DISORDERS

Revised: Dec 2024 Reviewed: June 2024

**AEROMEDICAL CONCERNS:** Disorders of sleep architecture and timing are common in the general population. These disorders frequently result in complaints of excessive daytime somnolence or insomnia with demonstrable deficits in cognitive and psychomotor performance. Aviation personnel perform a variety of complex tasks requiring a high degree of mental and physical well-being. Fatigue, sleepiness, and circadian rhythm disturbances can have a critical effect on aviation safety.
**WAIVER:** Because of the persistent nature and impact on psychomotor and cognitive performance, a history of sleep disorders is generally considered permanently disqualifying without waiver. Waivers may be considered in cases when successfully treated.

## INFORMATION REQUIRED:

1. Neurology/sleep specialist consultation with polysomnography (PSG). Naval Aviation personnel who require aeromedical certification shall undergo PSG for evaluation of suspected sleep disorder. Referral to a quality sleep medicine center required. (MTF or civilian academic center preference should be consistent with TriCare access standards).
2. Psychiatric evaluation (as indicated)

**TREATMENT:** Treatment options for the sleep disorders vary based upon diagnosis.

**DISCUSSION:** Diagnosis of a potential sleep disorder requires a detailed history around the individuals sleep complaint. This should include severity, duration, details of sleep schedule, collateral history from a spouse or partner regarding snoring or apneas, significant environmental stressors, and any evidence of underling psychopathology. Prior to referral to a specialist, every attempt should be made to distinguish a pathologic sleep disorder from poor sleep hygiene. In these cases, simple behavioral modifications may be all that is needed to return the individual to normal function.

Further discussion on the following are discussed below: somnambulism, obstructive sleep apnea, insomnia, idiopathic hypersomnia, narcolepsy, periodic limb movement disorder, restless legs syndrome, and circadian rhythm disorders.

**Somnambulism:** Due to undesirable or fatal activities that can occur while sleepwalking, a history after age 12 is disqualifying for naval duty, but waivers have been granted for general duty. Sleepwalking episodes typically occur in children before puberty. It is unusual after age 12, with most outgrowing these episodes by age 15. The prevalence in adults has been reported to be approximately 1%, with most persisting from puberty. Recurrent sleepwalking rarely may be associated with a seizure disorder. Other disorders can result in nocturnal wandering (i.e. REM sleep behavior disorder, dissociative disorders, and sleep apnea). These disorders need to be investigated before a primary diagnosis of somnambulism is given. Due to the variable and unpredictable risk to the individual onboard ship, this condition is generally not waived for aviation duty.

**Obstructive Sleep Apnea (OSA):** see separate section which follows.

**Insomnia:** The term insomnia is a symptom rather than a specific diagnosis. Insomnia refers to difficulty initiating or maintaining sleep. Among individuals complaining of sleep problems, insomnia is the most common complaint. Insomnia can result from a multitude of diagnoses, including sleep apnea and periodic leg movement disorder. Insomnia is commonly associated with psychiatric disorders including anxiety, depression, personality disorders, or maladaptive traits. Transitional situational insomnia can also result from changes in sleeping environment or in proximity to a significant life event. The psychology of insomnia can occur as a result of a preoccupation with a perceived inability to sleep, or when poor sleep habits persist following resolution of a life stressor. Drug or alcohol related insomnia is another common cause of this complaint. This can result from a variety of agents, including caffeine, which may disrupt sleep architecture as long as 14 hours after ingestion. Most insomnia complaints are transient, resolve in less than 3-4 weeks, and do not require a waiver. Persistent insomnia requires work-up to define an underlying cause. In those cases where an underlying cause is not found, the term Primary Insomnia has been used. Treatment of the underlying diagnosis and a normal sleep study are required before waiver submission.

**Idiopathic Hypersomnia:** This is a diagnosis of exclusion. It is characterized by complaints of excessive daytime somnolence, generally develops in adolescence or early adulthood, and is persistent. It is important to differentiate this from Upper Airway Resistance Syndrome, a variant of OSA. Stimulant medications are frequently used in treatment and are not compatible with aviation duty. Despite adequate treatment, it is difficult for patients to maintain adequate task performance. Waiver will not be considered for this diagnosis.

**Narcolepsy:** Narcolepsy affects 50-70 persons per 100,000. Peak onset occurs in the teens and the 25-30 year age group. The classical tetrad of symptoms includes excessive daytime sleepiness, cataplexy, hypnogogic hallucinations, and sleep paralysis, but not all of these are present in every individual. There is a 40-fold increased risk if there is an immediate family member with the disorder. EDS and sleep attacks are generally the first symptoms observed. Diagnosis is confirmed by sleep studies including a polysomnogram and a Multiple Sleep Latency Test (MSLT). The disorder is characterized by short sleep latencies and rapid-onset REM. Treatment consists of stimulants, which are not compatible with aviation duties. Waivers will not be considered for this diagnosis.

**Periodic Limb Movement Disorder (PLM):** This disorder is manifested by rhythmic nocturnal myoclonus of the arms and legs and may last minutes to hours. It occurs in the first half of the sleep period and may result in frequent arousals and sleep fragmentation. PLM is present in 17% of those having a polysomnogram for insomnia and can coexist with other sleep disorders including narcolepsy and sleep apnea. 11% of individuals with PLM complain of excessive daytime sleepiness. Treatment consists of benzodiazepines (e.g. clonazepam), which are not consistent with aviation duty. Waivers will not be considered for this diagnosis.

**Restless Legs Syndrome (RLS):** This disorder is manifested by uncomfortable leg sensations that occur at rest. Unlike PLM, night time awakenings in RLS are associated with conscious awareness of the limb movements. RLS affects up to 10% of the U.S. population and over 90% of patients with RLS report sleep disturbance. Despite this, RLS is typically under diagnosed. Only 30% of PLM patients have RLS, but 85% of cases with RLS will also have PLM. Waivers are not considered in patients with PLM. Primary idiopathic RLS manifests an early age and is associated with a better prognosis than secondary RLS. Secondary RLS may occur as a result of pregnancy, end stage renal disease, arthritis and iron deficiency. The severity of RLS symptoms correlates inversely with serum ferritin levels in iron deficient individuals. Iron and magnesium supplementation may resolve RLS, but iron supplementation is not therapeutic in those individuals with ferritin levels above 50ng/mL. Beneficial lifestyle modifications include alterations in timing, duration and intensity of physical exercise, elimination of alcohol, caffeine and tobacco products as well as optimization of personal sleep hygiene. Stretching, hot baths, alternation of warm and cold soaks to the legs, engaging in mentally engrossing activity and cooling of the feet have also been reported to alleviate symptoms.

Waivers are not considered for applicants. For designated aviators, vigilance testing and polysomnogram are required for waiver consideration. Underlying medical conditions in secondary RLS must be addressed.
Medications such as opiates, tramadol, clonazepam, and dopaminergic agents such as levodopa, ropinirole and pramipexole, are not approved for waivers due to common side effects.

**VIGILANCE TESTING**: The defacto standard for measuring sustained alertness where public safety is concerned is the Maintenance of Wakefulness Test (MWT). Although a Mean Sleep Latency (MSL) of 30.4 +/- 11.2 minutes is considered normal for the general population, treated aircrew members have historically demonstrated the ability to stay awake for all 40 minutes of each of the 4 trials of the MWT. Research has shown significantly more lapses in attention in drivers whose MSL was less than 33 minutes. Accordingly, the minimum MSL standard for aeromedical waiver eligibility is ≥ 35 minutes.

If a MWT cannot be obtained, vigilance may be assessed with a Neuropsychological evaluation that includes a test of sustained attention, such as the Connor's Continuous Performance Test (CPT-II). The report should address how vigilance was assessed, as well as how the patient performed on measures of executive function.

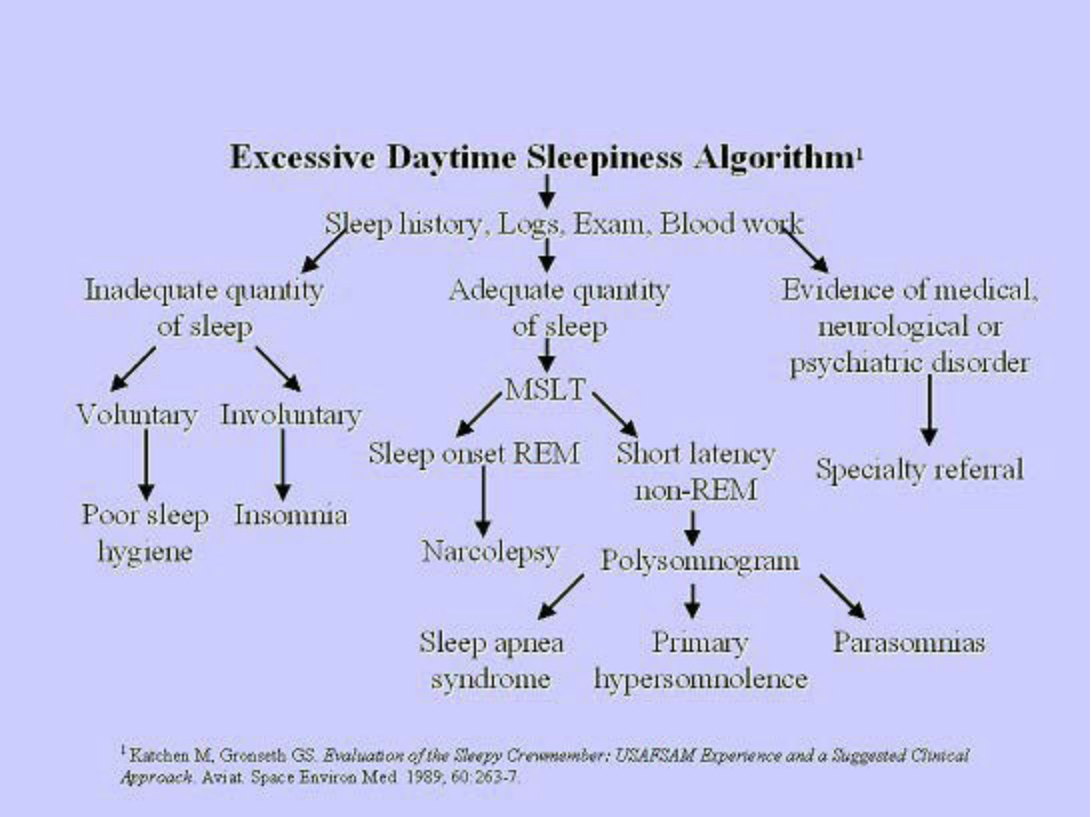
The Multiple Sleep Latency Test (MSLT) is not a test of sustained vigilance and will not support an aeromedical waiver.

An aviator's self-report is not sufficient evidence of adequate alertness for initial aeromedical waiver.

**Circadian Rhythm Disorders:** This refers to a series of disorders in which there is a disorganization of the regular daily alteration between sleep and wakefulness and its synchrony with the day-night cycle. These disorders can be classified as either persistent or transient.

The persistent disorders include Delayed Sleep Phase Syndrome (DSPS), Advanced Sleep Phase Syndrome (ASPS), Non-24 hour Sleep Syndrome, and Irregular Sleep-Wake Syndrome. In DSPS, the circadian system is shifted markedly later than normal (e.g., unable to fall asleep before 3 am and cannot wake up before noon without extraordinary effort). This syndrome occurs in young to middle aged adults. DSPS has been estimated to occur in over 7% of adolescents. It should be noted that the remaining diagnoses are rare. ASPS occurs in the aged and is the exact opposite circadian shift seen in DSPS. In Non- 24 hour Sleep-Wake Syndrome, environmental cues fail to synchronize the internal sleep-wake rhythm with the day-night cycle. This results in the circadian rhythm being shifted 1-2 hours later each day, resulting in cyclical insomnia. Irregular Sleep-wake Syndrome represents a failure of the internal clock. It is manifested by random, scattered sleep-wake periods throughout the 24-hour period. This is usually associated with a tumor or other destructive neurological lesion. Transient conditions include Time-zone Change Syndrome or "Jet-Lag" and Shift-work Syndrome. Jet-Lag is a self-limiting and is NCD, but may necessitate grounding until re-synchrony occurs. The transient sleep disruptions and performance decrements seen in jet-lag may become chronic in the shift worker. Individuals affected severely enough to seek medical attention may best be treated by removal from the shift-work environment. In almost all cases this condition is not compatible with aviation duty and is CD, waiver not recommended. All persistent disorders are CD, but waiver may be considered in successfully treated cases. One should recognize that treatment of these disorders involves sleep schedule manipulations and successful treatment only occurs in a small percentage of individuals.

Medical Conditions that may disrupt normal sleep include depression (20%), post-viral fatigue syndrome, head injury, anemia, hypoglycemia, thyroid disease, drugs/alcohol, pain, GERD, and pulmonary disease, among others. Treatment of the medical condition generally resolves the sleep complaint.




*None of these conditions, by themselves, are an indication for Sleep Medicine referral without additional symptoms or other evidence suggestive of a sleep disorder.

## ICD-10 CODES:

**G25.81 Restless leg syndrome**
**G47 Sleep Disorders**
**G47.0 Insomnia**
**G47.01 Insomnia due to medical condition**
**G47.1 Hypersomnia**
**G47.14 Hypersomnia due to medical condition**
**G47.2 Circadian rhythm sleep disorder**
**G47.21 Circadian rhythm sleep disorder, delayed sleep phase**
**G47.3 Sleep apnea**
**G47.31 Primary central sleep apnea**
**G47.4 Narcolepsy and cataplexy**
**G47.41 Narcolepsy**
**G47.411 Narcolepsy with cataplexy**
**G47.419 Narcolepsy without cataplexy**
**G47.61 Periodic limb movement disorder**
**G47.69 Other sleep related movement disorders**
**F51.4 Sleep terrors (night terrors), somnabulism**
**G47.8 Other Sleep Disturbance**

## 10.11 OBSTRUCTIVE SLEEP APNEA

Revised: Dec 2024 Reviewed: June 2024

**AEROMEDICAL CONCERNS:** The primary aeromedical concern is cognitive impairment due to Excessive Daytime Sleepiness (EDS), manifested by the inability to sustain attention to tasks, reduced reaction time, and poor executive function, including multitasking and situational awareness. Aviation personnel perform a variety of complex tasks requiring a high degree of mental and physical acuity. OSA causes Excessive Daytime Sleepiness (EDS) with demonstrable deficits in cognitive and psychomotor performance. By their nature, military aviation operations can impose sleep deficit and disruption even in healthy members due to shifting sleep-wake cycles, sustained wake periods, and circadian rhythm shifts with crossing time zones. With an underlying sleep disorder the potential for a critical effect on aviation safety and mission effectiveness is magnified substantially.

**DISCUSSION:** Obstructive sleep apnea (OSA) is a disorder of ventilation that occurs during sleep in which the soft tissues of the upper airway collapse during inspiration thereby obstructing or limiting air flow into the lungs. When the airway obstruction is of sufficient duration an arousal is triggered. Arousal facilitates adequate inspiration and the patient resumes sleep. This process repeats itself in a cyclical fashion and results in fragmented, non-restorative sleep. In severe cases, this cycle can occur hundreds of times over the course of the night.

Multiple factors contribute to tissue collapse and obstruction of the airway, including loss of pharyngeal muscle tone with sleep, the relative negative pressure of the airway with inspiration (Bernoulli effect), gravity when the member is supine, and excessive or redundant tissue, such as enlarged tonsils and polyps.

Individuals are typically amnestic to arousals and may be unaware that they have OSA. Clinical suspicion for OSA should arise when symptoms consistent with the disorder, such as EDS, are coupled with collateral information from a bed partner who witnesses prominent snoring, breathing interruptions, gasping or choking. It is often the bed partner who insists on a medical evaluation. Non-specific symptoms of OSA may include morning headache, dry mouth on awakening, irritability, impaired mental or emotional functioning.

The strongest risk factors for OSA include age, male gender, obesity, and certain craniofacial anatomic features and soft tissue abnormalities affecting the upper airway.

The American Academy of Sleep Medicine (AASM) considers the evidence that OSA is a risk factor for several chronic medical conditions to be substantial. These include systemic hypertension, coronary artery disease, congestive heart failure, and stroke. Moreover, accumulating evidence suggests that OSA is also a risk factor for type 2 diabetes, independent of obesity. Thus, while our primary aeromedical concern is the cognitive impairment that arises from sleepiness and mood disorders, OSA may also be an insidious contributor to potential events of sudden incapacitation such as myocardial infarction and stroke.

Clinical suspicion for OSA should prompt a referral to Sleep Medicine. If EDS is present, the member should be grounded until treatment results in resolution.

**DIAGNOSIS:** The International Classification of Sleep Disorders, 3rd Edition (ICSD-3), published in 2014 by the American Academy of Sleep Medicine, sets forth the following diagnostic criteria for OSA:

(A plus B) or C satisfies the criteria:

A: The presence of one or more of the following:

i. The patient complains of sleepiness, nonrestorative sleep, fatigue, or insomnia symptoms.
ii. The patient wakes with breath holding, gasping, or choking.
iii. The bed partner or other observer reports habitual snoring, breathing interruptions, or both during the patient's sleep.
iv. The patient has been diagnosed with hypertension, a mood disorder, cognitive dysfunction, coronary artery disease, stroke, congestive heart failure, atrial fibrillation or type 2 diabetes mellitus.

PLUS:

B: Polysomnography (PSG) or Out-of-Center Sleep Testing (OCST) demonstrates:

i. Five or more predominantly obstructive respiratory events (obstructive and mixed apneas, hypopneas, or respiratory effort related arousals [RERAs]) per hour of sleep during a PSG or per hour of monitoring (OCST).

OR

C: PSG or OCST demonstrates:

ii. Fifteen or more predominantly obstructive respiratory events (apneas, hypopneas, or RERAs) per hour of sleep during a PSG or per hour of monitoring (OCST).

Polysomnography (PSG) is the current standard for evaluation of suspected OSA, though both AASM and the Centers for Medicare and Medicaid Services (CMS) now consider Out-of Center Sleep Testing (OCST) an acceptable alternative to PSG for diagnosis of OSA.

**Naval Aviation personnel who require aeromedical certification shall undergo PSG for evaluation of suspected OSA. Referral to a quality sleep medicine center required. (MTF vs civilian center preference should be consistent with TriCare access standards).**

A PSG report from a sleep center documents an Apnea-Hypopnea Index (AHI) and/or a Respiratory Disturbance Index (RDI). AHI is calculated by dividing the total number of apnea and hypopnea events observed overnight by the number of hours of sleep recorded. If a RDI is documented, then Respiratory Effort Related Arousals (RERAs) were included in the calculation. An AHI or RDI greater than or equal to 5 is a prerequisite to a diagnosis of OSA though additional information is required for diagnosis (see below). An AHI or RDI greater than or equal to 15 is, by itself, diagnostic of OSA.

The Centers for Medicare & Medicaid Services (CMS) criteria for the diagnosis and treatment of OSA differs slightly from the ICSD-3, as follows: An AHI or RDI greater than or equal to 15 or, An AHI or RDI greater than or equal to 5, when the beneficiary has a documented co-morbidity related to OSA. The following conditions are recognized by CMS as co-morbidities related to OSA when present in this context:*

- Excessive Daytime Sleepiness/somnolence (EDS)
- Hypertension
- Ischemic heart disease
- History of stroke
- Impaired cognition
- Mood disorders
- Insomnia

A diagnosis of Upper Airway Resistance Syndrome (UARS) may be made by the sleep medicine specialist in cases when respiratory events are predominantly RERAs. While not causing hypoxia, RERAs result in sleep fragmentation and EDS. UARS has been subsumed under the OSA diagnosis in ICSD-3.

When sleep medicine consultation leads to a diagnosis of UARS, aeromedical standards and waiver requirements of OSA apply.

An OSA diagnosis is further classified according to severity according to the following:

Mild OSA = AHI or RDI ≥ 5 and < 15 with OSA symptoms or a co-morbidity
Moderate OSA = AHI or RDI ≥ 15 and ≤ 30
Severe OSA = AHI or RDI > 30

**TREATMENT:** Positive Airway Pressure (PAP) is the treatment of first choice in Moderate or Severe OSA and may be waivered for use by designated aviation personnel if sufficient efficacy is documented. Types of PAP include Continuous (CPAP), Bilevel (BiPAP), or Autotitrating (APAP), with or without pressure relief (reduction of pressure on exhalation).

PAP has been successfully deployed in the aircraft carrier and submarine environments. Approval for use of PAP aboard ship must be obtained from the Commanding Officer of the ship in advance (usually on recommendation of the Senior Medical Officer).

Alternatives to PAP may be indicated for selected patients with mild disease, though this is rare. These include surgical procedures to alter the anatomy and compliance of the upper airway, Oral Appliances (OA) worn during sleep, obligatory non-supine sleep in patients with strong positional exacerbation of respiratory events, weight loss, avoidance of alcohol, and combinations of these. Research into medical therapies is ongoing.

Hypoglossal nerve stimulation has recently been approved by the FDA for treatment of Moderate or Severe OSA where patients are unable to tolerate PAP. These devices are not currently authorized for use by aircrew.

A follow-up PSG is indicated at an appropriate interval after initiation of treatment to assess the results of surgical or OA treatment. If surgical treatment was undertaken, post-operative PSG should be delayed until healing is complete. If treated with an OA, a PSG must be done with the OA in place after final fit has been achieved.

**WAIVER:** Because of the persistent nature and impact on psychomotor and cognitive performance, OSA is considered disqualifying (CD). Waivers in designated personnel may be considered in cases when successfully treated. Waivers will not be considered in applicants.

INFORMATION REQUIRED:

1. Neurology/sleep specialist consultation with polysomnography (PSG).
2. PAP titration results (if performed).
3. Statement affirming subjective treatment effectiveness: to be eligible for a waiver, member should have no residual excessive sleepiness.
4. Objective evidence of treatment effectiveness:
   a. For CPAP: Positive Airway Pressure AHI and compliance data based on machine data, showing ≥5 hours of use on 90% of nights over the preceding 30 days, at a minimum.
   b. For Treatment With Surgery: post-treatment PSG showing resolution of significant sleep disordered breathing.

c. For Treatment With Mandibular Advancement Device or Dental Appliance: post-treatment PSG showing resolution of significant sleep disordered breathing, and results of one of the following objective assessments of vigilance:

a. Maintenance of Wakefulness Test (40-minute protocol)
b. Neuropsychological evaluation including a test of sustained attention such as Connor's Continuous Performance Test (CPT II) AND measures of executive function

5. Objective weight measurement
6. Documentation and assessment of the presence or absence of other medical conditions known to be associated with OSA, for example:
   a. Excessive Daytime Sleepiness/somnolence (EDS)
   b. Impaired cognition
   c. Hypertension
   d. Mood disorders or insomnia
   e. Ischemic heart disease
   f. History of stroke

**WAIVER CONTINUATION:** Annual submission shall include documentation that the aircrew member:

1. continues to be free of symptoms of EDS,
2. continues to satisfy treatment compliance standards (if applicable),
3. has not gained more than 10% of their body weight at the time of OSA diagnosis, and,
4. has not, since the previous submission, developed or experienced relapse or exacerbation of an OSA-related co-morbidity (see above).

If any of the above conditions are not met the aviator should be re-evaluated for exacerbation of OSA and adjustments to treatment, if indicated. Grounding is appropriate until treatment is optimized, compliance is confirmed, and adequate vigilance is again demonstrated.

## ICD-10 CODES:

**G47.3 Sleep apnea**
**G47.31 Primary central sleep apnea**
**G47.33 Obstructive sleep apnea**
**G47.8 Other Sleep Disturbance**

## 10.12 ISCHEMIC STROKE AND TRANSIENT ISCHEMIC ATTACK (TIA)

Revised: Feb 2026 Reviewed: Feb 2026

**AEROMEDICAL CONCERNS**: In cerebral ischemic events, the symptoms develop abruptly and are unpredictable. Symptoms depend on the vascular territory and can range from distracting to incapacitating. There is also an increased risk of post-stroke seizures, particularly in strokes resulting in cortical ischemic damage.

**WAIVER**: Ischemic stroke and TIA's are disqualifying conditions. Waivers are considered on a case-by-case basis. **No waivers will be considered for Class 1 SG1 and SG2, SNA or SNFO applicants.**

**INFORMATION REQUIRED:**

1. Neurology consultation
2. Brain MRI reports and viewable images (images can be uploaded by nearest MTF or CD can be sent to NAMI Neurology)
3. Echocardiogram with bubble study (Trans-esophageal Echocardiogram if indicated)
4. Extended cardiac monitoring (total of at least 30 days)
5. Cerebral and cervical angiography (CT angiography, MR angiography, or cerebral angiogram as indicated)
6. Labs
    a. Lipid panel
    b. Hbg A1c
    c. TSH
    d. ESR
    e. CBC (including platelet count)
    f. PT/PTT
7. Labs to screen for hypercoagulable disorders (if not completed during acute work up and etiology remains cryptogenic)
    a. **Inherited Factors:** Factor V Leiden mutation, Prothrombin gene mutation (G20210A), Protein C deficiency, Protein S deficiency, Antithrombin III deficiency, Jak2 mutation
    b. **Acquired Factors:** Antiphospholipid antibody panel (Lupus anticoagulant, Anticardiolipin antibodies (IgG, IgM), Anti-β2 glycoprotein I antibodies), Prothrombin gene assay, ADAMTS 13 activity
8. Complete Emergency Department and hospital records
9. Medication regimen
10. Ophthalmology consult with formal visual field testing if presented with visual symptoms or visual pathway ischemia present (retina, optic tracts, occipital lobe, etc)
11. Neuropsychological testing
12. Screen for depression, anxiety, fatigue, and obstructive sleep apnea

**TREATMENT**: Treatment depends upon the underlying etiology, if identified. Secondary prevention after ischemic stroke or TIA is the most common treatment (typically, lifelong

antiplatelet and statin). Some etiologies, like PFO, can be surgically corrected in addition to secondary prevention. Waiver will not be considered for patients on chronic anticoagulation, chronic dual antiplatelet therapy, or non-compliant with secondary prevention.

Lifestyle changes and treatment of risk factors (smoking, obesity, hypertension, diabetes, hyperlipidemia, alcohol excess, sedentary behavior, obstructive sleep apnea)[1] need to be evaluated and managed as appropriate. Transient ischemic attack has been associated with long-term fatigue.[2] Depression and anxiety affect approximately one-third of individuals in the first year after a stroke.[3] **All symptoms must be fully resolved, and all patients must show an extended period of no recurrence or recrudescence of symptoms.**

**POST STROKE SEIZURE RISK:**
Seizure is of great aeromedical concern. The risk of early (within 7 days) seizure following cortical stroke is 3.3%, and late seizure 18 per 1000 patient years (1.8% annual risk).[21] For cryptogenic strokes, the risk of early seizure is 2.4% and late seizures is 3.1% and 5.5% within one and three years, respectively.[22,21] Risk predictors for seizure post stroke include early seizure, cortical signs, and large infarct > half hemisphere.[21,22] The mean latency between stroke onset and first late seizure is approximately 13 months, though cases up to nearly three years have been observed.[22] In those who develop epilepsy, almost 85% experience the first remote symptomatic seizure within the first 2 years after stroke. Infratentorial strokes rarely result in seizures.[21, 22] **Given these factors, the minimum required observation period for waiver consideration is as follows:**

- **Infratentorial stroke: 1 year**
- **Supratentorial stroke: 2 years**

**ADDITIONAL REQUIREMENTS FOR SPECIFIC CONDITIONS:**
Cervical artery dissection: In addition to the above requirements, waivers may be considered for cervical artery dissection after additional studies. The patient must be at least 1-year post-dissection if stroke was infratentorial (2 years for supratentorial stroke). Serial angiography is required to ensure stability and lack of high-risk features (imaging frequency guided by treating neurologist recommendations). For a dissection that has a **clear** traumatic origin, waiver could be considered earlier than one year, especially isolated dissections that did not result in stroke. All clinical symptoms must be fully resolved, including symptoms from stroke and local symptoms (i.e., headache, neck pain) that often accompany cervical dissections. Cervical artery dissections treated with stenting or intracranial artery dissections will be considered on a case-by-case basis.

Patent foramen ovale: In addition to the above requirements, waivers may be considered in those with a PFO who have a high RoPE score (>7, *see below PFO discussion section*) and/or a high-risk PFO that results in closure. Submission must include all cardiology notes, diagnostic echo report(s), PFO closure operative report, and post-closure echo reports indicating successful closure of PFO. Patients must be off anticoagulation and DAPT medication. Single antiplatelet medication can be considered for a waiver and would be required for those with

ischemic stroke. Waivers can be considered at 1 year post infratentorial stroke and 2 years post supratentorial stroke.

Embolic stroke undetermined source (cryptogenic) and transient ischemic attack: The workup must be unremarkable for any underlying etiology, and no other risk factors must be identified. Waivers can be considered at 1 year post infratentorial stroke and 2 years post supratentorial stroke. Transient ischemic attacks should be fully evaluated to try to identify an underlying etiology. If diagnosis of TIA is given, but symptoms do not fit a clear vascular territory, other etiologies should be considered to include functional neurologic disorder or somatic symptom disorder.

**DISCUSSION**: Stroke represents a predominant cause of long-term disability worldwide, and while recent public health efforts in the United States have contributed to a decline in overall stroke incidence, emerging evidence indicates an increasing occurrence of stroke among younger adults.[4]

Stroke in young adults, between 18 to 50 years of age, accounts for ~10% of all strokes.[5] Traditional risk factors seen in the general population, including hypertension, hypercholesterolemia, obesity, diabetes mellitus, smoking, and heart disease, can be seen in young adults. There are additional risk factors that should be considered in young adults to include migraine with aura, use of estrogen-containing oral contraceptives, pregnancy and postpartum state, and recreational drug use.[6,5] Etiologies such as patent foramen ovale, cervical artery dissection, hypercoagulable states (inherited, acquired, related to neoplasm), and cerebral venous sinus thrombosis should also be considered in those without traditional risk factors. However, stroke of undetermined etiology remains the leading cause of stroke in the young adult age group.[7,4] Of note, the overall data that is available does not reflect our patient population, which typically is young, otherwise healthy individuals, with fewer risk factors than the studied stroke populations.

Cervical artery dissection: Cervical artery dissections (vertebral artery and internal carotid artery) are recognized as a major cause of stroke in those <50 years of age. Dissections are most commonly a result of a tear or rupture of the vessel, resulting in stenosis, occlusion, thrombus formation or dissecting aneurysm formation. This can result in ischemia or local symptoms, including head and neck pain.[8] Risk factors differ according to dissection locations and are often multifactorial. Minor trauma is more common in vertebral artery dissection, whereas systemic infection often precedes carotid artery dissections.[9,8] In spontaneous dissection, consideration of evaluation for risk factors such as hypertension, migraine, and potential connective tissue disorder should be considered if clinically indicated.[9] The risk of ischemia from a dissection is highest in the first 2-4 weeks, then decreases to close to the general population around 12 months. The risk of recurrent cervical artery dissection is also highest in the first few months, but is otherwise low, about 1-2% per year.[8]

Patent foramen ovale: Patent foramen ovale (PFO) is a common congenital heart abnormality found in 14 to 35% of the population.[10] PFO can be implicated in stroke by paradoxical

embolism, where a systemic venous thrombus bypasses the lungs through the defect directly into the cerebral arterial circulation. Approximately one-quarter of ischemic strokes are categorized as cryptogenic, and about 16% are further defined as embolic strokes of undetermined source (ESUS).[7,4] Patients with ESUS are found to have a patent foramen ovale (PFO) in roughly 25% of cases, indicating that PFO may be implicated in up to 4% of all ischemic strokes.[11] The PFO-associated stroke causal likelihood (PASCAL) system combines PFO anatomical features with the patient's clinical risk profile (RoPE score) to estimate whether the PFO contributed to the stroke.[11] Higher RoPE scores (7–10) indicate a greater probability that the PFO is causally linked to stroke. Patients classified as *probable*—those with both high-risk PFO features and a RoPE score ≥7—experience up to a 90% reduction in recurrent ischemic stroke with closure. In contrast, patients categorized as *unlikely* (low-risk features with RoPE <7) show no significant benefit of closure compared with medical therapy.[1]

**RoPE Score Calculator**

This tool estimates the likelihood that a cryptogenic stroke is related to a patent foramen ovale (PFO).

| Characteristic | Points |
|---|---|
| No history of hypertension | 1 |
| No history of diabetes | 1 |
| No history of stroke or TIA | 1 |
| Nonsmoker | 1 |
| Cortical infarct on imaging | 1 |

| Age-Based Scoring | |
|---|---|
| **Age (years)** | **Points** |
| 18–29 | 5 |
| 30–39 | 4 |
| 40–49 | 3 |
| 50–59 | 2 |
| 60–69 | 1 |
| ≥70 | 0 |

**PASCAL Classification System**

This table indicates the likelihood of a patent foramen ovale (PFO)-related stroke.

| High RoPE Score (≥7) | High-risk PFO Feature (LS and/or ASA) | PFO-Related Stroke |
|---|---|---|
| Absent | Absent | Unlikely |
| Present | Present | Possible |
| Present | Absent | Possible |
| Present | Present | Probable |
| Present | Present | Probable |

**Abbreviations:** ASA, atrial septal aneurysm; LS, large shunt; PASCAL; PFO-Associated Stroke Causal Likelihood; PFO, patent foramen ovale; RoPE, Risk of Paradoxical Embolism

Adapted from: Kent DM et al. SCOPE Study. 2023.

<u>Embolic Stroke Undetermined Source and Cryptogenic:</u>

Embolic stroke of undetermined source (ESUS) designates patients with non-lacunar cryptogenic ischemic strokes in whom embolism is the likely stroke mechanism. ESUS represents a large group as it involves approximately 17% of all ischemic stroke patients, who are typically younger patients with mild strokes.[12,13] The term cryptogenic also includes patients with multiple stroke etiologies or incomplete diagnostic work-up. The Young ESUS Longitudinal Cohort Study showed a recurrent stroke risk 2.6% or 1.9 events per 100 patient-years over a 12 month follow-up period.[13] Long-term (>10 years) follow-up showed a similar recurrent risk of

1.21 per 100 patient-years.[14,15] Anticoagulation has not been proven to reduce recurrence rates in patients with ESUS etiologies and is not generally recommended.[16,17,12]

Transient ischemic attack:
Transient ischemic attack (TIA) is clinically defined as a transient episode of neurologic dysfunction due to ischemia in a vascular territory supplying the retina, spinal cord, or focal brain regions, which rapidly resolves without evidence of tissue injury or infarction on diffusion-weighted imaging (DWI) MRI.[18,19] A patient with resolved symptoms and an MRI demonstrating an infarct should be diagnosed with ischemic stroke.[20] TIAs typically last for a matter of minutes and usually resolve within one hour of onset.[19] TIA is a risk factor and strong predictor of subsequent stroke, with the 90-day stroke risk after a TIA being 17.8% with almost half occurring within 2 days of the TIA.[19,20] These risks increase with age, high blood pressure, specific clinical features, diabetes, and duration (minutes) of symptoms ($ABCD^2$ score).[20]

**ICD-10 CODES:**
**G45.8 Other transient cerebral ischemic attacks and related syndromes**
**G45.9 Transient cerebral ischemic attack, unspecified**
**I63.40 Cerebral infarction due to thrombosis of unspecified precerebral artery**
**I63.19 Cerebral infarction due to embolism of other precerebral artery**
**Q21.12 Patent foramen ovale (congenital heart defect)**
**I63.9 Cerebral infarction, unspecified**
**I63.89 Other cerebral infarction**
**I77.71 Dissection of carotid artery**
**I77.74 Dissection of vertebral artery**
**I77.75 Dissection of other precerebral arteries**
**I67.0 Dissection of cerebral arteries, non-ruptured**
**I63.59 Cerebral infarction due to unspecified occlusion/stenosis of other cerebral artery**

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Total duration of Loss of consciousness (LOC), Alteration of consciousness (AOC), and Post-traumatic amnesia (PTA) less than 5 (five) minutes, with normal neuroimaging (Head CT or Brain MRI).

**AEROMEDICAL CONCERNS:** This category of TBI poses little risk to the future health of the aircrew member aviator, but the potential for mild post-concussive syndrome (PCS) symptoms does exist. A thorough history of symptoms and careful neurological examination by the flight surgeon are the standard.

**WAIVER:** If the member is asymptomatic and the exam is normal, this condition is NCD. NO waiver is required.

**INFORMATION REQUIRED:** A thorough neurological examination must be completed and documented; this applies to ALL TBI cases. This information includes:

1. Alertness and orientation (mental status exam if indicated)
2. Cranial nerves I – XII
3. Motor strength
4. Sensation (detailed if indicated; light touch, pinprick, vibration, proprioception)
5. Gait
6. Cerebellar testing (e.g. rapid alternating movement, Romberg, finger-nose)
7. Reflexes (including Babinski, frontal release signs, etc., if indicated)

## ICD-9 CODE:

**S06 Intracranial injury**
**S06.0 Concussion**
**S06.1 Traumatic cerebral edema**
**S06.1X0 Traumatic cerebral edema without loss of consciousness**
**S06.1X1 Traumatic cerebral edema, loss of consciousness 30 minutes or less**

# 10.14 TRAUMATIC BRAIN INJURY - MILD

Revised: April 2018 Reviewed: April 2018

## DEFINED AS:

- GCS >12 on initial assessment, and
- Loss of Consciousness 5-30min, and
- Post-traumatic Amnesia <= 1hr, and
- Alteration of Consciousness <= 24 hrs, and
- Negative Brain Imaging. Findings on brain imaging attributable to the injury precludes a diagnosis of Mild TBI.

**Consider upgrading an otherwise MILD TBI patient who was HOSPITALIZED to MODERATE TBI, given the increased risk for developing post-traumatic epilepsy (PTE) in that patient population.

## AEROMEDICAL CONCERNS:

1. Post-concussive symptoms that may be distracting or adversely impact performance, e.g.,
   - Headaches
   - Dizziness
   - Memory/concentration difficulties
   - Sleep disturbances
   - Affective symptoms
   - Fatigue
2. Cognitive impairment.
3. Increased risk of seizure (minimal for Mild TBI).

Clinically these may appear to be mild injuries, although a surprising percentage of these patients (up to 11%) have significant craniocerebral damage (basilar skull fractures, linear as well as depressed skull fractures, sinus fractures, intracranial hemorrhages, fronto-temporal contusions), which would upgrade the severity level of their injury.

**WAIVER:** A waiver for a designated aircrew member will be considered as soon as the required work-up is complete providing the member is asymptomatic. Applicants will be considered two (2) years post injury if the examining Flight Surgeon is satisfied with his/her own detailed evaluation.

## INFORMATION REQUIRED:

1. Neurology consultation
2. Comprehensive neuropsychological evaluation (including cognitive and affective symptom testing). If evidence of a mood/anxiety disorder, Psychiatry/Psychology/Mental/Behavioral Health consultation .
3. Brain imaging study (CT or MRI)

**TREATMENT:** Current VA/DoD Clinical Practice Guidelines for the assessment, management, and disposition of mild TBI is available at: http://www.dvbic.org/. These represent an evidence-based, regularly updated approach to TBI, but are applicable to the general military population. They should be adapted as appropriate for aeromedical risk management.

**DISCUSSION:** Immediate seizures (within seconds to minutes of injury, often referred to as "concussive convulsions") are not a factor in determining the risk for the development of post-traumatic epilepsy (PTE). The risk of developing PTE is not appreciably greater in the mildly head injured population than in the general population. There is a risk of post-traumatic cognitive problems (e.g. memory and information processing skills), and recovery should be documented prior to requesting a waiver.

## ICD-10 CODE:

**S06 Intracranial injury**
**S06.1X1 Traumatic cerebral edema, loss of consciousness 30 minutes or less**

# 10.15 TRAUMATIC BRAIN INJURY – MODERATE

Revised: April 2018 Reviewed: April 2018

## DEFINED AS:

- GCS 9-12 on initial assessment, or
- Loss of Consciousness 30min-24hr, or
- Post-traumatic Amnesia 1-24hr.
- Total duration of altered Consciousness > 24hrs precludes a diagnosis of Mild TBI
- Negative or Positive Brain Imaging. Findings on brain imaging attributable to the injury precludes a diagnosis of Mild TBI.

**Consider upgrading an otherwise MILD TBI patient who was HOSPITALIZED to MODERATE TBI, given the increased risk for developing post-traumatic epilepsy (PTE) in that patient population.

## AEROMEDICAL CONCERNS:

1. Post-concussive symptoms that may be distracting or adversely impact performance, e.g.,
   - Headaches
   - Dizziness
   - Memory/concentration difficulties
   - Sleep disturbances
   - Affective symptoms
   - Fatigue
2. Cognitive impairment.
3. Increased risk of seizure.

**WAIVER:** May be considered for a waiver after 12 months have elapsed since the time of injury. Applicants will be considered three (3) years post-injury if the examining Flight Surgeon is satisfied with his/her own detailed evaluation.

## INFORMATION REQUIRED:

1. Neurology consultation
2. Comprehensive neuropsychological evaluation (including cognitive and affective symptom testing). If evidence of a mood/anxiety disorder, Psychiatry/Psychology/Mental/Behavioral Health consultation.
3. Brain imaging study (MRI)

**TREATMENT:** These patients should undergo initial CT scanning, and repeat scanning within 12 hours of the injury to detect “delayed” or progressive intracranial damage that would warrant a change of therapy. Medical management should be performed by Emergency Medicine, Internal Medicine, and/or Critical Care providers, according to the current standard of care. Neurosurgical management as indicated.

**DISCUSSION:** The risk of PTE in cases of moderate head injury at one and five years is 0.6% and 1.6%, respectively. Of those individuals who develop PTE, 80% do so within the first two years. The risk then declines to equal that of the normal population by 10 years post-injury.

## ICD-10 CODE:

**S06 Intracranial injury**
**S06.1X2 Traumatic cerebral edema, loss of consciousness 31 minutes to 59 minutes**
**S06.1X3 Traumatic cerebral edema, loss of consciousness 1 hour to 5 hours 59 minutes**
**S06.1X4 Traumatic cerebral edema, loss of consciousness 6 hours to 24 hours**

# 10.16 TRAUMATIC BRAIN INJURY – SEVERE

Revised: April 2018 Reviewed: April 2018

## DEFINED AS:

- GCS 3-8 on initial assessment, or
- Loss of Consciousness >24hr, or
- Post-traumatic Amnesia >=24hr, or
- Total Alteration of Consciousness > 24hrs, or
- Brain Imaging with significant findings attributable to the injury.

## AEROMEDICAL CONCERNS:

1. Post-concussive symptoms that may be distracting or adversely impact performance, e.g.,
   - Headaches
   - Dizziness
   - Memory/concentration difficulties
   - Sleep disturbances
   - Affective symptoms
   - Fatigue
2. Cognitive impairment.
3. Increased risk of seizure.

In cases of severe traumatic brain injury, there are greater risks for the development of post-traumatic epilepsy (PTE) and the persistence of permanent neurological and neuropsychological sequelae.

**WAIVER:** After 30 months' grounding, designated personnel may be considered for waiver on a case-by-case basis. Applicants could be considered for waiver five (5) years post injury on a case-by-case basis with all supporting documentation of injury and a detailed Neurological examination.

## INFORMATION REQUIRED:

1. Neurology consultation
2. Comprehensive neuropsychological evaluation (including cognitive and affective symptom testing). If evidence of a mood/anxiety disorder, Psychiatry/Psychology/Mental/Behavioral Health consultation.
3. Brain imaging study (MRI for waiver consideration)

Note that EEGs are no longer required as they have very poor predictive value for PTE.

## ICD-10 CODE:

**S06 Intracranial injury**
**S06.1X5 Traumatic cerebral edema, loss of consciousness >24 hours with full return**
**S06.1X5 Traumatic cerebral edema, loss of consciousness >24 hours without full return**

**Permanently disqualifying for all aviation personnel (designated, student, or applicant):**

1. Depressed skull fracture with LOC > 5 minutes
2. PTS > one month
3. LOC & PTA > 1 month
4. CSF leak > 7 days
5. Any intracranial bleeding (SDH, EDH, ICH, IVH, SAH)*
6. Dural penetration (traumatic or surgical)
7. Post-traumatic seizures

**AEROMEDICAL CONCERNS:** These patients are likely to have permanent, disabling residual neurological and neuropsychological impairments as well as an unacceptably high risk for Post-Traumatic Seizures (PTE).*

**WAIVER:** These members are permanently NPQ, no waiver.

**TREATMENT:** In addition to neuro-ICU and neurosurgical care, these patients require long-term neuro-rehab care as well.

*Glossary
SDH = Subdural Hematoma
EDH = Epidural Hematoma
ICH = Intracranial Hemorrhage
IVH = Intraventricular Hemorrhage
SAH = Subarachnoid Hemorrhage

## ICD-10 CODE:

**G96.0 Cerebral spinal fluid leak**
**G96.11 Dural Tear**
**R56.1 Post traumatic seizure**
**S02.0 Fracture of vault of skull S06 Intracranial injury**
**S06.1X5 Traumatic cerebral edema, loss of consciousness >24 hours with full return**
**S06.1X5 Traumatic cerebral edema, loss of consciousness >24 hours without full return**
**S06.5 Traumatic subdural hemorrhage**
**S06.6 Traumatic subarachnoid hemorrhage**
**S06.34 Traumatic hemorrhage of the right cerebrum**
**S06.35 Traumatic hemorrhage of the left cerebrum**
**S06.36 Traumatic hemorrhage of the cerebrum, unspecified**
**R41.3 Posttraumatic amnesia**

## 10.18 SUMMARY: AEROMEDICAL DISPOSITION OF TRAUMATIC BRAIN INJURIES

Revised: July 2014 Reviewed: April 2018

**Severity Ratings (assign severity according to highest criteria):**

| Severity | GCS | AOC | LOC | PTA | Imaging |
|---|---|---|---|---|---|
| Mild | 13-15 | <=24 hours | 5-30 minutes | <= 1 hour | Negative |
| Moderate | 9-12 | >24 hours | >30 minutes, <24 hours | >1 hour, <24 hours | Negative or Positive |
| Severe | 3-8 | >24 hours | >=24 hours | >=24 hours | Negative or Positive |

**Aeromedical Disposition for designated aviation personnel:**

| Severity | FS Eval | Neurology Consul | Neuropsych Eval | Neuroimaging Study | Eligibility |
|---|---|---|---|---|---|
| Minor | X | -- | -- | CT or MRI | NCD if FS evaluation normal |
| Mild | X | X | X | CT or MRI | LBFS when workup complete |
| Moderate | X | X | X | MRI | NAMI review at 12 months |
| Severe | X | X | X | MRI | NAMI review at 30 months |
| Penetrating | -- | -- | -- | -- | No waiver |

## NOTES:

- In all but minor injuries, submission of pertinent contemporaneous medical records is required.
- Waiver eligibility times are contingent on acceptable workup results. Otherwise, additional time will be required.
- Any abnormalities or irregularities must be reviewed at NAMI (submit actual films or studies).
- Applicants with a **history of M*ild* TBI** more than **2 years** previously require only a normal detailed neurological examination by a Flight Surgeon to satisfy waiver criteria.
- Applicants with a **history of M*oderate* TBI** more than **3 years** previously require only a normal detailed neurological examination by a Flight Surgeon to satisfy waiver criteria.
- Applicants with a history of S***evere* TBI** more than **5 years** from injury will be considered for waiver on a case-by-case basis with all supporting documentation of injury and a detailed Neurological examination.

# 11.0 OBSTETRICS AND GYNECOLOGY

Last Revised: July 16 Last Reviewed: July 16

## 11.1 CHRONIC PELVIC PAIN

**AEROMEDICAL CONCERNS**: Chronic recurrent pain can be a distraction in flight and may occasionally cause incapacitation. Chronic pelvic pain is defined as pelvic pain present throughout most of the menstrual cycle for 3 or more months. The causes of chronic pelvic pain include gynecological etiology, GI tract, urinary tract, musculoskeletal, and psychiatric conditions. Aircrew should be grounded during a work-up for chronic pelvic pain until the etiology is known and the condition is controlled. Waivers may be considered for the individual causes.

**WAIVER**: Chronic pelvic pain is CD. Waiver recommendations will be highly individualized depending on cause and degree of treatment.

**INFORMATION REQUIRED:**

1. Full gynecological evaluation
2. GI consult (as appropriate)
3. Orthopedic consult (as appropriate)
4. Psychiatry consult (as appropriate)

**TREATMENT**: If chronic pelvic pain is of gynecologic etiology, more than 50% of cases will be controlled with NSAIDS and oral contraceptives. Laparoscopy may be required for diagnosis and treatment. Therapy should be directed at the cause and, if successful, a waiver should be recommended.

**DISCUSSION**: Gynecological causes for chronic pelvic pain include:

- Endometriosis
- Dysmenorrhea
- Adhesive disease
- Uterine fibroids
- Ovarian cysts
- Adenomyosis
- Pelvic Inflammatory Disease/Infection

## 11.2 DYSPLASIA

Last Revised: November 2024 Last Reviewed: July 2024

**AEROMEDICAL CONCERNS**: The aeromedical hazards of cervical dysplasia and glandular cervical changes involve the distraction of knowing a precancerous condition is present, the requirements for specialized follow-up and treatment, and the actual risk of developing a cancerous condition. For **squamous cervical dysplasia**, there is a high likelihood of its regression in mild cases and the rate of progression in all cases is generally slow. The appropriate screening interval for squamous cervical dysplasia is based on age and the screening method. Ignored or inappropriately evaluated cervical changes can allow progression to severe dysplasia in a few years, or cancer within several years. Progression to severe dysplasia or cancer will require more significant treatment. The severity of dysplasia affects the monitoring, management, and treatment requirements, which may affect deployability. While squamous dysplasia is more effectively treated and progresses in a more predictable course, **glandular cervical changes** are more unpredictable and progress to cancer more commonly.

Because of the evidence regarding age differences for HPV infection, and the persistence, spontaneous resolution, and progression of dysplasia, the American College of Obstetricians and Gynecologists (ACOG), the American Society for Colposcopy and Cervical Pathology (ASCCP), and the American Society of Clinical Pathologists (ASCP) have changed screening guidelines based on the age groups of under 21, 21-29, and 30-65. These guidelines recommend that Pap smear screening of otherwise healthy women begin at age 21 regardless of the age of sexual initiation, then every 3 years until age 30, then every 3-5 years (depending on use of HPV testing) until age 65. MANMED directs Pap smears to be performed starting at age 21, then every three years until age 30 in women with normal Pap Smears. After age 30, screening of women with normal Pap smears is done every three years or extended to every 5 years if HR-HPV Co-Testing is used and negative. Identification of HPV or dysplasia changes the management and surveillance. Underlying conditions such as HIV or immunosuppression can increase the surveillance to every six months. These guidelines are based on the accumulating evidence and are designed to decrease unnecessary screenings, decrease invasive procedures to the cervix, and reduce adverse effects from the procedures.

**Squamous cervical dysplasia** involves precancerous changes to squamous cells of the uterine cervix and is associated with human papillomavirus infection (HPV). HPV types include oncogenic (high-risk) and non-oncogenic. Most HPV infections affecting the cervix are non-oncogenic and often resolve spontaneously within one year. As the HPV infection resolves, the dysplasia resolves as well. Infection with high-risk HPV is usually necessary, but not sufficient for the development of cervical squamous intraepithelial neoplasia. HPV-16 and 18 are the most common subtypes associated with cervical cancer and are considered high-risk HPV (HR-HPV). The likelihood of progression to cervical cancer is 55-60% with HPV-16, and 10-15% with HPV-18. These two subtypes are included in the available HPV vaccination. HPV infections of all types are most common in women in their teens and twenties. In most women with a normal immune system, especially those under age twenty-one, the HPV infection will resolve spontaneously within 8 months and the average time to eliminate the virus is 8-12 months. An apparent persistence of HPV in this age group more commonly represents reinfection as opposed to persistent infection. As women age, the prevalence of HPV infection decreases. When dysplasia is newly diagnosed after age 30, it is more likely to be persistent. The average time for untreated HGSIL (HSIL) to progress to invasive cancer is 3-7 years. Cofactors that increase the likelihood of a persistent HPV infection and dysplasia include tobacco use, immune deficiency, and human immunodeficiency virus (HIV). Women with + HIV

status require dysplasia screening more frequently than the routine screening recommendations for the general population.

Dysplasia is graded as cervical intraepithelial neoplasia I, II, III (CIN I-III) or carcinoma in-situ (CIS). Dysplasia is more commonly described as low-grade squamous intraepithelial neoplasia (LGSIL, LSIL), high-grade intraepithelial neoplasia (HGSIL, HSIL), and CIS. In some cases, both systems are used for description. LSIL includes CIN I and + high-risk HPV, whereas HSIL includes CIN II and CIN III. The higher the grade, the more likely and more quickly the dysplasia will progress to cancer. Atypical squamous cells (ASC) of undetermined significance (ASC, ASC-US) include cervical changes that are uncertain of the presence of HPV or grade of any dysplasia that may be present. ASC can be associated with inflammatory changes in a cervix with underlying changes that range from no dysplasia to HSIL. For this reason, ASC findings are usually managed based on high-risk HPV reflex testing. When cellular changes are consistent with ASC but cannot rule out HSIL, ASC-H is reported. It is evaluated and managed as dysplasia. When high-risk HPV is absent, it is generally managed with observation.

**HPV Type Testing (Reflex Testing and Co-Testing):** HPV is the cause of squamous cervical dysplasia. HPV is considered necessary, but not sufficient for cancer. HPV 16 and HPV 18 types are associated with the highest risk for progression to cervical cancer. These types are considered high-risk and are included in HPV testing. High-risk HPV (HR-HPV) typing is used in two ways: Reflex Testing and Co-Testing. **HR-HPV Reflex Testing** is used in cases of ASCUS *in all age groups* to determine the presence of dysplasia. ASC with a positive HR-HPV reflex test is managed as LSIL. ASC with a negative HR-HPV is managed as no dysplasia. **HR-HPV Co-Testing** is part of a screening method used only for women over age 30. Women younger than age 30 are more likely to have recurrent HPV infections that resolve and as such, Co-Testing is not used in this group. In women aged 30 and older, HR-HPV Co-Testing can be used in conjunction with Pap smear cytology. When both are used and both are negative, the routine screening interval in this age group is every five years. When Pap cytology only is used in this group, routine screening is every 3 years. MANMED Chapter 15 explains that HPV testing (Co-Testing) should not be used in women under age 30. In MANMED Chapter 15, the algorithm for abnormal Pap describes using HR-HPV testing (Reflex Testing) for ASCUS identified at any age.

**Atypical Glandular Changes** (AGC) are less common but are significantly different from squamous changes and have a more significant cancer risk and aeromedical hazard that require separate consideration. These changes involve glandular cells of the cervix and endometrium, which are occasionally identified on routine cervical screening. These more concerning glandular changes can occur in association with squamous dysplasia. The types of glandular changes reported include atypical glandular cells-not otherwise specified (AGC-NOS), atypical glandular cells favor neoplasia, and adenocarcinoma in-situ (AIS). These glandular changes require more significant evaluation, often with a Gynecological Oncologist since they are associated with a greater risk of cancer and recurrence.

Most squamous dysplasia regresses spontaneously and some progress gradually (years) and in a contiguous pattern. In contrast, AIS is associated with skip lesions affecting various areas of the cervix and endometrium. As such, a careful specialty evaluation requires HPV testing, colposcopy with biopsies as indicated, and sampling of the endometrium. Recurrence of AIS and its progression to adenocarcinoma are common and unpredictable. The definitive treatment of choice is hysterectomy. Cervical excision is not considered definitive. Fertility-preserving management strategies require close specialized follow-up for recurrence or

progression. If childbearing is desired, then an early attempt is recommended to successfully accomplish it prior to recurrence.

**Adenocarcinoma in-situ (AIS)** is considered disqualifying. Waivers for AIS without definitive treatment are considered on a case-by-case basis but are uncommon due to the required monitoring, and uncertainty (with high likelihood) of progression, recurrence, and concurrent adenocarcinoma. A history of AIS that has been definitively treated with a hysterectomy is not considered disqualifying.

**WAIVER:**

1. **Applicants and Students** – Below are the abnormal PAP results that are disqualifying and require a waiver for applicants and students. This is to facilitate and ensure adequate follow-ups are obtained as recommended, according to ASCCP/ACOG Guidelines, and prior to post-training deployment. Submit an AMS with all available documentation and lab results for NAMI review.

    a. IAW DoDI 6130.03 V1, new accessions with abnormal cervical cytology within the preceding 3 years (excluding atypical squamous cells of undetermined significance [ASCUS] with human papillomavirus [HPV] and confirmed low-grade squamous intraepithelial lesions [LSIL]) are disqualified for service entry, as is any history of malignancy.
    b. CIN I and ASC-H require evaluation and follow-up. ASC-H is evaluated as indicated and is CD until completion of training.
    c. CIS: Requires definitive evaluation. Waivers may be considered when fully evaluated and treated.
    d. AGC incompletely evaluated. No waiver. Requires definitive evaluation. Waivers may be considered when fully evaluated and treated.
    e. AIS untreated or treated without hysterectomy: Requires definitive evaluation. Waivers are generally not considered. Note: AIS fully treated with hysterectomy is NCD.
    f. Squamous carcinoma or adenocarcinoma: Waivers are considered on a case-by-case basis. See Chapter 9, Malignancies.

2. **Designated**

    a) Abnormal PAP tests are not disqualifying and do not require DNIF unless the flyer has physical or emotional symptoms that warrant grounding until resolved, as determined by their flight surgeon.
    b) CIS: Requires definitive evaluation. Continue flight duties while completing definitive evaluation and treatment. A history of CIS fully treated without residual CIS or HSIL is NCD.
    c) AGC: Requires definitive evaluation. Continue flight duties while completing a definitive evaluation. Waivers are considered when fully evaluated and treated if necessary.
    d) AIS untreated or treated without hysterectomy: Requires definitive evaluation. Waivers are considered on a case-by-case basis. AIS fully treated with hysterectomy is NCD.
    e) Squamous or adenocarcinoma carcinoma: Waivers are considered on a case-by-case basis. See Chapter 9, Malignancies.

**INFORMATION REQUIRED:**

1. **Initial waiver**
   a. Gynecological notes (including oncology notes when involved) from diagnosis, treatment, and post-treatment.
   b. Radiological reports if performed for the condition.
   c. Pathology reports before, during, and after treatment.
   d. Follow-up as recommended by the treating Gynecologist.

2. **Renewal**
   a. Gynecological notes (including oncology notes when involved) of follow-up and condition status.
   b. Interval radiological reports if performed for the condition.
   c. Pathology reports from interval evaluations.
   d. Follow-up as recommended by the treating Gynecologist.

**TREATMENT**: Dysplasia may require frequent colposcopy, biopsy, and increased frequency of evaluations. High-grade squamous intraepithelial lesions (HGSIL) require colposcopy and may need surgical treatment (LEEP, cold knife conization (CKC)). Evaluation of HSIL is not emergent and should be performed within 2-4 months. LSIL may require colposcopy to confirm that more advanced dysplasia is not present. Repeat evaluations are performed as recommended by ACOG. CIS requires cervical sampling with a CKC or LEEP and is typically followed by a gynecological oncologist. AGC and AIS require a more thorough evaluation of the cervix and endometrium. The definitive treatment for AIS is hysterectomy, but this treatment may be delayed for childbearing after a thorough evaluation by a gynecological oncologist.

**DISCUSSION**: The recommendations for routine Pap smear screening have decreased in frequency based on age-specific evidence. This addresses the age-specific recurrent HPV infections that commonly resolve spontaneously and differentiates recurrences from the more concerning persistence. These changes have reduced the likelihood of unnecessary cervical procedures, especially for younger women, and the potential side effects they can induce. It also utilizes screening for high-risk HPV types (Co-Testing) to reduce screening frequency only for women over age 30 with normal Pap smears. HPV-type testing (Reflex Testing) is used in all age groups to evaluate and manage ASC-US. Military women can be considered in a high-risk subgroup, and considering the possibility of deployment or training cycles, greater vigilance is necessary within the guidelines. In addressing the risk of HPV/dysplasia recurrences, preventive measures include appropriate sexual practices, barrier use, and vaccination. Dysplasia of all types, especially HGSIL, still requires appropriate assessment, treatment, and follow-up with military training and deployment consideration. AGC and AIS are occasionally identified through routine evaluations. These glandular changes are significantly different from the more common squamous dysplasia and require different and specific evaluation and treatment to address their greater risk.

**ICD-10 CODES:**

| | |
|---|---|
| R87.610 | ASC-US |
| R87.611 | ASC-H |
| R87.612 | LSIL |
| R87.613 | HSIL |
| R87.614 | Evidence of malignancy on smear of cervix |
| | |
| N87 | Dysplasia of the cervix |
| N87.0 | Mild dysplasia |

| | |
|---|---|
| N87.1 | Moderate dysplasia |
| N87.9 | Dysplasia of cervix, unspecified |
| Z87.410 | Personal History of cervical dysplasia |

| | |
|---|---|
| D06 | Carcinoma in situ of the cervix uteri |
| D06.9 | Carcinoma in situ of the cervix, unspecified |
| C53 | Malignant neoplasm of the cervix |

**Reference**

New Cervical Cancer Screening Recommendations from the U.S. Preventive Services Task Force and the American Cancer Society/American Society for Colposcopy and Cervical Pathology/American Society for Clinical Pathology, March 14, 2012, https://www.acog.org/About-ACOG/News-Room/News-Releases/2012/Medical-Groups-Release-New-Cervical-Screening-Guidance

## 11.3 ENDOMETRIOSIS

Last Revised: November 14 Last Reviewed: November 14

**AEROMEDICAL CONCERNS:** Endometriosis occurs when the endometrial tissue proliferates outside the endometrial cavity. The ectopic endometrial implants are most commonly located in the pelvis and abdomen, but can occur elsewhere in the body. It is associated with cyclic menstrual pains, non-cyclic pains, ovarian cysts, infertility, and symptomatic adhesive disease. While variable and unpredictable, the condition and its symptoms typically progress over time. The disease affects 5-10% of reproductive aged women and occurs most commonly between the ages of 25 and 29 and a familial tendency has been identified. Endometriosis is the cause in a significant portion (15%) of women with pelvic pain. The pain is typically located in the pelvis and lower abdomen, but also in the lower back. The pain can be exacerbated by exercise, intercourse, micturition, or defecation. Pain is the most common symptom associated with endometriosis and approximately three quarters of symptomatic patients experience pelvic pain and/or dysmenorrhea. The range of symptoms include: chronic pelvic pain, dysmenorrhea, deep dyspareunia, infertility, abnormal menstrual bleeding, chronic fatigue, low back pain, bloating, and bowel or bladder symptoms. These symptoms usually occur in a monthly cyclical pattern in association with the menstrual cycle. The ectopic endometrial tissue of endometriosis responds to the woman's hormonal milieu in the same manner as the endometrium, whether it is proliferating or menstruating. Since the endometriosis implants are embedded in atypical locations, these cyclic changes play an integral role in the associated symptoms and sequelae. These changes are the underlying cause of the cyclic symptoms and subsequently lead to symptomatic abdominal and pelvic adhesions. Menorrhagia is often associated with endometriosis and may lead to an anemia. The dysmenorrhea, pelvic pain, and backache can be distracting and unexpected in the flying environment, while an anemia may affect flight performance and G-tolerance.

**TREATMENT:** Endometriosis proliferates in response to estrogen and may be suppressed in response to progesterone in a similar fashion to the responses of the endometrium. The diagnosis is generally confirmed surgically, but may be made empirically. Treatment is focused on inhibiting estrogen exposure on the endometriosis. Hormonal contraceptives (including estrogen containing) are the first-line of therapy and can be very effective in controlling symptoms and disease progression. Progesterone-only contraceptives are preferred and can be effective cases that fail estrogen containing contraceptives. The more advanced medical treatments include medications that fully suppress ovarian estrogen and induce a medical menopause. Gonadotropin releasing hormonal analogs fully suppress the ovaries as a reversible medical oophorectomy. These medications are administered in a cyclic fashion and are associated with significant menopausal symptoms including mood, vasomotor, vaginal, and dermatological symptoms. These symptoms are variable within and across individuals making them unpredictable in the flight environment. Other medical treatments include aromatase inhibitors that can have similar adverse side effects in unpredictable patterns. Surgical exploration and treatment may be required before, during, or after medical therapy. Minor surgical treatments can improve the condition, but more extensive surgery may be required. Unilateral/bilateral oophorectomy, hysterectomy, and/or adhesionolysis can be beneficial or curative.

**WAIVER:** Current or history of endometriosis is disqualifying for all aviation duties. Mild endometriosis, which requires only mild analgesia and hormonal contraceptives, is considered for waiver with evidence of persistent pain control and medication tolerance. Treatment with long acting, reversible, systemic progesterone-only hormonal contraceptives is preferential in

many cases and when oral contraceptives have been ineffective. Progesterone emitting intrauterine devices provide a local inhibiting effect on the endometrium and may not be as effective for control of endometriosis symptoms. Treatment with Gn-RH analogs or aromatase inhibitors is associated with more unpredictable adverse side effects and are typically not considered for waiver.

With the diagnosis of endometriosis, continuation of the oral contraceptives (or other hormonal suppression medication) is recommended to reduce the risk of symptom recurrence and endometriosis progression. The use of any medication requires supervision by a Flight Surgeon. For more recalcitrant cases, a waiver can be recommended when the symptoms are controlled; recommendations will be on a case-by-case basis depending on symptoms and medications.

**INFORMATION REQUIRED:**
**Initial and renewal:**

1. Gynecology evaluation
2. History of symptoms and treatments
3. Notes regarding diagnostic and treatment procedures
4. Pertinent labs and hematocrit
5. Evidence of sustained treatment tolerance
6. Evidence of sustained symptom control

**DISCUSSION:** Endometriosis symptoms often begin in the late teens in a periodic fashion with the menstrual cycle. The symptoms may begin as mild, responding well to hormonal contraceptive treatment, and may elude early diagnosis. Endometriosis is typically persistent and progressive. Over time, the disease generally progresses and can cause the development of abdominal and pelvic adhesions, which induce additional non-cyclic symptoms independent of the menstrual cycle. Its adverse symptoms are variable and unpredictable. The disease progression often results in the need for additional diagnostic/therapeutic surgical procedures, medication adjustments, and subsequent re-evaluations.

**ICD-9 CODES:**
**617 Endometriosis**
**617.0 Endometriosis of uterus**
**617.9 Endometriosis, site unspecified**

## 11.4 HORMONAL REPLACEMENT THERAPY AND CONTRACEPTION

Last Revised: January 15 Last Reviewed: January 15

**DEFINITION:** Hormonal replacement therapy and contraception includes birth control, estrogen replacement therapy, and hormone replacement therapy.

**AEROMEDICAL CONCERNS**: Alterations of hormone balance may lead to nausea and vomiting, depression, bloating, and emotional irritability. Regardless of the reasons for initiation of estrogen hormones, an initial down period of two weeks in order to assess tolerance is recommended.

**WAIVER**: Waiver is not required. Use of estrogen and progesterone preparations is NCD.

**INFORMATION REQUIRED:**

1. Annual gynecological exam per OPNAVINST 6000.1 series
   a. Pap smear as indicated
   b. Breast examination
   c. Pelvic exam

**TREATMENT:** None

**DISCUSSION:** Oral contraceptives in the current dosing formulations contain very low doses of estrogen/progesterone and have minimal side effects. If a patient has taken any preparation of oral contraceptive pill in the past and tolerated it well, a down period is not required. However, as with all medications, the use (or resumption) of contraceptive medication must be with the approval of the local flight surgeon. Side effects of combination oral hormonal contraceptives may include nausea, vomiting, depression or irritability, weight gain and headaches. Side effects of progesterone only preparations (Depo-Provera, Micronor, Norplant, etc.) may include depression, irregular vaginal spotting, bloating, and fluid retention.

Estrogen replacement therapy is generally well tolerated when given in recommended physiologic doses and is strongly recommended for all women without endogenous production of estrogen. Replacement therapy constitutes reestablishing the normal physiologic levels of estrogen/progesterone. This replacement should not be construed as introducing a foreign chemical into the body but rather the restoration of the natural state. Estrogen replacement therapy involves a lower dose of estrogen than is in use in currently available oral contraceptives (Ethinyl estradiol in a dose of 5 micrograms is equivalent to 0.625mg conjugated estrogens).

## 11.5 PELVIC INFLAMMATORY DISEASE

**AEROMEDICAL CONCERNS:** Pelvic inflammatory disease is an acute infection of the upper female genital tract characterized by severe lower abdominal pain. Sequelae can include chronic pelvic pain and infertility. Aviation personnel should be grounded during treatment of the acute phase.

**WAIVER:** A history of pelvic inflammatory disease (PID) in female aircrew who are symptom free is NCD. Female aircrew members who have chronic pelvic pain as a sequelae to PID should be evaluated by a Gynecologist and a waiver may be recommended on a case-by-case basis.

**INFORMATION REQUIRED:**

1. Gynecology consult
2. Documenting resolution of acute PID

**TREATMENT:** Antibiotic treatment during the acute phase will result in grounding. Initial outpatient treatment is Rocephin® 250 mg IM plus Doxycycline 100 mg bid for 14 days. Patients should be re-evaluated in two days if symptoms are not better. In those cases, the diagnosis of PID should be reconsidered or the patient should be admitted to the hospital for IV antibiotic treatment. Surgical treatment for the sequelae of PID (adhesions) is compatible with a return to flying duties. Patients may return to flying one week after laparoscopy provided they remain asymptomatic.

**DISCUSSION:** The incidence of PID in the US is approximately 1% in young females. The diagnosis of pelvic inflammatory disease is made based upon the triad of abdominal pain, cervical motion tenderness, and adnexal tenderness (usually bilaterally) along with any one of multiple non-specific indications of inflammation or infection (e.g. temperature elevation, leukocytosis, leukorrhea, etc). Many women are improperly diagnosed with PID, and definitive diagnosis is made with laparoscopy. Sequelae include pelvic adhesions, infertility, chronic pelvic pain, and increased risk for ectopic pregnancy.

**ICD-9 CODE:**
**614.9 Pelvic Inflammatory Disease**

## 11.6 PREGNANCY

Last Revised: Jan 24 Last Reviewed: Jan 24

**AEROMEDICAL CONCERNS:** Pregnancy is a normal female condition associated with various dynamic physiological changes capable of modifying an aviator's expected tolerance to the aviation environment. Examples of aeromedically relevant changes include hypotension, physiologic anemia (dilutional), hypercoagulability, and alterations in pulmonary function, glucose metabolism, and visual acuity.

Pregnancy is also associated with certain pregnancy-specific disorders that may pose additional risk in the aviation environment. Examples of these disorders include ectopic pregnancy, hypertension, seizure, bleeding, miscarriage and even morning sickness (hyperemesis). Pregnancy can also increase the risk of other non-pregnancy specific conditions that could affect the member's flight safety. Pregnancy increases the risk of blood clots and pulmonary emboli. Underlying clotting disorders increase this risk. Screening for preexisting clotting disorders should be considered and may be offered to pregnant aviators.

Although incompletely researched, flying during pregnancy may place the fetus at risk. The physiologic stresses of aviation duty, in addition to noise, vibration, Gz forces, pressure changes, and hypoxia all introduce potential risk to the mother and fetus. See Request to Continue Flying While Pregnant for common physiologic changes in pregnancy and potential hazards to the pregnant aviator.

**WAIVER:** Because of the real and unknown physiological hazards of flight, flight personnel shall consult with their FS or APA when they first suspect they are pregnant. Pregnancy is considered temporarily disqualifying for flying duties and aircrew are to be grounded when first confirmed pregnant. Grounding notification shall be submitted to the aviation unit commanding officer via a DD 2992. After the aircrew is evaluated by their obstetric care provider and a FS or APA, and if the pregnancy is determined to be uncomplicated, they may request a temporary waiver from a Local Board of Flight Surgeons (LBFS) to continue flying duties while pregnant. A LBFS may issue a temporary aeromedical clearance notice with the restrictions mandated in the following sections. The LBFS shall submit a short form physical and an aeromedical summary to NAMI Code NA05. Aircrew in receipt of an aeromedical clearance during pregnancy shall continue care with their obstetric provider and update the FS or APA of any changes associated with their pregnancy or physiologic status. Aircrew who decide not to request a temporary waiver shall inform the evaluating FS, APA, or AME who will submit a temporary grounding physical to NAMI Code NA05 with an abbreviated aeromedical summary conveying any pregnancy complications.

1. If not requesting a waiver to fly while pregnant, the grounding physical evaluation shall not include the reason for not requesting a temporary waiver.
2. Pregnant aircrew shall not be required to fly and the decision to request a waiver is solely at their discretion.
3. Designated Naval Aviators who are authorized to fly during pregnancy shall perform flight duties in a Medical Service Group 3 capacity only.
4. Flights should limit maneuvers to 2gs or less and cabin pressure altitudes should not exceed 10,000 feet for any duration beyond a few minutes if necessary for safe aircraft operation.
5. Clearance will be valid only until the start of the 30$^{th}$ week of gestation. Participation in NASTP or other survival programs is not permitted. If NASTP qualifications expire during pregnancy, clearance for continued flying shall be granted until the 30$^{th}$ week of gestation for those qualifications.
6. Following the end of pregnancy and return to full duty, a post-grounding physical shall be

submitted to NAMI Code NA05 for endorsement. This submission shall include information regarding any complications encountered during pregnancy, as well as the health of the child and mother following delivery (as applicable).

7. Any student in aviation training who becomes pregnant during training prior to designation shall grounded until after end of pregnancy and return to full duty.
8. Normal uncomplicated pregnancy in designated or student air traffic controllers and unmanned aircraft crewmembers is not considered physically disqualifying. Specific duty modifications during the pregnancy shall be managed locally as required.
9. Additional guidance that applies is provided in OPNAVINST 6000.1 *Guidelines Concerning Pregnant Service Members* and NAVADMIN 006/24 *Policy for Assignment of Pregnant Sailors and Sailors Who Experience Perinatal Loss.*

**Pregnancy, Uncomplicated:** For aeromedical purposes, pregnancies are considered uncomplicated if:

- singleton intrauterine gestation as confirmed by ultrasound
- routine obstetric laboratory studies are all within normal limits
- visual exam is 20/20 (correctable)
- vital signs are within normal limits
- no history of prior complicated pregnancy
- formal obstetrical evaluation has determined it to be an uncomplicated (low risk) pregnancy
- aviator is < 35 years of age at the time of delivery
- the member has no other medical condition requiring a waiver

Complications, or new disqualifying conditions which arise in a pregnancy shall require FS evaluation and NAMI Code NA05 will be notified immediately.

**Pregnancy, Uncomplicated; with Other Medical Conditions/Waivers:** Pregnancies are considered uncomplicated, with other medical conditions/waivers for aeromedical purposes when the formal obstetrical evaluation is found to be uncomplicated, but the member has other medical condition(s) that require a waiver. Pregnancy can affect or be affected by other medical conditions and/or medicine regimens. Even if these conditions were previously waived and stable pre-pregnancy, they must be reevaluated. In general, these cases must be deferred to NAMI for final disposition on the pregnancy and other conditions, before an upchit can be issued. In some instances, the “other condition(s)” may be unaffected by and inconsequential to the uncomplicated pregnancy. In these cases, a DD 2992 may be issued only after discussion with and approval from NAMI. The other medical condition(s) and the current status of each must be described in the aeromedical summary. The minimum determinants for an uncomplicated pregnancy are described under pregnancy, uncomplicated. Complications or new disqualifying conditions which arise in a pregnancy after initial granting of the waiver shall terminate the waiver, and NAMI Code NA05 will be notified immediately.

**Pregnancy, Complicated:** For aeromedical purposes, pregnancies are considered complicated if the formal obstetrical evaluation finds the pregnancy complicated, any abnormal pregnancy-specific condition exists at any time in the pregnancy, or the member has another medical condition(s) shown to be affected by or influencing the pregnancy. In these cases, an aeromedical clearance notice shall NOT be given until reviewed by NAMI Code NA05 and forwarded to the appropriate waiver authority for final disposition. For circumstances involving a complicated pregnancy, a completed Pregnancy Summary, obstetrical notes, and documentation regarding all other non-pregnancy condition(s), medications, and waivers must be submitted to NAMI Code NA05.

**Air Traffic Controllers:** An uncomplicated pregnancy is not considered disqualifying (NCD) for Air Traffic Controllers. A Pregnancy Summary is submitted to NAMI for information only. They may continue to perform their duties, until the medical officer, the member, or the command determines the member can no longer perform her duties as an ATC. At the time of medical grounding from controlling duties, a Pregnancy Summary shall be submitted to NAMI Code NA05 as a grounding physical or to request a waiver with restrictions. Complicated pregnancies are considered disqualifying (CD) for Air Traffic Controllers. These members shall be grounded and processed as a complicated pregnancy with a Pregnancy Summary as described above.

**Class IV UAS Operators**: An uncomplicated pregnancy is not considered disqualifying (NCD) for UAS operators. A Pregnancy Summary is submitted to NAMI for information only. They may continue to perform their duties, until the medical officer, the member, or the command determines the member can no longer perform her duties as a UAS operator. At the time of medical grounding from controlling duties, a Pregnancy Summary shall be submitted to NAMI Code NA05 as a grounding physical or to request a waiver with restrictions. Complicated pregnancies are considered disqualifying (CD) for UAS operators. These members shall be grounded and processed as a complicated pregnancy with a Pregnancy Summary as described above.

**Pilot in Command:** According to CNAF M-3710.7 series, waivers to Class I, Service Group 3, automatically include Pilot In Command (PIC) authority, unless the PIC authority is specifically restricted. The appropriate box in the Pregnancy Summary may be checked if there are no specific restriction recommendations. The reason for a PIC restriction recommendation should be listed on the AMS.

**INFORMATION REQUIRED (templates on ARWG front page):**

1. Request to Continue Flying while Pregnant – signature required. **Request to Continue Flying while Pregnant**
2. Obstetric Evaluation to include an Obstetric Ultrasound, Estimated Date of Confinement (EDC), Obstetrician Pregnancy Verification for Aviators, and baseline labs.
3. Pregnancy Summary (LBFS) with any abnormalities evaluated by the obstetrical care provider and explained in the Flight Surgeon comments section.
4. Physical exam with associated electronic AMS created and submitted in AERO.

**Monitoring by Flight Surgeon:**

1. The pregnant aviator shall routinely meet with her flight surgeon every two weeks.
2. The member will be evaluated to confirm she:
   a. Desires to continue flying while pregnant.
   b. Is receiving routine obstetrical care.
   c. Has not developed any condition which defines a complicated pregnancy.
   d. Has not developed any condition which impairs her safety in flight or emergency egress.
   e. Maintains 20/20 vision (or corrects to 20/20).
3. The member shall be educated to return to her flight surgeon should any concerning symptoms develop between visits.
4. Any time in the continuum of care these conditions are not met, the aeromedical clearance or pregnancy waiver shall be terminated and NAMI Code NA05 notified immediately.

**Postpartum Return to Flight Status (submit completed template on ARWG front page):**

1. In accordance with OPNAVINST 6000.1 series, convalescent leave, following any uncomplicated delivery or cesarean section, will normally be for 42 days after discharge.

For aviation purposes, this will allow adequate time for recovery and return to pre-pregnancy physiologic baseline. This form is also used for miscarriage and termination. A shorter grounding period may be considered for a first trimester pregnancy loss with a normal obstetrical exam, aeromedical exam and appropriate grieving period.

2. Return to flight status may be requested after convalescent leave. The flight surgeon shall recommend the member's Commanding Officer convene a Local Board of Flight Surgeons (LBFS), comprised of the member's flight surgeon, a second flight surgeon or APA, and documentation from the member's obstetrical care provider. A Completion of Pregnancy Summary shall be completed for all pregnant flight personnel and submitted to NAMI Code NA05. All abnormalities must be addressed on the summary by the LBFS with corroborating documentation from the obstetrical provider. The unit flight surgeon shall notify the Commanding Officer of the LBFS's recommendation, in addition to the member's condition and intentions. If the pregnancy and postpartum course was uncomplicated, the LBFS may recommend member as physically qualified (PQ). If the Commanding Officer is in concurrence, and there are no other medical conditions requiring a waiver, an aeromedical clearance notice shall be issued to the aviator. If the pregnancy or postpartum course was complicated, the member's flight surgeon shall submit all documentation along with waivers requested to NAMI Code NA05 and cannot confer aeromedical clearance notice until endorsement from the waiver authority. The flight surgeon shall submit the completed Pregnancy Summary (LBFS), with all documentation, to NAMI Code NA05 for review and submission to BUPERS/CMC via AERO The aviator must meet physical standards before returning to flight duty. The flight surgeon shall submit to NAMI Code NA05:
   a. Completion of Pregnancy Summary to NAMI
      (1) Information of aeromedical significance regarding the pregnancy, delivery, post-partum course or complications.
      (2) Information of aeromedical significance regarding the health of the child and mother.
   b. Postpartum obstetrical exam
   c. Long form flight physical to include:
      (1) Hematocrit
      (2) Visual acuity
   d. Electronic AMS created and submitted in AERO.

**DISCUSSION:**

The reasons for flight restrictions vary with each stage of pregnancy. As in aviation, one can employ a risk management model to determine when a pregnant aviator can safely fly. In this case, both the probability and severity of adverse outcomes are greatest in the first and third trimester, effectively eliminating these times for waiver consideration. In the first trimester, ectopic pregnancies, bleeding and miscarriages are common, and often present unexpectedly. These complications are difficult to predict, and frequently present with life-threatening or incapacitating emergencies. Also in the first trimester, potential teratogenic exposures, vibration, hypoxia, Gz forces and other stresses of the aviation environment can have undesirable effects on the developing fetus. The uncertainties of the first trimester, combined with the severity of pregnancy-specific complications, present unacceptable risks to the pregnant aviator, thus limiting the consideration for waivers at this time.

In the second trimester, a normal intrauterine pregnancy can be confirmed with ultrasound, therefore mitigating some of the risk uncertainty present in the first trimester. For this reason, the aviator with an uncomplicated pregnancy can more safely fly at this time, assuming careful consideration is given to limit her exposure to other potentially harmful effects of the flight environment, such as hypoxia or excessive Gz exposure.

After 32 weeks of gestation, pre-term labor, rupture of the membranes and bleeding can occur in an unpredictable fashion, creating an emergent risk to the mother, fetus, and aircrew. These events introduce unacceptable risks to the safety of flight and prohibit the issuance of waivers in the third trimester.

Pre-existent medical conditions represent an additional risk consideration in the pregnant aviator. Pre-gravid, stable medical issues may become exacerbated during pregnancy, or impart an adverse effect on the pregnancy. Additionally, chronic medication regimens are frequently discontinued or changed during pregnancy. For these reasons, each aviator with a previous medical waiver, including medication waivers, must be evaluated in the context of her pregnancy, prior to issuance of a pregnancy waiver. In these circumstances, NAMI Code NA05 must be consulted prior to determination of waiver recommendation or LBFS upchit.

Prior to waiver recommendation, and during waiver continuance, careful consideration must be given to the effects of pregnancy on the aviator, including how she is coping with the physiologic, emotional, and professional stresses of pregnancy. Regular follow- up is required to confirm her desire to continue flying during pregnancy, and the absence of any condition(s) which may adversely impact her safety in flight.

**ICD-10 Codes:**
**Z3490 Pregnancy, Uncomplicated**
**O0990 Pregnancy, Complicated**

# 12.0 OPHTHALMOLOGY

Last Revised: JUN 25 Last Reviewed: JUN 25

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**APPENDIX**
A: Aviation Vision Standards Charts For Applicants and Designated
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# 12.0 OPHTHALMOLOGY

Last Revised:APR 25 Last Reviewed:APR 25

*April 2025 updates include:

-12.1-12.22 – Minor edits for clarification, added Class V where appropriate.

-12.15 – Converted to text from a chart with notes.

Contact information: usn.pensacola.navmedotcnamifl.list.nami-ophthal@health.mil
Contact Phone: 850-452-2933

## 12.1 CATARACT

Last Revised: AUG 16 Last Reviewed: APR 25

**AEROMEDICAL CONCERNS:** Cataracts reduce visual acuity (VA). When the cataract involves the visual axis, visual acuity is most affected in bright sunlight, and in conditions of glare at both day and night.

**WAIVER:** The condition is considered disqualifying. Once vision has deteriorated to less than 20/20 correctable or the patient has a positive Glare test (i.e. loss of best corrected visual acuity with off axis light), the aviator should be grounded until successful surgical removal of the cataract. Waiver to SG1 may be considered after surgery provided the visual acuity (VA) returns to 20/20 corrected, is within refraction limits, and the Glare test is negative (normal). Applicants with decreased corrected acuity or positive glare tests are not considered for waiver.

**INFORMATION REQUIRED:**

1. Eye doctor consultation is required for initial waiver request.
2. Because of the potential for deterioration, ophthalmologic follow-up may be needed every 6 months until surgery is deemed necessary.
3. **GLARE TESTING:** Prior to and after surgery, a Mentor Brightness Acuity Test (BAT, a glare-testing device) should be performed with VA documented for each eye separately at the low, medium and high settings.
    a. If a BAT is unavailable, an acceptable alternative is an off axial point source of light (i.e. transilluminator).
        i. Performed monocularly with best correction in place if required, hold a transilluminator off axis below the line of sight and note any degradation on the distance visual acuity chart compared to the patient's best corrected visual acuity.
4. Underlying pathology such as Wilson's disease, diabetes, hypoparathyroidism, etc. may be considered by the eye care specialist during the workup evaluation.

**TREATMENT:** Surgery with an intraocular lens (IOL) implant usually provides a sufficiently acceptable VA result for military flying duties. Consultation with the NAMI Eye Dept (phone: 850-452-2933 or email: usn.pensacola.navmedotcnamifl.list.nami-ophthal@health.mil) prior to surgery is recommended.

**DISCUSSION:** The visual effect of a cataract depends on its size and encroachment on the visual axis, and the proximity to the nodal point. A posterior subcapsular cataract can have a devastating effect on vision. Two or three episodes of serious dehydration can increase the risk of developing a cataract 21 fold. Surgical success of greater than 90% in achieving a 20/40 best corrected VA after 1 year has been reported. At this time, the Navy does not restrict personnel with IOLs from certain types of high performance/ejection-seat aircraft.

**ICD-10 CODES:**
H25.019 Cortical age-related cataract, unspecified eye
H25.049 Posterior subcapsular polar age-related cataract, unspecified eye
H25.9 Unspecified age-related cataract
H26.049 Anterior subcapsular polar infantile and juvenile cataract, unspecified eye
H26.059 Posterior subcapsular polar infantile and juvenile cataract, unspecified eye
H26.109 Unspecified traumatic cataract, unspecified eye
H26.31 Drug-induced cataract, right eye
H26.32 Drug-induced cataract, left eye
H26.33 Drug-induced cataract, bilateral
H26.40 Unspecified secondary cataract
Q12.0 Congenital cataract
Q12.8 Other congenital lens malformations
Q12.9 Congenital lens malformation, unspecified
Z98.41 Cataract extraction status, right eye
Z98.42 Cataract extraction status, left eye

## 12.2 COLOR VISION ABNORMALITIES

Last Revised: APR 25 Last Reviewed: APR 25

**AEROMEDICAL CONCERNS:** Color vision is required to accurately identify warning lights and color visual displays in the cockpit, airfield and shipboard lighting, colored smoke in combat, ground target identification, and aircraft formation lights. Interactions with other optical devices, such as laser eye protection glasses and protective visors may worsen color vision problems. For testing purposes, proper instructions and lighting are critical to accurate results. Best corrected spectacles are recommended, but no tinted or colored lenses may be worn during testing, as that will decrease the sensitivity of the test for detecting color vision deficiency.

**WAIVER:** Applicants: the condition is CD and waivers are not considered for applicants that cannot pass the required color vision tests. Certain non-aircrew positions require adequate color vision, including ATC, UAV, and sonar display operators (anti-sub aircraft). Waivers have been granted for Aeromedical applicants on a case-by-case basis.
Designated: Waivers for designated personnel with a change in color vision may be considered on a case-by-case basis.

**COLOR TESTS:**

1. Pseudo-Isochromatic Plates (PIP) are considered a primary test of color vision. Approved: **Ishihara 38-plate edition**, **Pseudoisochromatic Ishihara Compatible (PIPIC) 24-plate edition**, **Waggoner Standard 24-Plate Edition.**
    a. Scoring: 12 (or more) of 14 correctly identified red/green numerical test plates constitutes a passing score. Passing criteria is 12 or more plates correctly read, i.e., no more than 2 errors.
    b. Use one demonstration and 14 test plates (the orange number on page one is a demo plate only, and not a test plate, and should not be counted). **Directions:** Best corrected vision, Daylight Illuminator stand or a light source ~ 6500 degree Kelvin temperature “Daylight” fluorescent bulb, three seconds each page, no tracing allowed, random order. Regular white incandescent bulbs may not be used as they reduce the sensitivity of the test.
    c. Other editions of pseudoisochromatic plates may not have the correct types of plates (numbers only required). Research has shown that individuals scoring 11 (or less out of 14) on the PIP test do not have normal color vision.

2. **Farnsworth Lantern** (FALANT), The Farnsworth Lantern was designed in the 1940’s to salvage mildly color vision deficient individuals who are ‘color safe’ for Naval submarine service. Passing the FALANT does not ensure normal color vision. Original model or Optec 900 accepted.
    a. Passing criteria for FALANT remains 9 of 9, or 16 of 18 correct responses. **Directions:** normal room lighting, best corrected vision worn, both eyes open, 8 foot test distance, random presentation of targets, two seconds each target. Prior to testing, read the instructions to the patient exactly as written on the side of the unit to ensure predictable responses, and follow all directions on the guide.
    b. As of 01 January 2017, the FALANT will no longer be acceptable for applicants for any class, but those designated and student aviators who have passed the FALANT prior to phase-out will be grandfathered for their career, unless a documented color vision degradation is identified, which requires further evaluation to exclude progressive or acquired disease.

3. **Computerized Color Vision Tests** (CCVT) may be either used as a primary test of color vision, or may be used as a backup test for PIP or FALANT failures.

**Computerized Tests** (validated and approved):

a. **Waggoner CCVT**: A score of "normal" or "mild" color vision deficiency in red, green or blue is acceptable for aviation. Tested binocularly (both eyes open). May test monocularly for isolating and tracking acquired color vision defects. Both desktop and tablet versions are acceptable.

b. **Rabin Cone Contrast Test** (CCT, Rabin): A score of 55 or greater in each eye is required for all three cone types. This test is given monocularly (one eye at a time).

c. Computer tests shall be administered per manufacturer recommendations with regard to distance, lighting, screen calibration, and monocular or binocular testing. Best correction worn. Computerized tests must be utilized per manufacturer's instructions; such as administration processes and calibration, room lighting, and screen brightness. Computer-printout grade sheets should be submitted with the physical exam, to ensure objectivity and correctness.

**INFORMATION REQUIRED:** If a designated aviator fails the PIP, and either a FALANT or computerized test (worse than mild defect), an ophthalmologic evaluation is required to screen for acquired pathology. Additionally, a practical test of color vision must be performed to demonstrate operational ability and be administered with the objective oversight of the flight surgeon, type standardization instructor, and type NATOPS officer as observers. Tests would include identification of cockpit lighting, gauges, safety indicators, cockpit display symbology, map symbology for both cockpit and actual charts (hazards/obstacles, airspace coordination areas, route markings, etc.), identification of shipboard and landing field lighting, and ALDIS lights. For Marines, smoke color identification testing is also required. A control group of two additional aviators with normal color vision is recommended for comparison. Commanding Officer endorsement is required.

**TREATMENT:** N/A.

**DISCUSSION:** Defective color vision is overwhelmingly congenital, and mainly involves red and green cones, due to X-linked genetics. Blue cones are encoded on Chromosome 7. In Caucasians, approximately 8% of males have inherited red/green color defective vision. Of males, 2% of the population have only two cones, "dichromats," and are severely deficient. The majority of color deficient individuals have three cone types, "trichromats", but are red or green weak. Moderate to severe color deficient individuals have increased difficulty interpreting VASI and PAPI lights correctly, as well as difficulty with navigation and shipboard lighting and colored smoke identification. Moderate and severe color deficient individuals also take a longer time to interpret color signals and targets, while also making more errors.

Blue color deficiency may be acquired by ocular diseases, including cataracts, optic neuritis, macular degeneration, central serous retinopathy, or side effects of medications or toxins.

Mild color vision deficiencies are considered acceptable for safe and effective flight. Moderate-to-severe red-green abnormalities are the most problematic for aviation, and those individuals can, unfortunately, sometimes pass the FALANT. Any degree of color vision deficiency, even mild, may be considered as a potential causal or contributing factor in mishap investigations.

**ICD-10 CODES:**
H53.50 Unspecified color vision deficiencies
H53.51 Achromatopsia
H53.52 Acquired color vision deficiency
H53.53 Deuteranomaly
H53.54 Protanomaly
H53.55 Tritanomaly
H53.59 Other color vision deficiencies

## 12.3 DECREASED VISUAL ACUITY

Last Revised: APR 25 Last Reviewed: APR 25

**AEROMEDICAL CONCERNS:** Decreased visual acuity degrades lookout and target acquisition.

**WAIVER:** Visual acuity and refractive error standards are not waived for applicants for pilot training. Students in the training pipeline may request waivers for uncorrected acuity and refractive error that meet designated standards. Class II-IV may request waivers for refractive error exceeding standards.

A waiver for best corrected visual acuity less than standards is typically not recommended in designated individuals, and generally not recommended for applicants of any class.

**Class I Service Group Requirements**

| Category | Unaided Visual Acuity | Refractive Limits | NATOPS Restrictions |
|---|---|---|---|
| **SG1** | 20/100 or better each eye | None | None |
| **SG2** | 20/200 or better each eye | None | * Restricted from shipboard landings including VSTOL<br>* Helicopters are OK |
| **SG3** | 20/400 or better each eye | None | * Dual Controlled only<br>* Requires SG1 or 2 onboard<br>* Pilot in Command is included<br>* Flying with students prohibited |

Consider whether a waiver is actually required. An aviator whose uncorrected vision is worse than 20/400 will need a waiver to fly in any Service Group. A clear justification is required, including primary type of aircraft in which he or she will be flying and the number of hours in that type of aircraft.

**CLASS III CRITICAL FLIGHT DECK PERSONNEL VISION STANDARDS RECOMMENDATIONS: Though the discretion rests solely with the unit's CO to waive standards below 20/20 and 40 seconds of arc of stereopsis per MANMED, NAMI generally recommends critical flight deck personnel have at least 20/25 in one eye and at least 20/30 in the other, and no less than 100 arc seconds of stereopsis to be considered by the CO for a waiver of standards in a mission essential person with a safe work record.**

**INFORMATION REQUIRED:**

1. Optometry or ophthalmology consults for any waiver request for excessive refractive error.
2. Ophthalmology consult required for cases of decreased visual acuity not due to simple myopia, hyperopia, astigmatism or presbyopia (i.e., optic neuritis, significant corneal scarring, significant cataracts, CSCR, etc.)
3. Obtain dilated retinal evaluation at corrections greater than -8.00 diopters.

4. Progressive astigmatism should be evaluated to exclude keratoconus.

**TREATMENT:** Correction with spectacles within the limits set by MANMED Chapter 15. Contact lenses are permissible for aviation personnel after optometry examination, but spare clear spectacles must be carried in flight and the aviator must demonstrate 20/20 with contact usage. Corneal surgical procedures other than that which is allowed by Chapter 12.15 are CD, with waivers generally not recommended.

**DISCUSSION:** Myopia is usually a progressive condition, stabilizing around age 30. Significant myopia is complicated by considerable visual distortion at the periphery of corrective lenses. Individuals with significant myopia may see halos or flares around bright lights at night and are more at risk for night blindness. Elongated globes are at an increased risk of retinal detachment and lattice degeneration. Whenever a prescription is changed, aircrew should be warned about transient visual distortion and counseled on the period of adjustment. Evidence suggests that there is no difference in civil accident rates or in Naval carrier landing accidents in pilots who require visual correction. Severe myopia tends to be a problem pertaining to Class II, III, and IV personnel since the entry requirements for Class I pilots tend to be sufficiently stringent to exclude those whose vision would deteriorate that much. The risk of retinal detachment in normals is 0.06% over 60 years compared to 2% in 5 diopter myopes. Beyond -9.75 diopters, the risk increases to 24%.

**ICD-10 CODES:**
H54.61 Unqualified visual loss, right eye, normal vision left eye
H54.62 Unqualified visual loss, left eye, normal vision right eye
H52.10 Myopia, unspecified eye
H52.11 Myopia, right eye
H52.12 Myopia, left eye
H52.13 Myopia, bilateralH52.00 Hypermetropia, unspecified eye
H52.01 Hypermetropia, right eye
H52.02 Hypermetropia, left eye
H52.03 Hypermetropia, bilateral
H53.00x Amblyopia

## 12.4 DEFECTIVE DEPTH PERCEPTION/STEREO-VISION/STEREOPSIS

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**AEROMEDICAL CONCERNS:** Although many visual cues regarding the relative positions of objects in space (depth perception) are monocular, binocular stereo-vision is the best sense for depth perception at distances of less than 200 meters. The binocular visual reflex of stereopsis is also an important indicator of normal visual acuity, ocular alignment, and neurological function of the visual pathway. Defective stereopsis may make certain piloting duties such as formation flying and aerial refueling more difficult and unsafe.

**WAIVER:** Waivers are not recommended for any applicant for Class I duty involving actual control of aircraft. Class II through IV personnel must meet standards for depth perception except when remarked as "not required" under types of aviation duty specified under MANMED Articles 15-87 through 15-99. Waivers for certain Class II - IV will be viewed case-by-case. Certain Class III members (i.e. maintainers, flight deck personnel) do not require waiver submission through NAMI, but by authority of local command (details in MANMED).

**CLASS III CRITICAL FLIGHT DECK PERSONNEL VISION STANDARDS RECOMMENDATIONS: Though the discretion rests solely with the unit's CO to waive standards below 20/20 and worse than 40 seconds of arc of stereopsis per MANMED, NAMI generally recommends critical flight deck personnel have at least 20/25 in one eye and at least 20/30 in the other and no less than 100 arc seconds of stereopsis to be considered by the CO for a waiver of standards in a mission essential person with a safe work record.**

**INFORMATION REQUIRED:**

1. Valid tests of stereopsis include:
   a. **Armed Forces Vision Tester (AFVT**) [passing is lines A through D]
   b. **Stereoacuity Plates** used with polarized viewers such as the Stereo Optical, Titmus Optical **Stereo Fly,** or **Randot**. A randomized version of these tests should be used. Passing is 40 seconds of arc, with no head or test book movement, performed with good lighting.
   c. **Verhoeff Stereopter**: tested at 1m, eight correct of eight random presentations for passing grade, with no head movement of the patient
2. A pass of any one test meets the stereopsis standard. The tests must be administered and results recorded as specified in MANMED and elsewhere in the ARWG. See Applicant and Designated Aviation Vision Standards Chart (Appendix A).
3. Recent loss of stereopsis in a designated Class I naval aviator is usually due to a change in refraction or onset of presbyopia, but may also be a sign of cataract, macular or optic nerve disease, or new motility disturbance, requiring ophthalmologic or optometric evaluation. New failures to meet the stereopsis standard must be evaluated by an eye doctor to include completion of the ocular motility worksheet (See Appendix B).

**TREATMENT:** Correct any underlying refractive error or eye disease.

**DISCUSSION:** Defective stereopsis is typically innate and due to abnormal visual development prior to the age of 9. Causes of defective stereopsis include abnormal ocular muscle balance,

amblyopia, anisometropia, microtropia, and monofixation syndrome. The Verhoeff Stereopter tests stereovision in real space, and all eight tests must be correct for a passing score.

**ICD-10 CODES:**
H53.33 Simultaneous visual perception without fusion
H53.32 Fusion with defective stereopsis

## 12.5 HISTORY OF STRABISMUS SURGERY

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**AEROMEDICAL CONCERNS:** Single, fused/stereoscopic, simultaneous binocular vision in all fields of gaze is a requirement for safe and effective flight duties. Congenital or acquired defects of ocular alignment as well as any surgery to correct ocular misalignment can cause mild to severe degradations to binocular vision and acuity and be a grave hazard in aviation.

**WAIVER:** History of strabismus surgery is considered disqualifying for all aviation duty. A waiver will not be considered for an SNA applicant, due to the risk of progressive degradation to alignment even decades later. A waiver for aviation duty other than an SNA applicant may be considered on a case-by-case basis. Waiver consideration is no sooner than six months after a successful and stable strabismus surgery if post-operatively, the member otherwise meets the visual standards appropriate for his or her duty.

**INFORMATION REQUIRED:**

1. Submission must include an ocular motility worksheet (see Appendix B) completed at the time of waiver request by a provider qualified to measure all required data.
2. Include copies of all eye exams and operative report(s) with AMS.

**TREATMENT:** Strabismus surgery involves enhancing or retarding the action of one or more extraocular muscles in either or both eyes. An extraocular muscle tendon may be shortened (resection) to strengthen its action, or the insertion of the muscle moved posteriorly on the globe (recession) to weaken its action. Adjustable sutures may be employed to fine tune ocular alignment in the perioperative period. A spacer may be inserted in the muscle tendon with unusual forms of vertical muscle surgery. In general, vertical muscle strabismus surgery is more complex and problematic than horizontal muscle surgery for simple eso- or exotropia.

**DISCUSSION:** Ocular misalignment is always the consequence of disease and never a normal finding. Surgery on extraocular muscles is imprecise and has a risk of regressing to the original state of misalignment or progressing in effect and causing sequential overcorrection. Multiple surgeries are frequently necessary for congenital misalignment. Scarring of the globe and adnexa after muscle surgery may lead to restricted ocular movements. Vertical muscle surgery often causes or does not fully correct cyclotorsional misalignment.
Realignment of the eyes with muscle surgery does not resolve the underlying disorder in congenital misalignments and while peripheral binocular function may be partially enhanced, normal central binocular stereopsis is rarely achieved. Even after satisfactory surgical alignment in congenital esotropia, residual comorbidities such as latent nystagmus and dissociated vertical deviations are often seen. The desirable cosmetic result after strabismus surgery is 10 or fewer prism diopters of misalignment, since this relatively small degree of heterotropia is not noticeable to casual observation of the eyes. Asymptomatic vision (i.e. normal acuity without diplopia complaints) with tropia less than 10 prism diopters, meets the NOTOSP standard for Class II and III.

“NOTOSP” stands for “No Obvious heteroTropia or Symptomatic heteroPhoria.” “Obvious heterotropia” is visually noticeable misalignment of the two eyes in primary, straight-ahead gaze (with no head turn or tilt) or gross misalignment during motility testing in the cardinal fields of gaze. “Symptomatic heterophoria” is complaints of intermittent diplopia while alert and performing tasks such as night-driving, night-flying, scanning for air-traffic in hazy skies, etc.

Symptomatic heterophoria is not intermittent double vision normally associated with extreme fatigue or alcohol intoxication.

**ICD-10 CODES:**
H50.89 Other specified strabismus
H50.9 Unspecified strabismus

## 12.6 EXCESSIVE PHORIAS

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**AEROMEDICAL CONCERNS:** Excessive phorias are frequently associated with defective stereopsis and/or diplopia complaints, especially when fatigued. This is particularly hazardous when it occurs during a critical phase of flight. Excessive phorias may lead to symptomatic diplopia with helmet-based cuing systems, or stereoscopic aircraft monitors.

Asymptomatic vision (i.e. normal acuity without diplopia complaints) with tropia less than 10 prism diopters, meets the NOTOSP standard for Class II and III. "NOTOSP" stands for "No Obvious heteroTropia or Symptomatic heteroPhoria." "Obvious heterotropia" is a visually noticeable misalignment of the two eyes in primary, straight-ahead gaze (with no head turn or tilt) or gross misalignment during motility testing in the cardinal fields of gaze. "Symptomatic heterophoria" is complaints of intermittent diplopia while alert and performing tasks such as night-driving, night- flying, scanning for air-traffic in hazy skies, etc. Symptomatic heterophoria is not intermittent double vision normally associated with extreme fatigue or alcohol intoxication.

**WAIVER:** CD for SNA, Class I, and Class IV aviators. Waivers typically will not be considered for SNA and Class I.

**INFORMATION REQUIRED:**

1. Evaluation by a qualified optometrist or ophthalmologist is necessary.
2. The consult should address any history of diplopia or previous eye surgery, and include all applicable studies requested on the accompanying ocular motility worksheet (see Appendix B)
3. Phorias should be measured at far and near distances with best correction. Note, there is only a standard for phorias at far distance; however, the eye doctor will evaluate both near and far phorias during the work up for a waiver.

See Applicant and Designated Aviation Vision Standards Chart (Appendix A).

**ICD-10 CODES:**
H50.51 Esophoria
H50.52 Exophoria

## 12.7 RETINAL DETACHMENT

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**AEROMEDICAL CONCERNS:** A detached or torn retina can lead to visual impairment, the degree of which depends on the part of the retina involved and the success of timely surgery. Some retinal repairs involve injecting gas into the eye (pneumatic retinopexy), which will restrict the patient from air transport for some time afterward, until cleared by the retinal surgeon. Routine exposure to slow-onset G forces has not been shown to increase the risk of retinal detachment.

Small atrophic peripheral holes generally do not require treatment, but should be monitored for progression or subretinal fluid development over time by annual dilated examinations (see section 12.20 for further details on retinal holes).

**WAIVER:** Waivers will typically not be considered in applicants for retinal detachments involving intraocular repairs, vitrectomy, pneumatic retinopexy, or sclera buckles. Applicants with small peripheral tears and/or detachments treated successfully with laserpexy may be considered on a case-by-case basis after six months with stable follow-up examinations. Waivers in other designated classes will be considered on a case-by-case basis after a minimum of three months post-operatively. Annual dilated exams will be required for any waiver for retinal tear, treated holes, or detachment. **A Grounding physical is required to be submitted upon diagnosis due to the post-operative observation period of greater than 60 days.**

**INFORMATION REQUIRED:** Please submit all relevant eye examinations and operative reports to include a Humphrey Visual Field, detailed retinal drawings or photos, motility exam (if scleral buckling is performed), and glare testing (see details in cataract section, 12.1) if a pneumatic retinopexy (air injection) or vitrectomy is performed.

**TREATMENT:** Surgical intervention is required in most cases. The best approach will be determined by the surgeon and may consist of one or more of the following techniques cryotherapy, laser retinopexy, pneumatic injection, scleral buckling, or vitrectomy.

**DISCUSSION:** Visual acuity and visual field loss, changes in refractive error, motility disorders, recurrent detachments, detachment in the fellow eye, and cataracts are frequent sequelae for retinal detachments. Detachments involving the macula have the highest impact on central vision impairment. Annual follow-up is required for the duration of military service and recommended after separation from service.

**ICD-10 CODES:**
H33.001 Unspecified retinal detachment with retinal break, right eye
H33.002 Unspecified retinal detachment with retinal break, left eye
H33.003 Unspecified retinal detachment with retinal break, bilateral
H33.8 Other retinal detachments

## 12.8 GLAUCOMA & OCULAR HYPERTENSION

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**AEROMEDICAL CONCERNS:** Glaucoma is an optic-nerve disease characterized by a combination of two or more of the following: elevated intraocular pressures, visual field loss, and/or progressive cupping of the optic nerve. It may be associated with increasing age, a family history of glaucoma, racial predilection, underlying eye conditions associated with elevated pressures, or trauma to the involved eye.

Open angle glaucoma is the most common type and is usually asymptomatic, even as vision loss is occurring slowly. Gradual, almost imperceptible loss of peripheral visual field is typically the earliest clinical manifestation, with loss of central vision occurring only in the most advanced later stages of the disease. Elevated eye pressure is not always present in patients losing vision from open angle glaucoma. Roughly a third of those presenting with glaucoma have intraocular pressures (IOPs) measured at less than 22 mmHg and some will continue to lose vision even with a lowering of their IOP with eye drops or surgery.

Acute angle glaucoma is much less prevalent and presents in a much different manner then the open angle variety, with symptoms such as acute onset of eye pain, decreased vision, and halos around lights. Signs may include a red eye with a hazy cornea and a mid-dilated, poorly reactive pupil.

Any glaucoma requires referral to the eye clinic with an acute angle attack requiring emergency referral to an ophthalmologist to reduce the risk of swift and severe vision loss. Both types of glaucoma are considered disqualifying because the risk of loss of vision and peripheral visual fields is incompatible with flight duties.

Ocular hypertension (i.e. elevated pressure measurements of the eye, without visual field loss, or optic nerve cupping) is not equivalent to the actual diagnosis of “glaucoma”. In fact, most people with elevated pressure measurements >22 mm Hg never develop vision loss. This population, nonetheless, is at higher risk of developing glaucoma so this condition is considered disqualifying.

**WAIVER:** For the purposes of Naval Aviation, any IOP consistently (on at least 2 different exams on different days) and accurately measured above 22 mmHg by contact tonometry (applanation tonometer or Tonopen), is considered disqualifying whether or not the diagnosis is simply ocular hypertension or glaucoma. Large optic nerve cupping alone is not disqualifying, if all other glaucoma screening tests and intraocular pressures are normal. If a patient has a thicker than average cornea that gives a falsely elevated IOP with no other signs of glaucoma, NAMI may elect to recommend a waiver for routine basis as opposed to annual.

Any diagnosis of glaucoma is considered disqualifying regardless of IOP. A patient with borderline findings that is worked up with extra testing to rule out glaucoma is often labeled a “Glaucoma Suspect” -- this is not considered disqualifying, though patients are encouraged to undergo ongoing screening evaluations by an ophthalmologist or credentialed optometrist every six to eighteen months.

**Designated:** Waivers are considered on a case-by-case basis.

**Applicants:** Waivers will not be considered for actual glaucoma, or ocular hypertension (IOP > 22 mm Hg when corrected for corneal thickness with pachymetry measurements) with field loss or RNFL loss.

**INFORMATION REQUIRED:**

**Initial Evaluation:**
A complete eye exam that includes the following:

1. IOP by Goldmann applanation tonometer or Tonopen or iCare
2. Central Corneal Thickness (pachymetry)
3. Fundus examination (to include comment on the cup-to-disc ratios and description of the nerves)
4. Automated visual field testing (30-2 or 24-2 SITA, standard or fast protocols are acceptable, ensure reliability of the test, and repeat any abnormal field examinations, submit ALL testing)
5. Slit lamp examination
6. Gonioscopy grading reports on the angles of the eye
7. Retinal nerve fiber layer analysis (i.e. ocular coherence tomography or OCT) is required.

**Annual Waiver Evaluation:**
-A statement regarding side effects of the ocular medications.
-A complete eye exam that includes all of the above except:

1. Central corneal thickness
2. Gonioscopy, except if clinically indicated by the eye care professional.

**TREATMENT:**
The following are acceptable topical agents and non-invasive treatments:

1. Prostaglandin analogs, are the initial treatment of choice due to insignificant incidence of systemic side effects.
2. Beta blockers – possible side effects of reduced exercise tolerance, orthostatic hypotension and loss of G-tolerance.
3. Carbonic anhydrase inhibitors – possible side effects of tingling in hands and feet, depression, anemia and sluggishness.
4. Sympathomimetic eye drops – possible side effects of hypertension, tremors, tachycardia, headache, conjunctivitis, and anxiety.
5. Laser treatments to the angle of the eye (selective laser trabeculoplasty or SLT) may reduce the intraocular pressures for up to five years, and may reduce or eliminate the need for eye drops during this time. Re-treatment may be necessary, and routine follow-ups must be maintained.

Beta blockers and carbonic anhydrase inhibitors must NOT be used if there are any significant side effects, including any reduction in circulatory or respiratory function. The treating eye care professional must be mindful of the unique cardio-respiratory demands of the aviation environment, and may need input from the flight surgeon to tailor any medications. Patients must be instructed in proper drop protocols to reduce systemic absorption (e.g. pinching the lacrimal sac for two minutes to reduce migration to the nasal mucosa). Miotic drugs are incompatible with night operations due to the inability of the pupil to dilate to admit sufficient light.

**DISCUSSION:**
Waivers may be considered if peripheral visual field loss is minimal, and IOP is stabilized either with an acceptable topical agent as listed above or with laser trabeculoplasty. Incisional surgery, including filtration or tube shunt surgery is usually not considered compatible with safe flight operations and waivers are typically not considered. Continuation of the waiver requires annual submission, though eye examinations are usually conducted more frequently as determined by the treating eye doctor.

**ICD-10 CODES:**
Series H26.23x, H40.1-9xxx, H42, H44.xxx, H47.xxx

Q15.0 Congenital glaucoma
Z83.511 Family history of glaucoma
H40.051 Ocular hypertension, right eye
H40.052 Ocular hypertension, left eye
H40.053 Ocular hypertension, bilateral

## 12.9 KERATOCONUS, PELLUCID MARGINAL DEGENERATION, OR CORNEAL ECTASIAS

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**AEROMEDICAL CONCERNS:** Keratoconus is a degeneration of the cornea leading to progressive steepening, thinning, and irregular deformation. Visual acuity may eventually be reduced to the point that vision cannot be corrected to 20/20 with spectacles or contact lenses. Other symptoms may include diplopia, haze, ghosting of images, or reduced ability to discern low contrast images.

**WAIVER:** Waivers will not be considered for applicants with suspected, forme fruste, frank keratoconus, or corneal disease, but may be considered in designated personnel if visual acuity is 20/20 or correctable to 20/20 with spectacles.
***Local boards of Flight Surgeons are not appropriate for this diagnosis.***

*NOTE: SNA applicants must have corneal mapping performed (topography/Pentacam) to rule out corneal disease (forme fruste keratoconus, other ectasias or disqualifying conditions, etc.). This will be repeated prior to starting training.

**INFORMATION REQUIRED FOR INITIAL AND ANNUAL SUBMISSION:**

1. Current ophthalmologic/optometric exam to include:
   a. Corneal Topography
   b. Best corrected visual acuity (BCVA) with contact lenses (if used).
   c. BCVA with spectacles
   d. Slit Lamp exam findings
   e. Pentacam scan with Belin-Ambrosio Enhanced Ectasia Display (BAD analysis) if available
      **Ensure these settings are used for the Pentacam reports and upload high-resolution color printouts of all three reports for each eye into AERO:
      Atlas (Fixed) Scale (i.e. 39-50 Diopters fixed scale, 16 colors)
      1) Holladay Report
      2) Topometric/KC Staging report
      3) Belin-Ambrosio Enhanced Ectasia Display (B.A.D.) report

**TREATMENT:** Contact lenses are often necessary to achieve the best vision. Advanced disease management may include a full-thickness corneal transplant, which is typically not waivered. Corneal refractive surgery is a contraindication in the presence of any keratoconus. Contact lens use in any aviator requires specific authorization on the aeromedical clearance form (up-chit). Please refer to section 12.16, Naval Aviation Contact Lens Policy. Other forms of treatment are available (i.e. DSAEK, Intacs) and are typically not waiverable.

Corneal Collagen Crossing-Linking with UV and riboflavin (CXL, KXL, C3-R, CCL) was FDA approved in April 2016 as an in-office procedure to strengthen the corneal collagen fibers to arrest the ectatic disease process of keratoconus and other corneal diseases. The eye is soaked with riboflavin (vitamin B2) for approximately 30 minutes followed by treatment with a controlled application of ultraviolet light for another 30 minutes. This procedure has shown promising results in arresting the progression of keratoconus, but is not typically expected to reverse corneal changes already present. Due to the small risk of infection, haze and corneal scarring, CXL treatment is typically reserved for progressive states of ectatic disease, i.e. greater than 1.00 Diopter increase in cylinder over two years (manifest Rx or keratometry).

Currently, a history of this procedure would not be waiverable for applicants, but will be considered on a case-by-case basis for designated members. For Class I aviators, the procedure must be performed at

a DOD surgery center. Class II-IV members may have the procedure performed at any DOD or civilian surgery center. The minimum wait time for waiver consideration is six months post-procedure. The member will typically need to be visually stable and asymptomatic to be eligible for a waiver.

Consulting the NAMI Eye Dept (phone: 850-452-2933 or email: usn.pensacola.navmedotcnamifl.list.nami-ophthal@health.mil prior to obtaining this procedure is advised. As this is a relatively new procedure in the United States, data will be gathered over time on topics including stability, regression, improvements and aeromedical safety.

**DISCUSSION:** It is very difficult to diagnose keratoconus in the early stages without corneal topography. Aviators with rapidly increasing myopia or astigmatism warrant such testing. Keratoconus is a bilateral disease, but often presents asymmetrically, only affecting one eye in early stages. The symptoms usually start in the teen years, however, it can develop later in life as well. The condition is slowly progressive in 20%-25% of cases, but stabilization can occur at any time. Pellucid Marginal Degeneration (PMD) is a similar corneal irregularity on the continuum with keratoconus, often displayed on topography by a “kissing doves” or “crab claw” pattern. Ectasia (bulging, weakening of the cornea) can also result from corneal refractive surgery, hence the grave importance of properly screening candidates prior to undergoing refractive surgery.

**ICD-10 CODES:**
H18.601 Keratoconus, unspecified, right eye
H18.602 Keratoconus, unspecified, left eye
H18.603 Keratoconus, unspecified, bilateral
H18.609 Keratoconus, unspecified, unspecified eye
H18.611 Keratoconus, stable, right eye
H18.612 Keratoconus, stable, left eye
H18.613 Keratoconus, stable, bilateral
H18.619 Keratoconus, stable, unspecified eye
H18.621 Keratoconus, unstable, right eye
H18.622 Keratoconus, unstable, left eye
H18.623 Keratoconus, unstable, bilateral
H18.629 Keratoconus, unstable, unspecified eye
H18.711 Corneal ectasia, right eye
H18.712 Corneal ectasia, left eye
H18.713 Corneal ectasia, bilateral
H18.719 Corneal ectasia, unspecified eye
H18.9 Corneal Topography out of
Standards

## 12.10 OPTIC DISC DRUSEN

Last Revised: AUG 16 Last Reviewed: APR 25

**AEROMEDICAL CONCERNS:** Optic Disc Drusen (ODD) is prevalent in 1% of the population. Drusen are calcified proteinaceous bodies located within the optic nerve head that may result in progressive visual field defects, and less commonly transient disturbance of visual acuity, color vision, and night vision. ODD is often found during routine exam in asymptomatic individuals and must be considered with any crowding or elevation of the optic nerve.

**WAIVER:** ODD is considered disqualifying for all aviation duty. Waivers may be considered for applicants on a case-by-case basis provided the member has no other optic nerve pathology, no significant visual field loss (mildly enlarged blind spot typically is not significant), and otherwise meets the visual standards appropriate for his or her duty. Waivers for designated members will be reviewed on a case-by-case basis.
**Local Boards of Flight Surgeons are not appropriate in this situation since waivers are considered on a case-by-case basis.**

**INFORMATION REQUIRED:**

**Initial Evaluation:**

1. Ophthalmology or Optometry consultation.
2. Optic nerve head (ONH) and retinal nerve fiber layer (RNFL) analysis using Optical Coherence Tomography (OCT) is required for baseline and future monitoring.
3. If surface drusen is not visible with fundoscopy, then a B-scan ultrasound (preferred) or CT to confirm the diagnosis of ODD and the absence of other conditions (e.g. papilledema) is required.
4. Optic disc/optic nerve head photos, if available, should be obtained for baseline documentation and future monitoring.
5. Automated visual field testing (Humphrey 30-2 is preferred, but 24-2 acceptable).

**Annual Waiver Evaluation:**
A complete eye exam and history performed by an ophthalmologist or optometrist to include an automated visual field test and optic nerve head/disc OCT.

**TREATMENT:**
None. No evidence or definitive studies exist at this time supporting surgical intervention.

**DISCUSSION:**

Optic Disc Drusen is typically a benign and indolent condition; however, it can produce progressive vision loss, albeit usually slowly over time. Some studies have shown up to 75% of those with ODD may develop visual field abnormalities. Defects in most studies included slightly enlarged blind spots and mild generalized constrictions, often without nerve fiber bundle defects. A more recent study with well-defined definitions of visual field defects actually found a lower prevalence of defects (5%) and a low average mean depth of the defect (-1.25 db). Most eyes with buried optic nerve head drusen do not have visual field defects and when defects are present, they are most likely to be shallow or mild. Thus if visual field defects are present in eyes with buried ODD, consideration should be given to other possible etiologies of the visual field defect, especially if severe.

Another more recent study confirms that the rate of visual field loss for ODD was very low, 1.6% per year over a three-year period. Patients with minimal or no visual field loss were younger, and patients with moderate or severe visual loss were older.

Patients with higher IOPs show a higher prevalence of visual field loss and thus, closer monitoring in this situation is recommended. Central vision may be affected with rare cases of anterior ischemic optic neuropathy or retinal bleeding from choroidal membranes. A detailed history as part of a comprehensive eye exam is essential to ensure that the individual has optimal nerve function.

The risk for sudden incapacitation from visual obscuration is extremely low, but it is important for the aviator to be educated and cognizant of the chronic threat to their peripheral vision and potential adverse effects on performance. Candid reporting of any change in visual performance by the aviator is as important as annual visual field testing to ensure the safety of flight and mission readiness.

**Please note: “macular drusen” is a separate and distinct entity from “optic disc drusen.” Macular drusen can occur as an early pre-cursor to age-related macular degeneration or may occur idiopathically. Typically, mild forms do not carry a significant risk of vision loss and as long as vision is unaffected (20/20, normal visual field or Amsler grid), waivers are generally recommended.

**ICD-10 CODES:**
H4732 Drusen of optic disc
H47321 Drusen of optic disc, right eye
H47322 Drusen of optic disc, left eye
H47323 Drusen of optic disc, bilateral

## 12.11 RETINAL VASCULAR OCCLUSION

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**AEROMEDICAL CONCERNS:** Symptoms vary, ranging from mild peripheral visual blurring to severe central vision loss. Onset is usually painless with rapid onset of vision symptoms within minutes to hours.

**WAIVER:** Waivers are not considered in applicants. Designated personnel may be considered for waiver after vision returns to class standards, and not undergoing further treatments. Annual submission will be required if a waiver is granted.

**INITIAL WAIVER:**

1. All ophthalmology consultation notes from time of first diagnosis and subsequent visits documenting treatments and visual recovery to normal.
2. Retinal/Fundus photos and macula OCT, as well as fluorescein angiography (FA) if performed. Submit copies of any FA performed at the time of initial presentation, and any subsequent FA.
3. Exclusion of other pathology such as hypertension, diabetes, blood dyscrasias, multiple myeloma, and dysgammaglobulinemia is required.

**ANNUAL WAIVER:**

1. Ophthalmology consultation (retinal sub-specialist preferred) required, with retinal photos, drawings and all other documentation showing stability of the disease and vision.

**TREATMENT:** Photocoagulation and/or intraocular medication injections are sometimes useful in central retinal vein thrombosis and in long-standing cases of branch retinal vein occlusion. The treating retinal specialist may consider hyperbaric oxygen treatment for retinal artery occlusion; often no good options are available. If the member no longer meets vision standards, see section 12.3, Decreased Visual Acuity.

**DISCUSSION:** Macular edema occurs in 57% of cases of occlusion of the temporal branch of the retinal vein. Visual acuity improves in 60% of patients with branch retinal vein occlusion and 50% achieve visual acuity of 20/40 or better within 1 year. In central retinal vein occlusion, neovascular glaucoma develops in 15% of cases. Central retinal artery occlusions typically lead to severe loss of vision (count fingers) and the pathognomonic “cherry-red spot” in the macula. The fovea’s lack of ganglion cells and thus no swelling and whitening due to ischemia of these cells allows the choroidal color to be visible. About 30% of normal eyes have an extra branch suppling the macula, the cilioretinal artery, and in central retinal artery occlusions in these patients, central vision may be somewhat spared. Branch retinal artery occlusions will typically only have a focal loss of their visual field.

**ICD-10 CODES:**

H34.811 Central retinal vein occlusion, right eye
H34.812 Central retinal vein occlusion, left eye
H34.831 Tributary (branch) retinal vein occlusion, right eye
H34.832 Tributary (branch) retinal vein occlusion, left eye
H34.01 Transient retinal artery occlusion, right eye
H34.02 Transient retinal artery occlusion, left eye
H34.11 Central retinal artery occlusion, right eye
H34.12 Central retinal artery occlusion, left eye
H34.211 Partial retinal artery occlusion, right eye

H34.212 Partial retinal artery occlusion, left eye
H34.231 Retinal artery branch occlusion, right eye
H34.232 Retinal artery branch occlusion, left eye

## 12.12 UVEITIS / IRITIS

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**AEROMEDICAL CONCERNS:** Uveitis is the inflammation of any of the intraocular pigmented uveal tissues, which includes the iris, ciliary body, choroid, and posterior retinal pigmented epithelium. Anterior intraocular eye inflammation (often referred to as iritis or anterior uveitis) can result in severe eye pain, photophobia, and blurred vision. Although it is usually an isolated idiopathic condition, there may be an associated underlying auto-immune disease. Eye pain, photophobia, and chronic steroid use are incompatible with flight, and recurrent episodes are difficult to treat in the austere environments of shipboard duty or in far-afield outposts without ophthalmologic/optometric care available.

**WAIVER:** For designated aviation personnel, a waiver may be considered for iritis that resolves without complications. For applicants, waivers may be considered after 24 months from the initial episode; however, a waiver will not be considered for any posterior uveitis or for recurrent uveitis of any type. Any associated underlying diagnoses should be considered carefully when determining waiver potential for designated aviators.

**INFORMATION REQUIRED:**

1. Ophthalmology/Optometry consult is required, with dilated fundus examination to exclude posterior disease. An iritis history is required to rule out underlying systemic or infectious etiologies.
2. Bilateral or recurrent episodes will require laboratory workup for underlying autoimmune or infectious disease.

**TREATMENT:** Treatment for uveitis depends on the portion of the uvea that is affected. Anterior uveitis is usually successfully treated with topical steroids and cycloplegics to reduce pain and ciliary body spasm. Use of topical steroids and cycloplegics for active disease is downing for flight.

**DISCUSSION:** Uveitis is an inflammation of the uveal layer inside the eye. The uvea consists of the choroid, ciliary body, and iris. It provides most of the blood supply to the retina. Uveitis may be unilateral or bilateral and occurs most frequently in people ages 20-50.

Iritis is the most common form of uveitis. These patients have an intense dull pain of the eye, perilimbal injection, and extreme sensitivity to light. The hallmark signs of anterior uveitis are a constricted pupil on the affected side, and “cells and flare” in the anterior chamber. WBC’s and proteins are liberated into the anterior chamber as part of the inflammatory response. In more severe cases, patients may present with keratic precipitates (white blood cell collections on the posterior corneal surface) and posterior synechiae (iris adhesions to the anterior lens capsule). Most cases of iritis are idiopathic, but blunt trauma to the eye will frequently be associated with iritis. Iritis may also be the result of an autoimmune disorder, infection, or exposure to toxins. A single episode of monocular iritis is generally not an indication for further testing to determine a systemic cause; however, recurrent, or persistent iritis warrants further work up.

Posterior uveitis is an inflammation of the choroid and/or ciliary body (inflammation of the ciliary body, or pars planitis is often termed intermediate uveitis; however, this will be grouped with posterior uveitis for the purpose of this discussion). Patients with this type of inflammation may complain of ocular pain and/or floaters, but are often asymptomatic. Comprehensive slit lamp examination may reveal an inflammatory response (“cells and flare”) in the posterior chamber. The severity of the response may result in a “snow banking” or “snowball” appearance in the inferior peripheral retina, and resultant scarring can form, leading to vision loss.

Possible underlying conditions may include:

| | | |
|---|---|---|
| Toxoplasmosis | Histoplasmosis | Tuberculosis |
| Sarcoidosis | Syphilis | AIDS |
| CMV | Ulcerative colitis | Rheumatoid Arthritis |
| Herpes Zoster | Ankylosing Spondylitis | Behcet Syndrome |
| Reactive Arthritis (Reiter's Syndrome) | | Lyme Disease |

Standard lab tests include:

| | | |
|---|---|---|
| CBC with differential | ANA | HLA-B27 |
| RF | ACE | PPD |
| FTA-ABS | Lyme titer (if appropriate) | RPR |
| CRP | ESR | Chest X-Ray |

**ICD-10 CODES:**

A18.54 Tuberculous iridocyclitis
A54.32 Gonococcal iridocyclitis
B00.51 Herpes viral iridocyclitis
B02.32 Zoster iridocyclitis
D86.83 Sarcoid iridocyclitis
H20.00 Unspecified acute and subacute iridocyclitis
H20.011 Primary iridocyclitis, right eye
H20.012 Primary iridocyclitis, left eye
H20.013 Primary iridocyclitis, bilateral
H20.021 Recurrent acute iridocyclitis, right eye
H20.022 Recurrent acute iridocyclitis, left eye
H20.023 Recurrent acute iridocyclitis, bilateral
H20.031 Secondary infectious iridocyclitis, right eye
H20.032 Secondary infectious iridocyclitis, left eye
H20.033 Secondary infectious iridocyclitis, bilateral
H20.041 Secondary noninfectious iridocyclitis, right eye
H20.042 Secondary noninfectious iridocyclitis, left eye
H20.043 Secondary noninfectious iridocyclitis, bilateral
H20.11 Chronic iridocyclitis, right eye
H20.12 Chronic iridocyclitis, left eye
H20.13 Chronic iridocyclitis, bilateral
H20.21 Lens-induced iridocyclitis, right eye
H20.22 Lens-induced iridocyclitis, left eye
H20.23 Lens-induced iridocyclitis, bilateral
H20.9 Unspecified iridocyclitis
H44.131 Sympathetic uveitis, right eye
H44.132 Sympathetic uveitis, left eye
H44.133 Sympathetic uveitis, bilateral

## 12.13 PTERYGIUM

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**AEROMEDICAL CONCERNS**: A pterygium is an elevated wedge of fibrovascular tissue that extends onto the cornea. This should not be confused with a similar condition, pinguecula, that is only present on the conjunctiva, but not on the cornea, and is not considered disqualifying unless it interferes with blinking. The slow, progressive encroachment of a pterygium upon the cornea may lead to progressive astigmatism and refractive error that may not correct with spectacles. Pterygia may also cause irritation of the cornea and conjunctiva, resulting in complaints of a red, scratchy, dry eye. The use of UV protective lenses may reduce the likelihood of pterygium growth and irritation.

**WAIVER:** Asymptomatic ptyergia up to and including 1.0 mm corneal invasion (measured from the limbal border at the slit lamp) are NCD for both applicants and designated aviation personnel, provided vision is 20/20 or corrects to 20/20 with spectacles.
Designated aviation personnel with symptomatic pterygia or pterygia with greater than 1.0 mm corneal invasion are CD, but a waiver will be considered if vision is 20/20 or corrects to 20/20 with spectacles and symptoms, if present, are controlled with conservative measures such as artificial tears. If a pterygium requires surgical removal, a waiver may be considered when the member's vision has stabilized and is correctable to 20/20, post-op complaints have resolved, and the member is returned to full duty by the operating surgeon. Aviation applicants with pterygia with greater than 1.0 mm corneal invasion are NPQ with a waiver typically not recommended. Case-by-case reviews can be done for certain situations to include: larger pterygia that have a long, documented history of stability, and instances where applicants have had surgical removal.

**INFORMATION REQUIRED:**

1. Ophthalmology or optometry consult to include:
   a. Drawing, photography or clear description of the pterygium and the amount of encroachment on the cornea.
   b. Manifest refraction documenting visual acuity of 20/20 or corrects to 20/20 with spectacles.
   c. Documentation of any symptoms (e.g. tearing, irritation, etc.) and any treatments.
2. Post-op patients must also submit:
   a. Operative report and if available, post-op photos.
   b. Clearance for full duty by operating surgeon.
   c. Post-op manifest refraction documenting visual acuity of 20/20 or corrects to 20/20 with spectacles.
   d. Documentation of absence of post-op complications or complaints.
   e. No longer taking steroids or other ophthalmic medications other than artificial tears.

**TREATMENT/DISCUSSION:** UV light exposure is a known risk factor for pterygia development, thus the use of UVA-UVB blocking sunglasses and hats are recommended to help prevent development or progression.

If the pterygium becomes inflamed and symptoms of dryness and irritation occurs, topical lubricants often provide relief. Occasionally, the treating eye doctor may elect to prescribe topical corticosteroids for more severe inflammation, which the patient should be grounded while on steroids for the acute issue.

Surgical excision is sometimes warranted for pterygia that induce corneal astigmatism, grow on/near the line of sight, become symptomatic due to size or location, restrict eye movement, or for cosmetic reasons. Post-operatively, pain and photophobia are the typical physical activity limiting factors, not

necessarily any anatomical healing issues. Surgical patients will be on antibiotics for a few days to weeks and topical steroids for a few weeks or months. Recurrent rates vary with the type of pterygium, operative medications used and surgical technique. Often times, recurrent pterygia can be more symptomatic and more challenging to remove.

Use of topical steroids during the early post-operative period is downing for flight (usually at least one month, often times longer). For mission essential situations, consideration for return to flight after one month while still on a prophylactic taper of steroids should be discussed with the NAMI Eye Dept (phone: 850-452-2933 or email: usn.pensacola.navmedotcnamifl.list.nami-ophthal@health.mil) in consultation with the treating ophthalmologist.

**ICD-10 CODES:**
H11.001 Unspecified pterygium of right eye
H11.002 Unspecified pterygium of left eye
H11.031 Double pterygium of right eye
H11.032 Double pterygium of left eye
H11.041 Peripheral pterygium, stationary, right eye
H11.042 Peripheral pterygium, stationary, left eye
H11.051 Peripheral pterygium, progressive, right eye
H11.052 Peripheral pterygium, progressive, left eye
H11.061 Recurrent pterygium of right eye
H11.062 Recurrent pterygium of left eye

## 12.14 OCULAR MOTILITY WORKSHEET IS NOW LOCATED IN APPENDIX B AT THE END OF THIS CHAPTER

## 12.15 CORNEAL REFRACTIVE SURGERY (PRK/LASEK/LASIK/SMILE)

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**AEROMEDICAL CONCERNS:**
Corneal refractive surgery (CRS) has been evaluated by the Naval Refractive Surgery Center and yielded excellent visual results, with increased performance of aviation duties. Custom wavefront-guided treatments yield even better visual outcomes, and are preferred if possible.
As with any surgical procedure, there are inherent risks, such as quality of vision deficits (e.g. halos and glare at night), haze, flap complications and persistent eye discomfort (e.g. dry eye or recurrent erosions). A detailed description of the rate of complications, risks, benefits, and alternatives should be discussed and consented between the patient and their refractive surgeon.
Undergoing refractive surgery does not guarantee qualification for aviation. The member must meet pre-operative parameters in MANMED and this waiver policy guide. Post-operatively, the applicant must meet all vision standards appropriate to their aviation class.
NOTE:
Within the parameters defined in this guide, refractive surgery is now NCD, but remains CD outside the parameters outlined below for Class I, II, III, and IV. History of refractive surgery is NCD for class V, as long as all other class V standards are met.

For designated personnel previously enrolled in the LASIK IN DESIGNATED AVIATORS STUDY and the LASIK IN STUDENT NAVAL AVIATORS STUDY, continuing submissions of waiver renewals are no longer required as the studies are closed. Aviation personnel who currently have waiver requirements may petition NAMI Code NA05 to have their waiver removed in conjunction with a long form flight physical if they fall within the NCD refractive parameters outlined in this chapter.

## Definitions:

**Corneal Refractive Surgery (CRS)**: A laser is used to reshape the anterior corneal surface reducing refractive error and reliance on spectacles or contact lenses. A "wavefront-guided" (WFG) or "custom" procedure uses wavefront analysis technology, and may improve the visual outcome of the procedure.
**Photorefractive Keratectomy (PRK)** or the variant Laser-Assisted Sub-Epithelial Keratectomy (LASEK): Laser energy is applied to the anterior corneal surface after the epithelium is temporarily displaced or removed. No corneal flap is created in PRK. PRK variants include LASEK (epithelium is preserved), and Epi-LASIK (epithelial flap is created). Pain can be moderate to severe, and visual recovery can take months, but does not have the risk of flap complications, with similar visual outcomes at 6 months.
**Laser-Assisted In Situ Keratomileusis (LASIK)**: A cornea stromal flap is created with an infrared laser ("intralase"), or older technology, a metal blade keratome, after which a different excimer laser is used to reshape the exposed corneal stroma to correct refractive error. The corneal flap is then repositioned. Pain is minimal and vision recovery is much faster than PRK (2 to 4 weeks). Flap complications are rare, with a much lower risk of haze formation than PRK. Due to decreased aeromedical complications seen historically, "all-laser custom LASIK" is preferred, as determined by the operating surgeon and patient.
**Small Incision Lenticule Extraction or Refractive Lenticule Extraction** (SmlLE or ReLEx): A similar femtosecond laser technology used for LASIK flap creation is used to create a small intrastromal lenticule of tissue, which is removed to correct the vision. It is considered a variant of LASIK, with a much smaller, stronger, and more stable corneal incision. SmlLE has excellent safety, efficacy, long-term stability, and often improves low contrast vision.
SmlLE is evaluated the same as LASIK with regard to CRS policy and aviation qualification parameters.
**ICL (implantable collamer lens)** or pIOL (phakic intraocular lens): During ICL surgery, a small corneal incision is made to insert an artificial lens just behind the iris, in front of the natural crystalline lens. Since no corneal tissue is removed, ICLs are often used in cases of very high refractive error and/or when the cornea is too thin to manipulate surgically with a laser for vision correction. ICLs provide fast and stable visual recovery and high quality vision. Along with other possible, but uncommon side effects, cataract

development post-operatively is a rare possibility.
ICLs are considered disqualifying in all classes of aviation personnel, but waivers may be considered for applicants and designated members of Classes II, III, IV. For Class I applicants and designated Class I aviators, waivers will not be considered. ICLs are NCD for Class V and ground crew/maintainers.
**Clear/Refractive Lens Extraction (RLE)** will be considered by NAMI on a case-by-case basis for designated members; applicant waivers are not recommended for RLE. Please contact the NAMI Eye Dept for guidance prior to RLE for any winged aviation personnel. Section 12.1 (Cataract) has further information on approved intraocular lenses.
**Orthokeratology ("Ortho-K") or Corneal Refractive Therapy (CRT)** Temporary corneal reshaping through use of a rigid contact lens. A history Orthokeratology ("Ortho-K", rigid contact lens corneal reshaping) is not considered disqualifying provided that it is permanently discontinued prior to any applicant eye exam. Current use of Ortho-K lenses or use in the last 6 months is CD/WNR.
**All other forms of refractive surgery, or any vision or corneal manipulation or surgery, including RK (radial keratotomy), LTK (laser thermal keratoplasty), and ICR (intracorneal ring), are permanently disqualifying (CD/WNR) for all aviation duty Class I, II, III and IV personnel.**
**Refractive surgery (PRK/LASIK/SmILE) without visually significant side effects is not considered disqualifying (NCD) for applicants or designated members that are within the refractive parameters outlined in this chapter. Procedures outside these parameters are considered disqualifying (CD) and may be considered for a waiver on a case-by-case basis, depending on aviation class and military duty status.**

1. Designated members who undergo refractive surgery shall be grounded at the time of surgery, but a grounding physical is not required (if not down for more than 60 days).
2. Designated members who undergo successful refractive surgery without ongoing complications or significant symptoms may be returned to flight duty once they have been cleared by a military eye care provider, and meet the timelines in the table below

| **Minimum time to return to flight for designated aviation personnel** | **LASIK, SmILE or variants** | **PRK or variants** |
|---|---|---|
| | **Hyperopia ≤ +4.00 SE:** 4 weeks<br>**Hyperopia > +4.00 SE:** 8 weeks | **Hyperopia:** 6 months |
| | | **Myopia ≤ -6.00 SE:** 3 months |
| | **Myopia:** 2 weeks | **Myopia > -6.00 SE:** 6 months |

3. A one-time submission of the post-operative CRS aeromedical summary (AMS) form, the pre-operative eye exams, and the laser treatment reports shall be submitted in AERO for all applicants and designated members. Re-treatment procedures shall be treated like initial surgery, and all requirements of initial surgery shall be followed.
4. All members shall be required to meet aviation class vision standards, monitored by annual flight physicals.

**CRS GENERAL GUIDELINES (applicants and designated personnel):**
1. Post-operatively, the member must pass all MANMED vision standards for their class or applicant status. If corrective lenses are needed to pass vision standards after corneal refractive surgery then they must wear corrective lenses while flying.
2. Refractive stability and a satisfactory postoperative slit lamp exam are required. Glare testing with a transilluminator or a Brightness Acuity Tester (BAT) is required for any corneal haze to determine if the level of haze is visually significant or not. Members must meet their aviation class vision standards with glare/BAT testing. Trace, stable, peripheral haze that is not visually significant is NCD and does not require a waiver submission.
3. There must be no symptoms or conditions that would be cause for concern during flight duties, including, but not limited to: post-operative discomfort requiring ongoing care, moderate or severe dry eye

requiring the use of artificial tear drops more than 4 times per day or punctal plugs, recurrent corneal erosions, or visually significant glare, haloes, or starbursts.

4. A subsequent CRS re-treatment or "touch-up" shall be considered as a new initial surgical procedure in terms of meeting aviation class vision standards, with a required submission of the CRS AMS template in AERO. Minimum time requirements must be met to resume flight duties depending on the procedure and treated refractive error.

Applicant re-treatments shall have cumulative refraction values summed for determining maximum refractive parameters for considering qualification.

5. All-laser wavefront-guided LASIK ("custom intralase LASIK) or SmILE is preferred in aviation personnel, as custom treatment may improve visual acuity and final vision outcomes, while eliminating the risk of significant haze complications occasionally seen after PRK. LASIK/SmILE also has a reduced down time in designated personnel, which has a great advantage to returning the member to operational flying duties. LASIK/SmILE is not a requirement for flight, as not all members are candidates for these procedures after being screened by the surgeon, and may require PRK. The final decision of performing PRK vice LASIK/SmILE is made by the patient in discussion with their surgeon.

## Applicants only:

Any procedures that fall outside of the refractive limits defined in MANMED 15-34(3)(b)(2-5) [listed below], or that do not meet requirements defined in this chapter shall be considered disqualifying and submitted to NAMI for review and waiver consideration.

** Aviation standards are more restrictive than the MANMED general duty standard of +/-8.00D.

LASIK/SmILE/PRK are considered disqualifying in all applicants if:

1. Pre-operative refraction is outside the limits listed below for the applicable aviation class applicant
2. Less than 6 months has passed since the last refractive or augmenting procedure at the time of the evaluation.
3. There is ongoing active ophthalmologic treatment or need for ophthalmic medications (other than artificial tears
4. Post-surgical refraction in each eye has not been measured at least one time, 3 months or longer after the most recent refractive procedure.(5)Post-surgical refraction in each eye is not considered stable as demonstrated by two separate refractions obtained at least 1 month apart differing by more than +/-0.50 diopters for spherical correction and cylinder correction.

a. Class 1 (SNA) applicants: A history or corneal refractive surgery (CRS) is considered disqualifying if pre-operative refractive limits exceed +3.00D (SE) hyperopia or -8.00D (SE) myopia for PRK or LASIK/SmILE. Pre-operative cylinder limit is 3.00D. Pre-operative anisometropia must not exceed 3.50D. Procedures performed outside these refractive parameters are considered disqualifying (CD) but may be considered for a waiver on a case-by-case basis.

Intraocular collamer lenses (ICLs) are considered disqualifying, and not permissible or waiverable in SNA applicants.

Post-operative manifest refractive errors must still be within SNA applicant standards.

SNA applicants must have a post-operative cycloplegic refraction using 1% cyclopentolate performed at a military installation. The cycloplegic refraction is to assure the post op refractive error is ≤ +3.00 D in any meridian.

Note: Cycloplegic cylinder (astigmatism) values are not considered, nor is a cycloplegic visual acuity required, but cycloplegic refractions remain most plus to best visual acuity. Cycloplegic autorefractions and streak retinoscopy are acceptable methods to determine the most plus without the need to assess visual acuity.

b. Class II, Ill & IV applicants: History of corneal refractive surgery (CRS) is considered disqualifying if pre-operative refractive error exceed +6.00 SE (hyperopia) or -8.00 SE (myopia) for PRK or LASIK/SmILE.

Pre-operative cylinder limit is 6.00D and the maximum pre-operative anisometropia is 3.50D. Procedures performed outside these refractive parameters, or any intraocular collamer lens (ICL) surgery are considered disqualifying (CD), but may be considered for a waiver on a case-by-case basis, with otherwise excellent posterior pole examination and overall eye health.

c. Civilian applicants must meet all applicant corneal refractive surgery (CRS) parameters, and obtain PRK, LASIK/SmlLE or ICL surgery at their own expense at a civilian refractive surgery center. DoD policy requires a six month minimum wait time prior to being eligible for accession. NAMI requires a military eye examination. All pre-operative eye exams and operative reports, as detailed above, must be submitted in AERO to the NAMI Physical Standards and Qualifications Directorate (Code NA05) as part of the initial flight physical.

d. Active duty applicants:

(1) Active duty applicants who had surgery at a military MTF with a normal and stable post-operative corneal refractive surgery who are applying for aviation programs (i.e. STA-21, UAV operator, NFO/SNFO to SNA transition, etc.), may be considered for accession into their chosen program using the designated timelines (vice 6 months typical requirement). All pre-operative exams and operative reports, as detailed above, must be submitted to the NAMI Physical Standards Directorate (Code NA05) as part of the initial flight physical.

(2) Active duty aviation students (SNA, SNFO, etc.) must obtain specific training command authorization prior to any CRS. Students who have undergone refractive surgery shall adhere to the same refractive parameters and timelines for resuming flight duties as their designated counterparts so as to return to training status as soon as practicable. Active duty aviation students authorized for CRS must undergo refractive surgery at a military refractive surgery center.

**Active duty designated aviation personnel only:**

Designated aviation personnel must satisfy all the above general guidelines and the following timelines based on the type of corneal refractive surgery:

1. PRK in active duty aviation personnel is not considered disqualifying for any refraction or surgery performed at a DoN or DoD refractive surgery center.
2. After PRK, designated personnel may be considered for return to flight duties after the following wait periods:
   a. Less than -6.00D SE (spherical equivalent) myopia: 3 months
   b. Greater or equal to -6.00D SE myopia: 6 months
   c. Any hyperopia SE: 6 months
3. A history of LASIK/SmlLE with pre-op spherical equivalent (SE) more than +6.00D hyperopia or greater than -11.50D myopia is considered disqualifying, and waivers may be considered on a case-by-case basis. Pre-operative refractions less than these limits are not considered disqualifying. Please contact the NAMI Eye Department for specific guidance on members outside the LASIK/SmlLE parameters.
4. After LASIK/SmlLE, designated personnel may be considered for return to flight duties after the following wait periods:
   a. Myopia correction less than or equal to -11.5 D SE myopia: 2 weeks
   b. Any hyperopia up to and equal to +4.00 D SE: 4 weeks
   c. Hyperopia more than +4.00D SE and less than or equal to +6.00D SE: 8 weeks
5. Intraocular Collamer Lens: a history of ICL surgery for any pre-operative refraction is disqualifying for aviation personnel. Waivers may be considered on a case-by-case basis for Class II, III or IV personnel after a one month wait, and cleared by the surgeon.
6. Topical artificial tears, for mild dry eye are not disqualifying for return to flight consideration. Other ongoing post-surgical complications requiring other prescription medications are considered disqualifying.
7. Class I, II, III & IV active duty aviation personnel must undergo refractive surgery at a DoD refractive surgery center.
8. For PRK, pre-operative refractive limits are per the FDA limits for the particular refractive laser platform utilized, for already designated personnel within their aviation class. For LASIK/SmlLE, pre-

operative refractive limits are as follows: myopia up to -11.5 D spherical equivalent (SE), hyperopia up to +6.00D (SE), and up to 6D of cylinder (astigmatism correction). Individuals who fall outside these limits may submit a waiver request to NAMI for consideration, as they do not meet the standards necessary for their procedure to be NCD.

9. The CRS AMS worksheet is required to be submitted in AERO to NAMI Code NA05 for ALL refractive surgery procedures (both NCD and CD) once stability and required wait times to resume flight duties have been met.

10. OPERATIONAL TRAINING: Ongoing military requirements such as tear gas (CS), pepper spray, water survival training, dusty/dirty environments, etc., may have a deleterious effect upon post-surgical eyes. Recommended wait-times after surgery are outlined in the table of at the end of this chapter for members with a normal post-operative course and cleared by their eye care provider.

11. DEPLOYMENT AFTER CRS: Members may not deploy for at least three months after PRK and one month after LASIK surgery (BUMEDINST 6490.1 “Warfighter Refractive Surgery Program” of 08JUN2018).

### Selected Reserve designated aviators:

Reservists must adhere to all of the above general guidelines and the following reserve specific guidelines:

1. May obtain PRK or LASIK/SmlLE at their own expense from a civilian ophthalmologist.

2. NAMI Eye Department may be contacted directly if there are any questions pertaining to a specific corneal refractive surgery procedure. Contact NAMI Eye at 850-452-2933 or usn.pensacola.navmedotcnamefl.list.nami-ophthal@mail.mil.

3. Just like any other elective procedure for aviation members, final approval to proceed with refractive surgery requires written permission from the unit commander with input from the unit flight surgeon.

**Refractive Surgery Parameters**
(Considered Disqualifying outside these limits)

<table>
<tr><th></th><th>LASIK/SmILE</th><th>PRK</th></tr>
<tr><td rowspan="4">Pre-Op Refractive Limits (Applicant)</td><td colspan="2">Class I: +3.00 to -8.00 SE</td></tr>
<tr><td colspan="2">Class II/III/IV: +6.00 to -8.00 SE</td></tr>
<tr><td colspan="2">3.00 D cylinder</td></tr>
<tr><td colspan="2">3.50 D Anisometropia</td></tr>
<tr><td rowspan="2">Pre-op refractive limits (Designated)<br>*Must be performed at a DOD refractive surgery center</td><td>Myopia: -11.50 SE with no more than 6D total cylinder</td><td rowspan="2">No Limits</td></tr>
<tr><td>Hyperopia: +6.00 SE with no more than 6D total cylinder</td></tr>
<tr><td rowspan="3">Return to flight time for designated aviation personnel</td><td rowspan="2">Hyperopia≤+4.00 SE: 4 weeks<br>Hyperopia > +4.00 SE: 8 weeks</td><td>Hyperopia: 6 months</td></tr>
<tr><td>Myopia ≤-6.00 SE: 3 months</td></tr>
<tr><td>Myopia: 2 weeks</td><td>Myopia > -6.00 SE: 6 months</td></tr>
<tr><td>BUMED deployment policy</td><td>1 month post op</td><td>3 months post op</td></tr>
</table>

- Refractive surgery within the parameters above is not considered disqualifying for flight duties.
- Pre-operative exams, laser operative reports and Aeromedical Summary worksheet (AMS) MUST be submitted in AERO prior to return to flight authorization by flight surgeon.
- Waivers may be considered for CRS outside these specific parameters on a case-by-case basis.
- Civilian applicants must obtain PRK or LASIK at their own expense from a civilian facility.
- Civilian applicants: The minimum time between surgery and flight physical eye exam is 6 months.

REFRACTIVE SURGERY DISCUSSION:
The goal of corneal refractive surgery is to reduce or eliminate dependence on spectacles or contact lenses, which can be distracting and reduce performance of flight duties. Refractive surgery (LASIK/PRK) has been studied extensively in the aviation environment and has yielded highly satisfying results for vision, comfort, and performance. More than 95% of Naval Aviators reported "increased effectiveness" after undergoing refractive surgery.
When seeking corneal refractive surgery it is incumbent upon the member and the member's commanding officer and flight surgeon to be aware of the requirements defined in this guide, and in the Manual of the Medical Department, and to be willing to adhere to the timelines and parameters therein before being allowed to resume flight duties.
For unusual circumstances or concerns, NAMI Eye Department remains available for consultation through phone or email: 850-452-2933;
usn.pensacola.navmedotcnamifl.list.nami-ophthal@mail.mil

ICD-10 CODES:
08Q8XZZ Repair Right Cornea, External Approach (PRK or LASIK)
08Q9XZZ Repair Left Cornea, External Approach (PRK or LASIK)
Z98.89 Other specified postprocedural states
CPT Codes: S0810 for PRK & S0800 for LASIK

**Recommended Wait Times for Activities after Refractive Surgery**

**-LASIK (Laser-Assisted In Situ Keratomileusis):** The greatest risk after LASIK is flap dislocation. Avoid activities that might cause trauma to the flap.

**-PRK (PhotoRefractive Keratectomy):** The greatest risk after PRK is corneal surface irritation and haze. During the first 3-4 months after surgery, avoid activities that might irritate the surface of your eyes, and avoid exposure to ultraviolet (UV) light by wearing sunglasses (with UVA/UVB protection) when outdoors during the day.

**-ICL (Implantable Collamer Lens):** The greatest risk after ICL is infection inside the eye. Avoid lifting or bending over, trauma to the eye, and avoid activities that increase infection risk such as swimming and gardening.

<table>
<tr><th></th><th>ICL</th><th>LASIK/SmILE</th><th>PRK</th></tr>
<tr><td>Showering or washing face.</td><td colspan="3">No restriction.<br>Notes: You should always avoid getting water in the eyes and pat the eyes dry; do not rub the eyelids dry.</td></tr>
<tr><td>Air travel as a passenger</td><td colspan="2">3 days</td><td>5-7 days (after removal of bandage contact lens)</td></tr>
<tr><td>Aerobic activity (walk, run, bike, exercise machines) or weight training. Notes: Avoid getting sweat, dust, or wind in eyes.</td><td>2 weeks</td><td>As soon as pain and light sensitivity have resolved: 1-2 days.</td><td>As soon as pain and light sensitivity have resolved: 3-5 days.</td></tr>
<tr><td>Bending over--toe touches, sit-ups</td><td>2 weeks</td><td colspan="2">No restriction.</td></tr>
<tr><td>Contact sports: Martial arts, basketball, boxing, wrestling</td><td colspan="2">1 month.<br>Note: CRS increases lifetime risk of opening surgical wounds with trauma to the eye. Wear eye protection.</td><td>1 month.</td></tr>
<tr><td>Exposure to hot tubs, pools, lakes, ocean, river</td><td colspan="3">1 month<br>Note: Risk of infection from contaminated water</td></tr>
<tr><td>Wearing eye make-up, including camouflage face paint</td><td colspan="3">2 weeks<br>Note: Infection risk from contaminated make-up. When make-up use is resumed, start with new, freshly opened products. Old eye makeup should be discarded.</td></tr>
<tr><td>Working in a dusty or dirty environment: outdoor rifle range, deploying to the field, gardening</td><td>1 month</td><td>2 weeks</td><td>1 month</td></tr>
<tr><td>CS exposure (gas chamber) or OC spray (pepper spray) exposure</td><td colspan="2">3 months</td><td>6 months</td></tr>
<tr><td>Driving an automobile motorcycle with goggles or face shield</td><td colspan="3">When you meet the driving vision requirement and feel comfortable.</td></tr>
<tr><td>Wearing UV protection (sunglasses)</td><td colspan="2">Wear UV protection whenever practical.</td><td>Full time first month<br>As much as possible the 2nd-4th months and whenever practical afterwards.</td></tr>
</table>

**Ask your doctor if you have questions about these or other activities.**

## 12.16 NAVAL AVIATION CONTACT LENS POLICY

Last Revised: JUL 18 Last Reviewed: APR 25

All classes of Naval aviation personnel shall be allowed to wear contact lenses during duty involving flight when the following requirements have been met as outlined below, and allowed by local commander's policy in theater. A notation from the flight surgeon authorizing contact lens use is required on the aeromedical clearance notice (up-chit) DD2992. Contact lens use is not considered disqualifying (NCD). A waiver for their use is not required. Note: funding is typically not available for student aviators.

**REQUIREMENTS:**

1. Visual requirements specific to each class and service group must continue to be met while wearing contact lenses.
2. Near visual acuity must be 20/20 in each eye. Presbyopic personnel may use spectacles over their contacts to achieve this standard.
3. There must be no symptoms incompatible with safe flight, e.g. fluctuating vision, reduction in vision at night or under glare conditions, or discomfort.
4. Must have worn contact lenses on a daily basis without complication for a minimum of two weeks before their use can be authorized on the "up-chit."
5. The prescribing eye doctor must note in the patient's record that a good fit has been achieved and that no further changes are planned.
6. Soft contact lenses (SCLs) are not to be worn overnight while in flight training or flight status unless operationally mandated. If extended contact lens wear (greater than 24 hours) is an operational requirement, lenses may be worn for a maximum of seven consecutive days. Personnel are encouraged to limit extended wear to the shortest period possible. A minimum 12 hour recovery period, during which no contact lenses are worn, shall follow each extended wear period. Rigid gas permeable lenses shall not be used overnight.
7. During aviation duties, it is the responsibility of all contact lens wearers to carry clear spectacles in a readily accessible protective case, which correct the wearer's vision to all applicable standards.
8. Follow-up examinations for personnel wearing contact lenses shall be conducted at least annually by a military optometrist or ophthalmologist.

**APPROVED CONTACT LENSES:**

1. Only nationally available, FDA approved lenses and solutions are allowed.
2. FDA approved silicone hydrogel contact lenses are the most commonly prescribed soft contact lenses (SCL) for Naval aviation personnel. Rigid gas permeable lenses are permissible, but strongly discouraged. Note: Dailies (discarded after one day of wear) are okay for flight; however, they will typically not be purchased and supplied by the MTF Optometry clinic due to their higher cost.
3. The following are NOT authorized:
   a. Bifocal/multifocal/monovision contact lenses.
   b. Cosmetically tinted contact lenses.
   c. Sports tinted contact lenses (e.g. amber or green).
   d. Contact lens wear for corneal refractive therapy (Ortho-K).
4. The following are only authorized with an appropriate waiver:
   a. Combinations of rigid and soft contact lenses.
   b. Contact lens use for therapeutic reasons such as keratoconus or basement membrane dystrophies.

For any other questions regarding specific brands of contact lenses or waiver issues, please contact:

Phone: NAMI Eye Department at 850-452-2933

Email: usn.pensacola.navmedotcnamifl.list.nami-ophthal@health.mil

## 12.17 ALLERGIC CONJUNCTIVITIS

Last Revised: AUG 16 Last Reviewed: AUG 16

**AEROMEDICAL CONCERNS:** The condition can cause blurred vision, ocular itching, burning, tearing/discharge, eyelid edema, and photophobia. These signs and symptoms, along with the use of medications with unacceptable side effects, have the potential for in-flight incapacitation and prolonged periods of grounding.

**WAIVER:** Chronic/perennial allergic conjunctivitis is CD for entry into the Service according to MANMED. Allergic conjunctivitis waivers are typically recommended for applicants and designated members with minimal or well-controlled symptoms on approved medications. Severe and/or uncontrolled chronic/perennial and seasonal allergic conjunctivitis are CD with waivers not recommended for aviation applicants. If controlled with no or mild occasional symptoms on approved meds then waiver requests generally are favorable. All forms of allergic conjunctivitis in designated personnel, if controlled with no or minimal occasional symptoms, are NCD. The member shall be grounded while symptomatic. A waiver is not required if the member is treated with an approved medication. If the condition is associated with rhinitis, see chapter 6.1, ALLERGIC/VASOMOTOR RHINITIS.

**Information Required:**

1. Full history of condition including past diagnoses and treatments
2. Latest examination to include current diagnosis and prognosis and complete symptomology report with seasons specified.
3. Current medications.

**TREATMENT:** Mild symptoms of allergic conjunctivitis may be relieved by cool compresses and artificial tears to flush away the allergens. In addition to cool compresses and artificial tears, moderate to severe symptoms may require ophthalmic anti-histamines, mast cell stabilizers, or corticosteroids.

Topical ophthalmic anti-histamines/mast cell stabilizers, vasoconstrictors, decongestants, NSAIDS, and corticosteroids have minimal to no systemic effects and do not affect aeromedical concerns such as G-tolerance and fatigue. Although these ophthalmic topical treatments are NCD (approved for use in aviation personnel), the acute disease of allergic conjunctivitis is still CD and will be a “down” condition if the symptoms are not controlled.

The combination antihistamine/mast cell stabilizer drops are often a great choice for treatment. They include (not necessarily all inclusive):

- Alcaftadine (Lastacaft, Allergan)
- Azelastine (Optivar, Meda Pharmaceuticals; generic available)
- Bepotastine (Bepreve, Bausch +Lomb)
- Epinastine (Elestat, Allergan; generic available)
- *Ketotifen (Zaditor, Alcon, generic; Alaway, Bausch + Lomb, many generics. ***This drop is OTC**
- Olopatadine (Patanol/Pataday/Pazeo, Alcon)
- **Bepotastine (Bepreve, Bausch + Lomb) **2nd gen H1-antihistamine, no mast cell stabilizer

*NOTE: If necessary for severe seasonal allergic conjunctivitis, non-sedating oral antihistamines may also be used, see 6.1 ALLERGIC/VASOMOTOR RHINITIS for an approved list of medications.

**DISCUSSION:** Two forms of allergic conjunctivitis are quite common: seasonal (SAC) and perennial (PAC). SAC coincides with pollen blooms (e.g., ragweed, trees, grasses). PAC may occur at any time

or even year round (e.g., exposure to ubiquitous cat dander, chemicals or dust). The most effective treatment is elimination or avoidance of the potentially offending allergen, although this may not always be possible or practical. Due to the potential chronicity of allergic conjunctivitis, long-term use of medication may be necessary to keep the member asymptomatic for aviation duties, including nasal and inner ear functionality. The flight surgeon should be cognizant that the aviator or aircrew member may have residual allergy symptoms such as itchy, tearful eyes, runny nose, sneezing, scratchy throat and other allergic symptoms, which would preclude flight until effectively treated. Contact lenses may exacerbate the condition and should not be worn until the member is asymptomatic.

**ICD-10 CODES:**
H10.45 Other chronic allergic conjunctivitis
H10.10 Acute atopic conjunctivitis, unspecified eye
H10.11 Acute atopic conjunctivitis, right eye
H10.12 Acute atopic conjunctivitis, left eye
H10.13 Acute atopic conjunctivitis, bilateral

## 12.18 CENTRAL SEROUS RETINOPATHY

Last Revised: AUG 16 Last Reviewed: APR 25

**AEROMEDICAL CONCERNS:** Central serous retinopathy (CSR) is a unilateral, localized detachment of the retina in the macular region, which may cause decreased or dim vision, distortion or miniature appearance of objects, and/or washed out color vision.

**WAIVER:** Any history of CSR is considered disqualifying (CD). Waivers will not be considered for applicants (CD/WNR), but may be considered for designated personnel. Evaluation by an optometrist or ophthalmologist is required with an annual submission.
***Local boards are authorized for initial cases of CSR once condition has resolved (cleared by optometry/ ophthalmology), if less than 60 days has elapsed since diagnosis, best corrected visual acuity has returned to the aviator's specific class standard, the aviator is asymptomatic to visual disturbances, and no metamorphopsias are noted on Amsler Grid testing.*** Recurrent cases of CSR require a new waiver to be submitted for review and approved by NAMI for each new episode (no local boards authorized). **A grounding physical is required if more than 60 days has elapsed since diagnosis without resolution.**

**INFORMATION REQUIRED:**
1. Fundus examination by optometrist or ophthalmologist
2. Amsler grid, documenting any metamorphopsia
3. Optical coherence tomography (OCT) reports
4. Humphrey Visual Field 10-2 (only required if laser treatment was performed)
5. Fluorescein angiography (optional, at the discretion of the treating ophthalmologist, submit if performed and photos available)

**TREATMENT:** CSR is self-limiting with a good prognosis for most patients. Eye exams should be performed every 4-6 weeks until the condition has resolved and vision has stabilized and returned to baseline. Ocular coherence tomography should be performed upon diagnosis and after subjective/objective findings have resolved. In certain cases, laser photocoagulation may be considered to enhance recovery, but may leave a small permanent blind spot.

**DISCUSSION:** Central serous retinopathy can be visually debilitating to a patient's central vision and results in normal to decreased visual acuity ranging from 20/20 to 20/200. This condition usually occurs in males (10:1), 20 to 50 years old, and is associated with type-A personalities and increased stress levels. Patients typically recover normal visual acuity, but a small number of patients may not return to 20/20. Resolution usually occurs over a course of 4-6 months, with continuing improvement in visual acuity over 24 months. Prognosis is worse for patients with recurrent or prolonged disease. Laser photocoagulation may be considered for occupational reasons, if CSR occurs in the contralateral eye, or if no resolution has occurred in more than 4-6 months. Laser intervention may shorten duration by up to 2 months, but typically has no effect on the final visual acuity outcome, and may cause small blind spots in the treated eye.

**NOTE:** If best corrected visual acuity (BCVA) does not return to class standards, see 12.3, Decreased Visual Acuity.

**ICD-10 CODES:**
H35.711 Central serous chorioretinopathy, right eye
H35.712 Central serous chorioretinopathy, left eye
H35.713 Central serous chorioretinopathy, bilateral

## 12.19 PIGMENT DISPERSION SYNDROME

Last Revised: APR 25 Last Reviewed: AUG 25

**AEROMEDICAL CONCERNS:** Pigment Dispersion Syndrome (PDS) is a bilateral condition characterized by the liberation of pigment granules from the posterior iris, which deposit on the posterior cornea, anterior iris, and trabecular meshwork. PDS has the potential to increase intraocular pressure, leading to secondary glaucomatous damage to the optic nerve and reducing peripheral vision. The classic "triad" of PDS consists of pigment on the corneal endothelium (Krukenberg spindle), trabecular meshwork hyperpigmentation, and transillumination defects (TID) of the iris.

**WAIVER:** A diagnosis of PDS is disqualifying for aviation personnel.

Waivers are considered for designated personnel if intraocular pressure (IOP) is 22 mmHg or less in each eye when taking into account corneal thickness (corrected IOP), with no more than 4 mmHg difference between the eyes, normal visual fields (Humphrey 30-2 or 24-2 preferred), no glaucomatous changes present in the optic disc, and no treatment (pressure lowering drops/laser) is indicated. ***Local boards are authorized for designated personnel with normal corrected IOP, as long as no treatment is indicated, and no signs of glaucoma are present on ophthalmologic examination (normal visual fields, normal optic nerve appearance).***

Applicants presenting with a Krukenberg spindle or trabecular meshwork hyperpigmentation, but without transillumination defects, will be considered for a waiver if the corrected IOP is 22 mmHg or below in each eye and no laser or medical treatment is indicated. Applicants with transillumination defects or a corrected IOP above 22 mmHg in either eye will not be considered for a waiver (CD/WNR) due to the higher risk of conversion to pigmentary glaucoma in future years.

If corrected IOP measurements are above 22 mmHg by applanation tonometry on two separate occasions, or if laser/medical treatment is required for management of PDS, then the diagnosis should be converted to pigmentary glaucoma (PG - see Glaucoma chapter 12.8).

**INFORMATION REQUIRED FOR INITIAL WAIVER:**

1. Eye exam by a Navy optometrist or ophthalmologist
2. IOP measurement by applanation tonometry (Goldmann) or iCare
3. Central corneal thickness (CCT) measurement (Pachymetry) with estimated IOP correction factor
4. Automated visual field (24-2, 30-2 SITA acceptable)
5. Optic nerve evaluation with comment on health of neural rims, with **color** disc/optic nerve head photos uploaded into AERO
6. Slit lamp examination with comment on anterior segment findings related to PDS
7. Gonioscopy to document trabecular meshwork hyperpigmentation

**INFORMATION REQUIRED FOR WAIVER CONTINUATION:**

1. Eye exam by a Navy optometrist or ophthalmologist
2. IOP measurement by applanation tonometry (Goldmann) or iCare
3. Automated visual field (24-2, 30-2 SITA acceptable)
4. Optic nerve evaluation with comment on health of neural rims, with **color** disc/optic nerve head photos uploaded into AERO
5. Slit lamp examination with comment on anterior segment findings related to PDS

**TREATMENT:** Besides annual monitoring of PDS, treatment is usually not initiated if IOP is 22 mmHg or less, and there are no signs of glaucomatous changes. However, any glaucomatous changes or elevation of IOP may cause the eye provider to recommend pressure-lowering medications or laser treatments (See Glaucoma chapter, 12.8 for more discussion on waivers for glaucoma, keeping in mind that first line and second line treatment strategies may vary with PDS/PG).

**DISCUSSION:** Pigment dispersion syndrome (PDS) is a bilateral condition that typically occurs in young adult males (2:1) under the age of 45. PDS is characterized by liberation of pigment granules from the posterior iris, depositing in the anterior chamber structures. It can appear asymmetric between the eyes.
Deposition of this pigment occurs on the posterior corneal surface ('Krukenberg spindle' on the endothelium) and in the anterior chamber angle trabecular meshwork (TM). Pigment in the TM is deposited in a homogenous pattern, unlike other entities that can cause TM hyperpigmentation (uveitis, exfoliation syndrome, melanoma, IOL-iris chaffing). Fine pigment granules can also been seen on the anterior iris surface and the anterior lens capsule. Pigment liberation occurs as a result of the posterior pigment epithelium of the iris rubbing against the crystalline lens zonules. Slit-like transillumination defects (TID) will be seen in a radial pattern in the mid-periphery of the iris when a bright light is shown through the pupil, best seen in a very dark room in the slit lamp. Pigment liberation can also occur due to ocular trauma or surgery, but TI defects will rarely be seen. The typical patient with PDS is a young, white male who is myopic with a slightly concave iris posture. It is uncommon in persons with African or Asian ancestry, but occurs in up to 2% of the Caucasian population. It appears to have incomplete penetration by way of autosomal dominant inheritance.

PDS can lead to pigmentary glaucoma (PG), which is a type of secondary open-angle glaucoma when pigment impairs the trabecular meshwork, impeding aqueous outflow. Conversion of PDS to PG occurs in approximately 20% of PDS patients within 10 years of initial diagnosis. PG is diagnosed when the classical triad of PDS is present (Krukenberg spindle, iris trans-illumination defects, and trabecular meshwork hyperpigmentation), along with progressive optic nerve cupping, glaucomatous visual field changes and ocular hypertension. Treatment should be begun if the IOP is elevated, even without optic nerve degeneration or visual field abnormalities, to reduce the risk of future optic nerve damage and vision loss.

**ICD-10 CODES:**
H21.231 Degeneration of iris (pigmentary), right eye
H21.232 Degeneration of iris (pigmentary), left eye
H21.233 Degeneration of iris (pigmentary), bilateral
H40.1310 Pigmentary glaucoma, right eye, stage unspecified
H40.1320 Pigmentary glaucoma, left eye, stage unspecified
H40.1330 Pigmentary glaucoma, bilateral, stage unspecified
H40.1390 Pigmentary glaucoma, unspecified eye, stage unspecified

## 12.20 RETINAL DEGENERATION, HYPERPIGMENTATION AND HOLES

Last Revised: JUL 18 Last Reviewed: APR 25

**AEROMEDICAL CONCERNS:** Certain peripheral retinal degenerations and types of retinal holes are significant risk factors for retinal detachment, which can cause a painless, sudden loss of vision that may permanently impact peripheral and central vision. Retinal degenerations are commonly seen in highly myopic individuals and the increased risk of retinal detachment (RD) remains elevated even after corneal refractive surgery is performed.

**WAIVER:** Retinal holes and any peripheral retinal degeneration or defect that impairs vision, that is considered progressive, has potential to be progressive, or impairs vision is considered disqualifying (CD). Applicant waiver requests will be reviewed by NAMI on a case-by-case basis. Local boards are not authorized unless specifically stated. Comprehensive dilated eye exam notes to include drawings, pictures and comments on prognosis must accompany all waiver requests.

Note: A diagnosis of "white without pressure" is a descriptive term for the appearance of the retina and is Not Considered Disqualifying (NCD). Paving stone (Cobblestone) degeneration is a benign lesion not associated with complications and is NCD.

Guidance for designated aviation personnel and applicants are as follows:

- **Peripheral Retinal Degenerations** (i.e. Lattice degeneration, snail track degeneration) – Typically, an annual waiver with an annual Dilated Fundus Exam (DFE) is recommended in the absence of retinal detachment. NAMI may opt for a routine waiver on low risk cases. Local boards are authorized after DFE is performed to assess stability and rule out retinal detachment.

- **Peripheral Retinal Hole** –
    - Small atrophic peripheral holes are usually innocuous and generally do not require treatment, but should be monitored for progression or subretinal fluid development over time by annual dilated examinations. If the hole is considered stable with no sub-retinal fluid and treatment is not indicated, retinal holes may typically be considered for an annual waiver with DFE (performed by optometry or ophthalmology).
    - Some holes may require ophthalmologist consultation.
    - Holes treated with laserpexy (laser retinopexy) may be considered for an annual waiver with DFE after one month follow-up time has elapsed and the surgeon has determined stability. ***Local boards, in this situation, are authorized after ophthalmology determines fitness for full duty.***

- **Choroidal Nevus –** Typically a benign retinal entity with a low possibility of malignant transformation. Routine monitoring is required to discover any changes in a timely manner. Choroidal nevi are typically CD/WR, with due consideration for the presence of high risk transformation factors.

- **Congenital Hypertrophy of the Retinal Pigment Epithelium (CHRPE) –** CHRPE outside the arcades are NCD and do not require a waiver. CHRPE inside the arcades are CD but routinely waivered. Waivers are typically routine with a dilated fundus exam (DFE) required to monitor for progression. Local boards are authorized for a definitive diagnosis of CHRPE.

- **Retinal Tear/Detachment** – CD, ***no local boards authorized***. See section 12.7, Retinal Detachment Chapter for more information and waiver guidance for applicants and designated aviation personnel.

- **NOTE: Small, mild macular drusen in an otherwise young, healthy individual without visual disturbance, symptoms, or presence of disease on fundoscopy or Optical Coherence Tomography are typically CD, with waiver recommendation for routine submission of a fundus evaluation.**

**INFORMATION REQUIRED:**

1. Eye exam with DFE by an optometrist or ophthalmologist with comment on long-term prognosis.
2. Detailed retinal drawings or photographs.
3. Other ocular tests including Optical Coherence Tomography (OCT), Fluorescein Angiography (FA), etc. if performed.

**TREATMENT:** Patient education and monitoring with a comprehensive eye exam, including dilated fundus examination, is the most common course of action for patients with peripheral retinal degenerations and retinal holes. Patients with certain types and locations of retinal holes should be further evaluated with scleral depression to ensure the stability of the hole and determine presence or absence of shallow retinal detachment. Most small, stable holes are monitored annually, but may require prophylactic laser treatment to reduce the risk of future detachment. Patients should be aware of the symptoms of retinal detachment, including an increase of flashing lights, floaters, or blurry or obscured areas of vision beginning in the periphery. The patient should be educated to return to the clinic for a repeat dilation immediately if they experience these symptoms.

**DISCUSSION:** Peripheral retinal degenerations (specifically lattice and snail-track degenerations) are vitreoretinal changes in the retina and overlying vitreous usually located in the far periphery. The involved retina thins and becomes fibrotic, resulting in vitreous pockets (lacuna) forming above the affected areas of the retina. Lattice degeneration is clinically prevalent in 10% of patients and is usually non-pigmented, but may become hyperpigmented in 30% of cases. Half the cases of lattice are bilateral, symmetrical, and refractive error does not play an important factor in the development (seen in 15% of high myopic patients). Snail track lesions occur in up to 80% of eyes with lattice degeneration and can be associated with myopia. Although 30% of retinal detachment patients have a predisposed peripheral retinal degeneration, the clinical rate of detachment is only 0.5%. Asymptomatic, low risk lattice degeneration should not be treated with laserpexy. For lattice lesions at higher risk for tears and detachments, prophylactic therapy generally should be instituted to reduce that risk.

Thinning of the retina may lead to the formation of atrophic holes or retinal breaks in 25% of patients, but the frequency of retinal detachment as a result of retinal holes is low (3-14%). Most atrophic holes do not require any treatment since they are not associated with vitreous traction.

Retinal 'white without pressure' (WWOP) is an optical phenomenon in which vitreous traction changes the retinal coloration upon examination. WWOP is usually bilateral and observed in 5% of patients over 20 years of age, but roughly 66% in patients over 70 (30% of the total population). White without pressure is an incidental finding and there is no associated risk of retinal holes, tears, or breaks with this condition.

**ICD-10 CODES:**
H33.321 Round hole, right eye
H33.322 Round hole, left eye

H33.323 Round hole, bilateral
H35.40 Unspecified peripheral retinal degeneration
H35.431 Paving stone degeneration of retina, right eye
H35.432 Paving stone degeneration of retina, left eye
H35.433 Paving stone degeneration of retina, bilateral
H35.411 Lattice degeneration of retina, right eye
H35.412 Lattice degeneration of retina, left eye
H35.413 Lattice degeneration of retina, bilateral
D31.30 Benign neoplasm of unspecified choroid
D31.31 Benign neoplasm of right choroid
D31.32 Benign neoplasm of left choroid
D49.81 Neoplasm of unspecified behavior of retina and choroid
Q14.1 Congenital malformation of retina
H35.9 Unspecified retinal disorder

## 12.21 CORNEAL DYSTROPHIES, DEGENERATIONS, AND SCARS

Last Revised: JUL 18 Last Reviewed: APR 25

**Aeromedical Concerns:**
Corneal dystrophies and degenerations are corneal disorders that negatively impact vision and increase the risk of recurrent corneal erosions. These opacifying conditions can adversely affect flight performance and safety, and need to be thoroughly documented and monitored to ensure they do not negatively impact vision.

**Waiver:**
1. A diagnosis of any corneal dystrophy/degeneration is considered disqualifying (CD) for all aviation personnel. Applicant waivers will be considered based on the classification of the dystrophy/degeneration, a thorough eye examination by an eyecare provider, and a detailed patient history. Waivers will not be considered for applicants with history of corneal surgery to treat the dystrophy/degeneration, with a history of longstanding recurrent corneal erosions due to the degeneration or dystrophy, or with a diagnosis of a progressive type of dystrophy/degeneration.
2. In designated aviators, waivers will be considered for those who meet vision standards with manageable symptoms.
3. Corneal opacities that are old, small, peripheral, and asymptomatic are NCD.

*NOTE: Central corneal scarring requires glare testing as specified in the cataract section, 12.1. Small areas of mild peripheral corneal scarring do not require glare testing if judged by the examining eye doctor to be visually insignificant.

**Information Required:**
1. All eye exams concerning the diagnosis of a corneal dystrophy/degeneration.
2. All treatments done to resolve the condition (include medications and surgical treatments).
3. All pertinent tests performed by the eye doctor.
   **NOTE**: For waiver continuances, the current exam with all relevant tests is required.

**Treatment:**
Treatment options are varied based on classification of the dystrophy/degeneration. Management and treatment options can include the use of artificial lubrication, hypertonic solutions and ointments (muro-128), topical steroids, bandage contact lenses, or surgical intervention. Close coordination between the eye doctor and the flight surgeon is required.

**Discussion:**
**Corneal dystrophies** consist of a group of progressive non-inflammatory corneal disorders, which tend to be bilateral. These opacifying disorders can have a negative impact on vision. They also increase the risk of recurrent corneal erosions. They tend to present centrally and are generally genetically determined. The onset, signs, impact on vision, and treatment options will vary depending on the corneal layer affected by the dystrophy.

In contrast, **corneal degenerations** tend to have less impact on ocular function and vision. They tend to increase in prevalence with age. It is thought they are exaggerated from inflammatory and other harmful environmental conditions. Degenerations are not inherited and can be either bilateral or unilateral. Many times they will be associated with neovascularization. They tend to involve the

peripheral cornea before the central cornea. The impact on vision and treatment options will vary depending on the corneal layer affected by the degeneration.

**ICD-10 Codes:**
H18.40 Unspecified corneal degeneration
H18.469 Peripheral corneal degeneration, unspecified eye
H18.49 Other corneal degeneration
H18.51 Endothelial corneal dystrophy
H18.52 Epithelial (juvenile) corneal dystrophy
H18.53 Granular corneal dystrophy
H18.54 Lattice corneal dystrophy
H18.55 Macular corneal dystrophy
H17.11 Central corneal opacity right eye
H17.12 Central corneal opacity left eye
H17.811 Minor opacity of cornea right eye
H17.812 Minor opacity of cornea left eye
H17.821 Peripheral opacity of cornea right eye
H17.822 Peripheral opacity of cornea left eye
H17.89 Other corneal scars and opacities
H17.9 Unspecified corneal scar and opacity

## 12.22 RECURRENT CORNEAL EROSION

Last Revised: JUL 18 Last Reviewed: APR 25

**Aeromedical Concerns:**
Recurrent corneal erosion (RCE) is a disorder resulting in the improper or insufficient adhesion of the corneal epithelium to the epithelial basement membrane. RCE is characterized by the repeated breakdown of epithelium. RCE can cause moderate to severe eye pain, often with sudden onset, that typically occurs at night while sleeping. Photophobia, lacrimation, and conjunctival injection are typical associated findings. Corneal scarring, which has the potential to cause significant visual complications, can occur. All of these signs and symptoms can result in significant interruption of flight duties. RCE can be caused by corneal refractive surgery (CRS), trauma, or corneal dystrophy (rare).

**Waiver:**
A diagnosis of RCE is considered disqualifying (CD) for all aviation personnel. Waivers will be considered for applicants with RCE due to trauma or corneal refractive surgery. Waivers will not be considered for applicants with RCE resulting from sight threatening corneal dystrophies or degenerations. Waivers will be considered for designated personnel with RCE of any etiology on a case-by-case basis.

**Information Required:**
**Initial Waiver:**
1. Past eye exams with a diagnosis of a RCE.
2. Documentation of medications and surgical treatments.

**Waiver Continuance:**
1. Current eye exam by eye doctor.
2. Comment by flight surgeon on current symptoms or lack thereof.

**Treatment:**
Treatment options are varied based on size, location, and recurrence rate. Initial treatment options include the use of artificial tears, hypertonic solutions and ointments (muro-128), topical steroids, amniotic membrane grafts, and low-dose oral doxycycline. Epithelial debridement, phototherapeutic keratectomy (PTK), alcohol delamination, corneal stromal micro-puncture, or diamond burr keratectomy may be utilized if no response is demonstrated to initial therapy. Treatments beyond artificial tears and ointments are typically downing for flight.

**Discussion:**
Recurrent corneal erosions are extremely painful and have a major impact on vision and flying duties. RCE can take weeks to months to fully heal. Artificial tears and hypertonic solution usage can significantly reduce the risk for future erosion episodes. In order to decrease the risk of further injury or impedance of healing, patients with RCE should be educated on proper nighttime instillation of artificial tears, without opening eyes, if awakened by an episode.

**ICD-10 Codes:**
H18.831 Recurrent erosion of cornea, right eye
H18.832 Recurrent erosion of cornea, left eye
H18.833 Recurrent erosion of cornea, bilateral
H18.839 Recurrent erosion of cornea, unspecified eye

# AVIATION PHYSICAL STANDARDS FOR APPLICANTS MAR 2021 (USN/USMC)

| BLOCKS ON DD 2808 | ITEM | | SNA | SNFO | SNFS, SNAP, SNAEP, SNAO, SNAPA (Aeromedical) | AIRCREW (Fixed Wing) | AIRCREW (Rotary Wing) | AIR TRAFFIC CONTROLLER | UAV/UAS |
|---|---|---|---|---|---|---|---|---|---|
| 73 | SLIT LAMP/TOPO | | **REQUIRED**[Note4] | **SLIT LAMP REQUIRED, TOPOGRAPHY NOT REQUIRED** | | | | | |
| 61 | DVA | | ≤ $20/40^{-0}$ and correctable to 20/20 10/10 Goodlite | No limit uncorrected **Correctable to $20/20^{-0}$ Snellen OR $20/20^{-3}$ (7/10) correct on AFVT or Magnetic Non-Memorization Chart (Goodlite Chart)** | | | ≤20/100 **Correctable to 20/20-0 Snellen OR 20/20 7/10 on AFVT or Goodlite Chart** | No limit uncorrected **Correctable to $20/20^{-0}$ Snellen OR $20/20^{-3}$ (7/10) on AFVT or Magnetic Non-Memorization Chart (Goodlite Chart)** | |
| 62 | Ref. error | **Manifest** (Note 1) | -1.50 to +3.00 All Meridians | ≤ +/-8.00 All Meridians | No limits (Note 3) | **No Limit** | | | |
| | | **Cyclo** (Note 1) | -1.50 to +3.00 Sphere Only | **Not Required** | | | | | |
| | Cylinder | **Manifest** (Note 1) | Max Cylinder ≤1.00 | Max Cylinder ≤3.00 | **No Limit** | | | | |
| | Anisometropia (Manifest) | | ≤3.50D in any Meridian | ≤3.50D in any Meridian | **No Limit** | | | | |
| 63 | NVA | | ≤ 20/40, corrects to 20/20 | Corrects to 20/20 | | | ≤ 20/100, corrects to 20/20 | Corrects to 20/20 | |
| 64 | Phorias | | Phorias | NOTOSP / NOHOSH: No Obvious herteroTropia Or Symptomatic heteroPhoria | | | | | Phorias |
| | Eso | | ≤ 6 | Numerical Values not Required | | | | | ≤ 6 |
| | Exo | | ≤ 6 | | | | | | ≤ 6 |
| | Hyperphoria | | ≤ 1.5 | | | | | | ≤ 1.5 |
| | NPC | | **Not Required** | | | | | | |
| 66 | Color Vision | | PIP = 12/14; CCVT (Waggoner) = normal or mild performed binocularly; CCT (Rabin) = score of ≥55 on all 3 cone types in each eye | | | | | | |
| 67 | Depth Perception (Note 2) | | **Required** | Not Required | | | **Required** | Not Required | **Required** |
| 68 | Field of Vision | | **Required** | | | | | | |
| 69 | Night Vision | | NIBH= Not Indicated By History | | | | | | |
| 70 | Intraocular Tension (IOP) | | ≤ 22mmHg in each eye. Difference in IOPs between eyes ≤ 4mmHg. If out of standards by NCT, retest with TAP | | | | | | |

**Notes:** (1) SNA refractive error (RE) shall not exceed –1.50 D or +3.00 D in any meridian. SNAs must have vision of $20/20^{-0}$ Goodlite OD & OS, uncorrected or corrected (manifest). There is NO standard for Cylinder or VA on cyclo refract. SNFO RE shall not exceed -/+8.00D in any meridian or 3.50D anisometropia.

(2) Verhoeff : 8/8 to pass. If failed one or more, must repeat 2 series of 8 and candidate must have 16/16 correct in order to pass. AFVT: A-D to pass. Anything less than A-D=Fail. Other acceptable tests: Titmus or Randot Stereo 40 seconds to pass. If glasses required patient must wear them for testing and "with Rx" should be documented.

(3) AEROMEDICAL OFFICER – civilian applicants must meet refraction standards for commissioning (≤ +/-8.00 D Spherical Equivalent).

(4) SNA applicants must have corneal mapping performed (topography or Pentacam) to rule out ectatic disease (i.e. keratoconus): If irregular pattern or the INFERIOR:SUPERIOR (I/S) ratio in central 6 mm of cornea (3mm above, 3 mm below center) is > 1.5, submit to NAMI for review.

**ALSO REFER TO THE ARWG, SECTION 12.15, FOR REFRACTIVE SURGERY POLICY.**

# AVIATION VISION STANDARDS, DESIGNATED PERSONNEL MAR 2021

# (USN/USMC)

| Block # DD 2808 | ITEM | Service Group I (Pilot) | Service Group II (Pilot) | Service Group III (Pilot) | NFO/ Aeromedical Officers | Aircrew- Fixed Wing | Aircrew- Rotary Wing | Air Traffic Controller | UAV/UAS |
|---|---|---|---|---|---|---|---|---|---|
| 61 | Uncorrected Distance VA | ≤20/100 | ≤20/200 | ≤20/400 | No limit | No limit | 20/100 or better | No limit | No limit |
| 61 | Corrected Distance VA (Note 1) | $20/20^{-0}$ Snellen OR 10/10 letters on AFVT or Goodlite Chart | | | Correctable to $20/20^{-0}$ Snellen OR $20/20^{-3}$ (7/10) on AFVT or Magnetic Non-Memorization Chart (Goodlite Chart) | | | | |
| 62 | Refractive Error | No limit | | | | | | | |
| 63 | Uncorrected Near VA | No limit | | | | | 20/100 or better | No limit | |
| 63 | Corrected Near VA | $20/20^{-0}$ Snellen OR 10/10 letters on AFVT | | | Correctable to $20/20^{-0}$ Snellen OR $20/20^{-3}$ (7/10) on AFVT | | | | |
| 64 | Phorias | Phorias | | | NOTOSP / NOHOSH: No Obvious herteroTropia Or Symptomatic heteroPhoria | | | | Phorias |
| | Eso | ≤ 6 | | | Numerical Values Not Required | | | | ≤ 6 |
| | Exo | ≤ 6 | | | | | | | ≤ 6 |
| | Hyper | ≤ 1.5 | | | | | | | ≤1.5 |
| 66 | Color Vision | **Required** (Note 2) | | | | | | | |
| 67 | Depth Perception | Required (Note 3) | | | Not required | | Required (Note 3) | Not required | Required (Note 3) |
| 68 | Field of Vision | **Required** | | | | | | | |
| 69 | Night Vision | NIBH= Not Indicated By History | | | | | | | |
| 70 | Intraocular Tension (IOP) | ≤22mmHg in each eye. Difference in IOPs between eyes ≤4mmHg. If out of standards by NCT, retest with TAP | | | | | | | |

(1) On Corrected Distance Visual Acuity 7/10 for other than pilots is passing only when using AFVT or Goodlite 20/20 line. If using Snellen, BVAT or any other form of VA chart, one must get 20/20 – 0 to be physically qualified.
Goodlite letters = non-memorization, randomizable magnetic or digital chart with 10x10 grid of 20/20 letters (Sloan letter crowded eye chart).

(2) Passing scores: PIP = 12/14; CCVT (Waggoner) = normal or mild deficiency performed binocularly; CCT (Rabin) = score of 55 on all 3 cone types performed monocularly; FALANT (after 1/1/17 FALANT will not be acceptable for applicants but will only be done for members currently on a color vision waiver that they only can pass FALANT): 9/9 to pass, if failed one or more, must repeat 2 series of 9 and candidate must have 16/18 correct in order to pass.

(3) Verhoeff: 8/8 to pass. If failed one or more, must repeat 2 series of 8 and member must have 16/16 to pass. For AFVT, A-D to pass. For Titmus or Randot, 40 sec to pass. NAMI recommendation is to still have AFVT or Verhoeff performed first, and recommend having Optometrist test for Titmus or Randot to ensure validity of test.

# APPENDIX B: OCULAR MOTILITY WORKSHEET

**OCULAR MOTILITY WORKSHEET**

* instructions on the back of this form *

1. Pertinent History

2. Distant Visual Acuity
OD 20/
OS 20/

3. Manifest Refraction
OD _____ Corrected to 20/
OS _____ Corrected to 20/

4. Cycloplegic Refraction (as needed)
OD _____ 20/
OS _____ 20/

5. Habitual Rx
OD _____
OS _____
Prism (if any in specs): _____

6. Correction used for remainder of examination Habitual Manifest None

7. Alt Cover Test

Far R

| | | |
|---|---|---|
| | | |
| | | |
| | | |

L

Alt Cover Test

Near R

| | | |
|---|---|---|
| | | |
| | | |
| | | |

L

# in P.D.

8. Extraocular Motility

9. Maddox Rod or Von Graefe Prism Diopters

10. Stereopsis (Verhoeff or Randot or Titmus) Arcseconds

11. Worth 4 Dot @ 20 feet

12. Worth 4 Dot @ near

13. Red Lens Test

14. 4$^{\Delta}$ Base Out (microstrab)

15. Other Test Results

16. Impression:

17. Is patient NOHOSH/NOTOSP?
Yes No

18. Provider

19. Provider Phone Number/Email

20. Date

21. Patient Name

22. DOD ID#

23. Rank/Rate

24. Unit/Address

# INSTRUCTIONS FOR OCULAR MOTILITY WORKSHEET

*IF YOU HAVE ANY QUESTIONS PLEASE CALL THE NAMI EYE DEPT AT 850-452-3227/2933.*

**PERTINENT HISTORY**: i.e. "scored 7 esophoria on AFVT" or "strabismus surgery age 6 years."

**REFRACTION**: SNAs and SNA applicants need a cyclopentolate 1% cycloplegic refraction recorded, all others require a manifest refraction only. SNAs and SNA applicants who see less than 20/20 unaided also require a manifest refraction recorded.

**HABITUAL RX**: Record the subject's habitual Rx here if different from the manifest. If none is used, or the subject wears contact lenses, please note on the form.

**ALTERNATING COVER TEST**: Report **numerical** prism diopter values. Do horizontal and/or vertical as applicable to the case. Horizontal limits are approximately 45 degrees to the left and right of center. Vertical limits are approximately 25 degrees above and 35 degrees below center. Limits may need to be modified as dictated by the size of the nose and brow.

**EXTRAOCULAR MOTILITY**: Give description, such as "Smooth and full."

**MADDOX ROD/VON GRAEFE**: Report **numerical** prism diopter values for **both** horizontal and vertical phorias. Fixation target must be at 20 feet.

**STEREOPSIS**: Verhoeff, done at 1 meter in a normally lit room. Neither the device nor the patient should move during the test. Randot or Titmus stereo testing acceptable, do not allow head movement. Report in Arcseconds.

**WORTH 4 DOT**: Perform at **both** distance and near. Report "fusion," "diplopia," or "suppression OD (or) OS."

**RED LENS TEST**: (If available – Required for USAF) Test all 9 positions of gaze, just like the cover test. Report any diplopia. If no diplopia is reported, state so.

**$4^{\Delta}$ BASE OUT TEST**: Prism introduced over either eye to look for suppression. Can augment the diagnosis of microstrabismus. This test is not always applicable and may be left blank if not used.

**NOHOSH/NOTOSP** = **N**o **O**bvious **H**eteroTropia **o**r **S**ymptomatic **H**eteroPhoria. Answer this question if the subject is NPQ (Not Physically Qualified for SNA (Student Naval Aviator), but would consider applying for the SNFO (Student Naval Fight Officer) program.

**PROVIDER PHONE NUMBER/EMAIL**: Indicate **both** DSN (military overseas) and commercial.

**Acronyms/definitions:**
NAMI: Naval Aerospace Medical Institute (Pensacola, FL)
AFVT: Armed Forces Vision Tester
SNA: Student Naval Aviator
SNFO: Student Naval Flight Officer
Verhoeff: Specialized manual stereo-vision tester.
NOHOSH: No Obvious Heterotropia or Symptomatic Heterophoria

# 13.0 ORTHOPEDICS

Last Revised: April 2016 Last Reviewed: April 2016

**In general, any condition which results in surgery will require a package to be submitted with all available documentation (including operative reports) for review of waiver consideration via AERO.**

## 13.1 ABNORMAL SPINAL CURVATURE

Last Revised: September 15 Last Reviewed: September 15

| | Applicant | Class I | | | Class II | Class III | Class IV |
|---|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | | |
| **CD** | **Yes** | **Yes** | **Yes** | **Yes** | **Yes** | **Yes** | **Yes** |
| **NCD** | **No** | **+/-** | **+/-** | **+/-** | **+/-** | **+/-** | **+/-** |
| **WR** | **No** | **+/-** | **+/-** | **+/-** | **+/-** | **+/-** | **+/-** |
| **WNR** | **No** | **+/-** | **+/-** | **+/-** | **+/-** | **+/-** | **+/-** |
| **LBFS** | **N/A** | **No** | **No** | **No** | **No** | **No** | **No** |
| **EXCEPTIONS** | **None** | | | | | | |
| **LIMDU/PEB** | **If LIMDU/PEB has been held, Grounding PE and AMS should be submitted when board written. Results of this board must be included in waiver package. Member not eligible for waiver until returned to Full Duty by Board.** | | | | | | |

| **Key** | |
|---|---|
| **Yes** | **For: 1) Scoliosis of the thoracic or lumbar spine over 20 degrees; 2) Thoracic kyphosis over 40 degrees; and 3) Lumbar lordosis > 50 degrees for applicants and for designated personnel > 55 degrees (all measured by Cobb angle)** |
| **+/-** | **Depends upon whether listed requirements met, waiver may or may not be recommended ("Case-by-Case" basis)** |

**AEROMEDICAL CONCERNS**: Excessive kyphosis, scoliosis, lordosis, or combinations of them may subject the intervertebral disks to excessive Gz+ loads during ejection. In a classic review by Griffin, the incidence of spinal fractures during ejection seat operations was found to be associated with the posture adopted at the time of ejection. Spinal fractures were noted to occur more frequently when pilots were in slight flexion to initiate pan handle-activated mechanisms, but less frequently when they used a face-curtain system that permitted an induced extension of the spine [1]. It is therefore reasonable to assume that pre-existing spinal deformities similarly expose the pilot to increased risk. Symptomatic conditions may cause distracting backache during prolonged restriction in a confined cockpit and subjection to vibration or excessive G forces.

Abnormal spinal curvature beyond 30 degrees poses risk for ejection injury. The center of gravity of the upper torso lies in front of the spine. Whenever loads are applied along the spinal axis, as in ejection, a bending movement is produced which increases the likelihood of a compression fracture. While a waiver is possible for designated aircrew, there is little point in considering a waiver for applicants as initial training will involve ejection seat aircraft. The long term outcome in cases of scoliosis up to 30 degrees is very favorable, but above 30 degrees is uncertain. Note that there is a 3-5 degree error in measurements taken by the Cobb method.

**WAIVER**: Scoliosis of the thoracic or lumbar spine over 20 degrees, as measured by the Cobb method, is disqualifying with no waiver for applicants, but can be waived up to 30 degrees on a case-by-case basis in designated personnel. Thoracic kyphosis over 40 degrees is CD, but can

be waived up to 45 degrees in designated personnel. Waiver is not normally recommended when there is: 1) recurrent uncontrollable pain; 2) interference with function; 3) a neurologic abnormality; or 4) when the condition is progressive. Lumbar lordosis greater than 50 degrees is disqualifying with no waiver for applicants, but may be waived up to 55 degrees in designated personnel [2 and 3]. On a case-by-case basis, both applicant and designated ATC personnel and UAV operators may be waived up to 30 degrees of thoracic or lumbar scoliosis, which is the standard for general duty, non-aviation personnel. Initial applicants must meet DoD and Department of the Navy Standards as set forth in references [2] and [3] and conditions that do not meet these requirements are Considered Disqualifying, Waiver Not Recommended (CD, WNR).

**DIAGNOSIS/ICD-9 Codes:**
**737 Abnormal Spinal Curvature**
**737.0 Kyphosis**
**737.2 Lordosis**
**737.3 Kyphoscoliosis**
**737.31 Scoliosis, within standards**

**SERVICE MEMBER MUST HAVE COMPLETED AND/OR PROVIDED PRIOR TO INITIATING WAIVER**

- Released from care of orthopedic surgeon, sports medicine physician, osteopathic physician, chiropractic physician, or pain management specialist care with recommendation(s) for the return to flight status with no restrictions - Must be documented on last clinical note (electronic or paper). Further, this consult must state that the spine is asymptomatic, stable, and requires no surgical or other invasive intervention.
- If any of the above noted specialty providers document physical limitations, a complete picture of the patient's level of physical activity and limitations must be included in the documentation.
- Any surgery/procedure note(s) (electronic or paper) utilized in the treatment of the back pain must be documented.
- Must have completed any course of physical therapy/rehabilitation prescribed by the above noted specialty providers and have received an end of care summary, including any post-care recommendations.
- Copies of prior PEB, FNAEB, or HFB if related to this diagnosis. If placed on LIMDU / PEB or if anticipate grounding for greater than 60 days, present to Flight Surgeon for Grounding Physical.
- Provide administrative information (by electronic or paper form) to include command UIC, command address, personal address, phone number, designator, flight hours (total and last 6 months), primary aircraft flown, and years of service.

**STANDARDS & REQUIREMENTS TO BE MET PRIOR TO SCHEDULING WAIVER EXAM WITH FLIGHT SURGEON**

- **CURRENT PHYSICAL LIMITATIONS**: Curvature of the spine must not interfere with function or wear of the military uniform (i.e. significant shoulder asymmetry) or flight equipment (i.e. gibbus deformity with thoracic kyphosis). In addition, the member must be able to demonstrate the ability to perform all required flight duties without assistance or need for pain medication.
- **TREATMENT**: Scoliosis, if caused by leg length discrepancy, may be improved with a trial of a heel lift on the affected side. Occasional OMT/Manual medicine and/or heel lift therapy when successful is NCD. Surgical treatment is disqualifying. A lower extremity scanogram may disclose the site and extent of a leg length discrepancy.
- **MEDICATIONS**: For designated personnel with abnormal spinal curvature requiring low dose NSAIDs (ibuprofen or naproxen only) or acetaminophen who can maintain close supervision by

a Flight Surgeon may be considered for waiver on a case-by-case basis. Any other medication use will require request for waiver. Designated personnel with degenerative disc disease requiring low dose NSAIDs or acetaminophen who can maintain close supervision by a Flight Surgeon may be considered for waiver on a case by case basis. Must not require controlled substances or muscle relaxants to control pain.

- **SPECIAL TEST STANDARDS/FINDINGS/LEVELS**:
- Documentation of the patient's ability to pass a USN PRT or Marine PFT (as applicable); including a report of the score from each section of the most recent test.
- Orthopedic consultation with measurement of any scoliosis by the Cobb method. Films should be taken in a standing position, and the measurements made by the radiologist or orthopedist.
- Subtle EKG abnormalities, RVH, R-axis deviation, RSR' are associated with idiopathic scoliosis. Cardiology consultation may be required if these are noted.

**AEROMEDICAL SUMMARY REQUIRED DOCUMENTATION BY FLIGHT SURGEON**

How Condition Was Discovered: Mechanism of injury, date of injury, and whether first time or recurrent.
Aviation History: Type of aircraft and type of egress.
Physical Exam: Document any visible asymmetry of the spine; any tenderness on palpation; ability to and degree of flexion/extension, rotate L/R, and side bend L/R; motor, sensory, and reflex findings of related extremities; muscle strength testing of related extremities; results of straight leg test (for lumbar spine).
Studies: Document results of all x-rays, CT scans, and MRI scans obtained in the evaluation of this condition. Report the measurement of the scoliosis by the Cobb method (as noted above). Include EKG results in conjunction with this exam to confirm that the EKG findings discussed above do not exist. Include actual films if measured angle greater than 15 degrees.
Discussion: Brief summary of why this member is WR based on Aeromedical Waiver Guide standards.
Recommendation: NPQ but AA and any caveats for follow on care
Procedure: Upload any operative notes (if applicable).
Medications: Document no longer using any medication for pain. However, for designated personnel with an occasional requirement for continued use of medication for pain, the ONLY acceptable medications for PRN use are acetaminophen, ibuprofen or naproxen.
Consults: Up load final orthopedic, osteopathic, chiropractic, or physical therapy end of care notes (as applicable).

| | |
|---|---|
| **FOLLOW-UP REQUIREMENTS** | If the service member becomes symptomatic and in accordance with applicable periodic flight physical requirements. |
| **EXAM** | Documentation of a serial exam of the spine as described in "Physical Exam" section (above). Note: No serial radiological studies are required for asymptomatic scoliosis, kyphosis, or lordosis. |

References:


[1] Griffin, C. (1975, November). *Proceedings of the Royal Society of Medicine*, 68 (11). London, England.
[2] Under Secretary of Defense for Personnel and Readiness. (2011, September 13). Section 17 -Spine and Sacroiliac Joints, Enclosure (4), DoD Instruction 6130.03 (Change 1) - *Medical Standards for Appointment, Enlistment, or Induction in the Military Services*, pp 29-30. U.S. Department of Defense. Washington, DC.
[3] Navy Bureau of Medicine. (2012, May 2). Article 15-48 – Spine and Sacroiliac Joints, Chapter 15 – Physical Examinations and Standards, NAVMED P-117 (Change 140) - *Manual of Medicine*, pp. 15-36 – 15-37. U.S. Department of the Navy. Washington, DC.

## 13.2 ANKYLOSING SPONDYLITIS

**AEROMEDICAL CONCERNS:** Cramped cockpit conditions for prolonged periods may exacerbate the eventual disability. Spinal rigidity in advanced cases is incompatible with ejection, may interfere with emergency ground egress, and can cause restriction in peripheral scan by impairing mobility. Concomitant iritis occurs in between 10 and 25% of cases.

**WAIVER**: An established diagnosis with symptoms is CD. Waiver is possible in early cases with normal mobility and no complications.

**INFORMATION REQUIRED:**

1. Orthopedic or rheumatology evaluation

**TREATMENT:** The cornerstone of treatment while continuing a flying career is a regular exercise routine which the patient must follow scrupulously. Physical rehabilitation may be necessary following flare-ups. Long term maintenance therapy with non-steroidal anti-inflammatory drugs is usually not considered for waiver.

**DISCUSSION:** Sacroiliitis is often the earliest manifestation of the disease, and can be noted on an AP view of the pelvis. The HLA-B27 gene is present in 90% of Caucasians and 50% of African Americans with ankylosing spondylitis. The ESR and C-reactive protein are usually elevated. Clinical diagnosis should be suspected with a history of chronic back pain, loss of motion of lumbar spine, limited chest expansion, and radiographic evidence of sacroiliitis. Complications include cardiac conduction defects, aortic incompetence, uremia arising from amyloidosis, and chest rigidity giving rise to ventilation/perfusion abnormalities. Spinal cord damage can arise from fractures of the rigid cervical spine, and spontaneous subluxation at the atlantoaxial joint with quadriplegia has been described.

**ICD-9 CODE:**
**720.0 Ankylosing Spondylitis**

## 13.3 CHRONIC BACKACHE

Last Revised: September 15 Last Reviewed: September 15

| | Applicant | Class I | | | Class II | Class III | Class IV |
|---|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | | |
| CD | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| NCD | +/- | +/- | +/- | +/- | +/- | +/- | +/- |
| WR | +/- | +/- | +/- | +/- | +/- | +/- | +/- |
| WNR | +/- | +/- | +/- | +/- | +/- | +/- | +/- |
| LBFS | N/A | No | No | No | No | No | No |
| EXCEPTIONS | **Somatic dysfunction which is amenable to OMT/Manual medicine, unless persistent, is NCD.** | | | | | | |
| LIMDU/PEB | **If LIMDU/PEB has been held, Grounding PE and AMS should be submitted when board written. Results of this board must be included in waiver package. Member not eligible for waiver until returned to Full Duty by Board.** | | | | | | |

| Key | |
|---|---|
| Yes | **If chronic and/or recurrent, if exacerbated by flying, if the member has required hospitalization, or if the member requires regular medication for treatment** |
| +/- | **Depends upon whether listed requirements met, waiver may or may not be recommended ("Case-by-Case" basis)** |

**AEROMEDICAL CONCERNS**: Chronic back pain, somatic dysfunction, and/or osteoarthritis of the spine and/or pelvis can make it difficult to remain seated for long periods and can hamper performance. If symptoms are chronic and/or recurrent, exacerbated by flying, if the member has required hospitalization, or if the member requires regular medication beyond occasional Flight Surgeon approved NSAIDs (ibuprofen or naproxen only) or acetaminophen, then the condition is CD.

Most back pain is believed to be caused by biomechanical derangement of the spine and/or sacroiliac joints when harder tissue encroaches on soft nerve tissue causing symptoms of pain, spasms, and numbness. This type of back pain is also known as somatic dysfunction and can sometimes be reduced or alleviated by physicians with training in OMT/Manual medicine. Muscular weakness is not generally found in the diagnosis of somatic dysfunction. "However, more than 85% of patients who present to primary care have low back pain that cannot reliably be attributed to a specific disease or spinal abnormality"[1]. Low back pain has been observed to occur more frequently in helicopter pilots than fixed-wing pilots. A Norwegian Air Force Study reported a 2-year prevalence of low back pain in helicopter pilots that was 32% greater than fixed-wing controls [2]. Further, a 2011 survey of 648 U.S. Navy helicopter pilots from 43 different Navy Helicopter Squadrons found that 71% of participants experienced back pain on at least 50% of their flights and 34% admitted that the pain had affected their situational awareness" [3]. A similar study of British Royal Air Force (RAF) aviators found that 13% of RAF pilots between 20 and 50 experienced low back pain every time that they flew [4 and 5].

**WAIVER**: Waiver may be recommended when the pain is controlled by conservative, non-pharmacologic means, and is not associated with an organic cause. Designated personnel with osteoarthritis requiring low dose NSAIDs who can maintain close supervision by a Flight Surgeon may be considered for waiver on a case by case basis. Somatic dysfunction which is amenable to OMT/Manual medicine, unless persistent, is NCD. Initial applicants must meet DoD and Department of the Navy Standards as set forth in references [6] and [7] and conditions

that do not meet these requirements are **Considered Disqualifying, Waiver Not Recommended (CD, WNR).**

**DIAGNOSIS/ICD-9 Codes:**
**721.9 Chronic Backache**
**724.2 Lumbago**
**724.3 Sciatica**
**739.1 Somatic Dysfunction, C-spine region**
**739.2 Somatic Dysfunction, T-spine region**
**739.3 Somatic Dysfunction, L-spine region**
**739.4 Somatic Dysfunction, Sacroiliac region**
**739.8 Somatic Dysfunction, Rib cage**
**846 Sprains and Strains, Sacroiliac Region**
**847.2 Sprains and Strains, Lumbar Region**

(Note: The above list of diagnoses is representative, though not exhaustive. All diagnoses for back pain not listed above or described elsewhere in this guide shall also be considered under "Chronic Backache".)

**SERVICE MEMBER MUST HAVE COMPLETED/PROVIDE PRIOR TO INITIATING WAIVER**

- Orthopedic surgeon, sports medicine, osteopathic, chiropractic, rheumatological, and/or pain management specialist recommendation(s) for the return to flight status with no restrictions - Must be **documented** on last clinical note (electronic or paper). Further, this consult must state that the member is asymptomatic, stable, may resume full unrestricted activity, and is not anticipated to require surgical or other invasive intervention during his/her future period of military service.
- If any of the above noted specialty providers document physical limitations, a complete picture of the patient's level of physical activity and limitations must be included in the documentation.
- Any surgery/procedure note(s) (electronic or paper) utilized in the treatment of the back pain must be documented.
- Must have completed course of physical therapy/rehabilitation and provide end of care summary, including any post-care recommendations.
- Copies of prior PEB, FNAEB, or HFB if related to this diagnosis. If placed on LIMDU / PEB or if anticipate grounding for greater than 60 days, present to Flight Surgeon for Grounding Physical.
- Provide administrative information (electronic or paper) to include command UIC, command address, personal address, phone number, designator, flight hours (total and last 6 months), primary aircraft flown, and years of service.

**STANDARDS & REQUIREMENTS TO BE MET PRIOR TO SCHEDULING WAIVER EXAM WITH FLIGHT SURGEON**

- **CURRENT PHYSICAL LIMITATIONS**: Member must be able to demonstrate full active range of motion of the spine without assistance or need for pain medication.
- **TREATMENT:** Somatic dysfunction which is amenable to OMT/Manual medicine, unless persistent, is NCD. Waiver may be recommended when the pain is controlled by conservative, non-pharmacologic means, and is not associated with an organic cause.
- **MEDICATIONS**: For designated personnel with chronic backache requiring low dose NSAIDs (ibuprofen or naproxen only) or acetaminophen who can maintain close supervision by a Flight Surgeon may be considered for waiver on a case-by-case basis. Must not require controlled substances or muscle relaxants to control pain.

- **SPECIAL TEST STANDARDS/FINDINGS/LEVELS**: Documentation of the patient's ability to pass a USN PRT or Marine PFT (as applicable); including a report of the score from each section of the most recent test.

**AEROMEDICAL SUMMARY REQUIRED DOCUMENTATION BY FLIGHT SURGEON**

How Condition Was Discovered: Mechanism of injury, date of injury, and whether first time or recurrent.
Aviation History: Type of aircraft and type of egress.
Physical Exam: Document any visible asymmetry of the spine; any tenderness on palpation; ability to and degree of flex/extend, rotate L/R, and side bend L/R (include number of degrees for each); motor, sensory, and reflex findings of related extremities; muscle strength testing of related extremities; and results of straight leg test (for lumbar spine).
Studies: Results of all x-rays, CT scans, and MRI scans obtained in the evaluation of this condition.
Discussion: Brief summary of why this member is WR based on Aeromedical Waiver Guide standards.
Recommendation: NPQ but AA and any caveats for follow on care.
Procedure: Up load any operative/other procedural notes (if applicable).
Medications: Document no longer using any medication for pain. However, for designated personnel with an occasional requirement for continued use of medication for pain, the ONLY acceptable medications for PRN use are acetaminophen, ibuprofen or naproxen.
Consults: Up load final orthopedic, osteopathic, chiropractic, rheumatological, and/or pain management consult(s) report and physical therapy end of care notes (as applicable).
Other: If LIMDU/PEB has been held, results of this board must be included in waiver package.

| | |
|---|---|
| **FOLLOW-UP REQUIREMENTS** | If the service member becomes symptomatic and in accordance with applicable periodic flight physical requirements. |
| **EXAM** | Documentation of a serial exam of the spine as described in "Physical Exam" section (above). Note: No serial radiological studies are required unless the service member is symptomatic. |

**References:**


[1] Chou, R., Qaseem, A., Snow, V., Casey, D., Cross, T., Shekelle, P., and Owens, D. (2007). Diagnosis and treatment of low back pain: A joint clinical practice guideline from the American College of Physicians and the American Pain Society. Annals of Internal Medicine, 147, pp. 478-491. Retrieved from: http://www.healthquality.va.gov/guidelines/Pain/lbp.

[2] Hansen, O and Wagstaff, A. (2001, March). Low Back Pain in Norwegian helicopter aircrew. Aviation, Space, and Environmental Medicine, 72(3), pp. 161-164. Retrieved from: http://www.ncbi.nlm.nih.gov/pubmed/11277279

[3] Phillips, A. (2011, March). The scope of back pain in Navy helicopter pilots. Naval Post Graduate School, Monterey, CA. Retrieved from: http://edocs.nps.edu/npspubs/scholarly/theses/2011/March /11Mar_Phillips.pdf.

[4] Fitzgerald, A. and Crotty, J. (1971). Royal Air Force Institute of Aviation Medicine. Report # 505. London, England.

[5] Griffin, C. (1975, November). Proceedings of the Royal Society of Medicine, 68 (11). London, England.

[6] Under Secretary of Defense for Personnel and Readiness. (2011, September 13). Section 17 -Spine and Sacroiliac Joints, Enclosure (4), DoD Instruction 6130.03

(Change 1) - Medical Standards for Appointment, Enlistment, or Induction in the Military Services, pp. 29-30. U.S. Department of Defense. Washington, DC.
[7] Navy Bureau of Medicine. (2012, May 2). Article 15-48 – Spine and Sacroiliac Joints, Chapter 15 – Physical Examinations and Standards, NAVMED P-117 (Change 140) - Manual of Medicine, pp. 15-36 – 15-37. U.S. Department of the Navy. Washington, DC.

# 13.4 INTERVERTEBRAL DISC DISEASE

Last Revised: April 16 Last Reviewed: April 16

| | Applicant | Class I | | | Class II | Class III | Class IV |
|---|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | | |
| **CD** | **Yes** | **Yes** | **Yes** | **Yes** | **Yes** | **Yes** | |
| **NCD** | **+/-** | **+/-** | **+/-** | **+/-** | **+/-** | **+/-** | |
| **WR** | **+/-** | **+/-** | **+/-** | **+/-** | **+/-** | **+/-** | |
| **WNR** | **+/-** | **+/-** | **+/-** | **+/-** | **+/-** | **+/-** | |
| **LBFS** | **N/A** | **No** | **No** | **No** | **No** | **No** | |
| **EXCEPTIONS** | **In those who have not undergone discectomy and do not have radicular symptoms, the condition is NCD. Waivers for multi-level discectomy are not likely, but may be considered on a case-by-case basis.** | | | | | | |
| **LIMDU/PEB** | **If LIMDU/PEB has been held, Grounding PE and AMS should be submitted when board written. Results of this board must be included in waiver package. Member not eligible for waiver until returned to Full Duty by Board.** | | | | | | |

| Key | |
|---|---|
| **+/-** | **Depends upon whether listed requirements met, waiver may or may not be recommended ("Case-by-Case" basis)** |

**AEROMEDICAL CONCERNS**: Discomfort or pain from intervertebral disc disease can make it difficult to remain seated for long periods and can hamper performance. In addition, forces of ejection, excess G forces, and catapult launches and arrested landing can exacerbate this condition.

In the United States, the most common diagnosis in patients with low back pain is disc degeneration [1]. Ninety-three percent of lumbar disc herniations occur at the L4-L5 and L5-S1 levels [2]. Cervical symptoms may arise as a result of high-G maneuvering, particularly in crew members other than the pilot in control of the aircraft. Conservative therapy with NSAIDs, PT, and OMT/manual medicine is often effective in managing symptoms. Invasive non-surgical measures, such as spinal epidural injection(s) by pain management specialists after accurate diagnosis has been made, present the next level of treatment. Surgical treatment of selected cases where root compression is symptomatic and progressive is superior to non-surgical management in treating radiculopathy [3]. Operative vs. non-operative outcomes after five years have demonstrated essentially the same outcome. Acute onset of a neurological deficit requires prompt orthopedic or neurosurgical assessment.

**DIAGNOSIS/ICD-9 Codes:**

**722 .0 HNP without myelopathy, Cervical**
**722.11 HNP without myelopathy, Thoracic**
**722.10 HNP without myelopathy, Lumbar**
**722.71 HNP with myelopathy, Cervical**
**722.72 HNP with myelopathy, Thoracic**
**722.73 HNP with myelopathy, Lumbar**
**722.4 Degenerative disc disease, Cervical**
**722.51 Degenerative disc disease, Thoracic**
**722.52 Degenerative disc disease, Lumbosacral**
**P80.5 Discectomy**
**P80.51 Discectomy by laminectomy**
**P80.59 Intervertebral disc destruction, NEC**

**P81.00 Spinal fusion, unspecified**
**P81.02 Anterior cervical fusion**
**P81.03 Posterior cervical fusion**
**P81.06 Anterior lumbar fusion**
**P81.08 Posterior lumbar/lumbosacral fusion**

**WAIVERS:**
***Applicants****:* A history of symptomatic herniated nucleus pulposus (HNP) with or without surgery is disqualifying. Waivers may be considered on a case-by-case basis. With few exceptions, multi-level discectomies should be considered to be permanently disqualifying. Initial applicants must meet DoD and Department of the Navy Standards as set forth in references [4] and [5] and conditions that do not meet these requirements are **Considered Disqualifying, Waiver Not Recommended (CD, WNR)**.

***Designated Personnel****:* In designated personnel who are currently asymptomatic, the condition is CD but is usually considered for a waiver. Students already under instruction may also be considered for a waiver. All Dispositions and waiver requests must be based upon the following criteria, defined by region:

***Cervical***:

1. **Without radicular symptoms**: Clinical presentation is neck pain, occasional spasms, and/or occasional crepitus. Radiographs show narrowing, osteophytes, or are normal. Treatment is symptomatic with NSAIDs, analgesics and cervical traction. OMT/Manual medicine by an experienced physician may also be helpful. Condition is typically seen in the 4th decade of life. **Aeromedical disposition is Considered Disqualifying, Waiver Recommended (CD, WR)**.
2. **With radicular symptoms**: Clinical presentation is similar to that described above, but also includes motor, sensory, and/or DTR changes consistent with radiculopathy. Levels usually are C-4/5, C-5/6 (most common) C-6/7, or C-7/T-1. Radiographs/MRI may show hard disks, foraminal narrowing, and/or disk space narrowing. Treatment is same as above. Failure to respond to conservative therapy and/or progressive symptoms may necessitate neurosurgical consultation. Surgical treatments are generally anterior cervical fusion (ACF) and/or posterior cervical laminectomy/foramenotomy. ACF may be performed with graft only, or with graft plus internal fixation.

**Aeromedical disposition**:

1. **Symptomatic patient without surgery: Considered Disqualifying, Waiver Not Recommended (CD, WNR)**
2. **Surgically treated**:
   a. One level corrected by ACF, 6 months post op, pain free, and with no radicular symptoms. Radiographs demonstrate healing with no instability in flexion and extension views. **CD, WR, *including rotary wing and ejection seat aircraft*.**
   b. TWO levels corrected by ACF or one level total disc arthroplasty, 6 months post op, pain free, and with no radicular symptoms. Radiographs demonstrate healing with no instability in flexion and extension views. ***CD, WR, excluding ejection seat aircraft (waivers considered on a case-by case basis for rotary wing aircraft)***.

**Note**: With one cervical level fused mid-cervical spine, expect a 5 degree loss of rotation and a 15 degree loss with two levels fused. Flexion/extension is generally not compromised.

***Lumbosacral**:*

1. **Without radicular symptoms**: Also see section 13.3 above, titled CHRONIC BACK PAIN. Clinical presentation is low back and/or sacroiliac joint area pain with occasional spasms. Sacroiliac joint dysfunction may have subjective symptoms of radicular-like symptoms in the pelvic girdle and/or lower lumbar spine area but symptoms generally do not extend below the knee. Clinically, no neurological deficits are demonstrated. Radiographs upon initial presentation without recent trauma are rarely helpful. Radiographs may show narrowing of disk spaces and/or osteophytes or be normal. Treatment is symptomatic with NSAIDs, analgesics, and traction. OMT/Manual medicine by experienced physician may be helpful.
2. **With radicular symptoms**: Presentation is as noted above, but with the presence of radiculopathy. Neurological examination demonstrates motor, sensory, or DTR changes and/or positive straight leg raise. MRI or myleogram demonstrates HNP with nerve root impingement consistent with the observed neurological deficit. All patients should undergo a period of symptomatic treatment.

**Aeromedical disposition**:

1. **Symptomatic patient without surgery: Considered Disqualifying, Waiver Not Recommended (CD, WNR)**
2. **Asymptomatic patient with radicular history over the previous year (treated either operatively or non-operatively): Considered Disqualifying (CD, WR), including rotary wing and ejection seat aircraft**.

**Notes**: An MRI diagnosis of herniated disc or bulging disc at any level of the spine, in the absence of clinical findings, is meaningless. Twenty to thirty percent of ASYMPTOMATIC people have herniated disks by MRI. Spinal strengthening and range of motion routines with non-impact aerobic training are to be initiated as soon as allowed by the operating surgeon. Following successful surgical or conservative treatment, waiver is possible at six weeks if the following conditions are met:

**SERVICE MEMBER MUST HAVE COMPLETED AND/OR PROVIDED PRIOR TO INITIATING WAIVER**

- Be released from care of orthopedic surgeon or neurosurgeon with recommendation(s) for the return to flight status with no restrictions - **Must be documented** on last clinical note (electronic or paper). Further, this consult must state that the member is asymptomatic, stable, and is not anticipated to require further surgical or other invasive intervention during their future period of military service.
- If any of the above noted specialty providers document physical limitations, a complete picture of the patient's level of physical activity and limitations must be included in the documentation.
- Any surgery/procedure note(s) (electronic or paper) utilized in the treatment of the back pain must be documented.
- Must have completed any course of physical therapy/rehabilitation prescribed by the above noted specialty providers and have received an end of care summary, including any post-care recommendations.
- Be able to pass the USN PRT or USMC PFT (minus sit ups for lumbar patients).
- Have copies of prior PEB, FNAEB, or HFB if related to this diagnosis. If placed on LIMDU / PEB or if anticipate grounding for greater than 60 days, present to Flight Surgeon for Grounding Physical.
- Email or provide administrative information to include command UIC, command address, personal address, phone number, designator, flight hours (total and last 6 months), primary aircraft flown, and years of service.

**STANDARDS & REQUIREMENTS TO BE MET PRIOR TO SCHEDULING WAIVER EXAM WITH FLIGHT SURGEON**

- **CURRENT PHYSICAL LIMITATIONS**:
  - Be essentially pain free with no medications other than Flight Surgeon approved NSAIDs and/or acetaminophen.
  - Have good flexibility and range of motion.
- **TREATMENT**: If surgically fused, post-operative flexion and extension x-rays must also be submitted as evidence of stability.
- **MEDICATIONS**: For designated personnel with intervertebral disc disease requiring low dose NSAIDs (ibuprofen or naproxen only) or acetaminophen who can maintain close supervision by a Flight Surgeon may be considered for waiver on a case-by-case basis. Must not require controlled substances or muscle relaxants to control pain.
- **SPECIAL TEST STANDARDS/FINDINGS/LEVELS**: Documentation of the patient's ability to pass a USN PRT or Marine PFT (as applicable); including a report of the score from each section of the most recent test.

**AEROMEDICAL SUMMARY REQUIRED DOCUMENTATION BY FLIGHT SURGEON**

How Condition Was Discovered: Mechanism of injury, date of injury, and whether first time or recurrent.
Aviation History: Type of aircraft and type of egress.
Physical Exam: Document any visible asymmetry of the spine; any tenderness on palpation; ability to flex/extend (include number of degrees for each), rotate L/R, and side bend L/R; motor, sensory, and reflex findings of related extremities; muscle strength testing of related extremities; results of straight leg test (for lumbar spine).
Studies: Results of all x-rays, CT scans, and MRI scans obtained in the evaluation of this condition.
Discussion: Brief summary of why this member is WR based on ARWG standards
Recommendation: NPQ but AA and any caveats for follow on care
Procedure: Up load any operative notes (if applicable).
Medications: Document no longer using any medication for pain. However, for designated personnel with an occasional requirement for continued use of medication for pain, the ONLY acceptable medications for PRN use are acetaminophen, ibuprofen or naproxen.
Consults: Up load final orthopedic or neurosurgical consult reports and physical therapy end of care notes (as applicable).
Other: If LIMDU/PEB has been held, results of this board must be included in waiver package.

| | |
|---|---|
| **FOLLOW-UP REQUIREMENTS** | If the service member becomes symptomatic and in accordance with applicable periodic flight physical requirements. |
| **EXAM** | Documentation of a serial exam of the spine as described in "Physical Exam" section (above). Note: No serial radiological studies are required unless the service member is symptomatic. |

**References.**

[1] United States Bone and Joint Initiative. (2011). *The burden of musculoskeletal disease in the United States*, p. 24. The Burden of Musculoskeletal Diseases in the United States Organization. Rosemont, IL. Retrieved from: http://www.boneandjointburden.org/pdfs/BMUS_chpt2_spine.pdf

[2] Weinstein, J., Lurie, J., Tosteson, T., Tosteson, A., Blood, E., Abdu, W., Herkowitz, H., Hilibrand, A., Albert, T., and Fischgrund, J. (2008, December 1). *Spine*, 33 (25), pp. 2789-2800. Philadelphia, PA.
[3] Barth, M., Weiss, C., and Thome, C. (2008). Two-year outcome after lumbar microdiscectomy versus microscopic sequestrectomy: Part 1: Evaluation of clinical outcome. *Spine*, 33 (3), pp. 265-272. Philadelphia, PA.
[4] Under Secretary of Defense for Personnel and Readiness. (2011, September 13). Section 17 -Spine and Sacroiliac Joints, Enclosure (4), DoD Instruction 6130.03 (Change 1) - *Medical Standards for Appointment, Enlistment, or Induction in the Military Services*, pp. 29-30. U.S. Department of Defense. Washington, DC.
[5] Navy Bureau of Medicine. (2012, May 2). Article 15-48 – Spine and Sacroiliac Joints, Chapter 15 – Physical Examinations and Standards, NAVMED P-117 (Change 140) - *Manual of Medicine*, pp. 15-36 – 15-37. U.S. Department of the Navy. Washington, DC.

## 13.5.1 KNEES: LIGAMENTS

Last Revised: September 15 Last Reviewed: September 15

| | Applicant | Class I | | | Class II | Class III | Class IV |
|---|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | | |
| CD | X | X | X | X | X | | |
| NCD | | | | | | X | X |
| WR | X | X | X | X | X | | |
| WNR | X ** | | | | | | |
| LBFS | No | Yes* | Yes* | Yes* | Yes* | N/R | N/R |
| EXCEPTIONS | History of sprains and minor tears that return to full normal functional stability and strength through conservative care are **NCD Designated and Applicant**<br>Isolated Grade 1 PCL injury with documented functional stability and no avulsions- **NCD Designated**<br>***** Only if grounded for less than 60 days<br>** if conservatively treated and functional limitations persist | | | | | | |
| LIMDU/PEB | Usually not required unless significant trauma resulting in multiple ligament injuries and recovery > 3 months | | | | | | |

**AEROMEDICAL CONCERNS:** The ligaments of the knee are the primary means of joint stability while at the same time allowing simultaneous rotation and translation. A functionally stable, strong and painless knee with a full range of active motion is required for those on flight status in Class 1 and Class 2 as well as all applicants. This is a necessary for aircrew to enter, operate, maneuver around and egress aircraft in a safe manner. A stable knee is essential in performing emergency egress procedures and successful outcomes in survival situations.

The ACL is the primary restraint to anterior translation of the tibia. ACL tears can be an isolated injury but about 40-80% may have associated meniscal injury. Less frequently they are associated with additional ligament injuries of the MCL, LCL or PCL. The majority of young active patients will develop functional instability of the knee if left to conservative treatment. This is due to the stretching of secondary restraints of which includes the menisci. Functional instability symptoms include buckling, shifting, giving way, recurrent or chronic effusions, inability to pivot and feeling of looseness. For these reasons, ACL reconstruction is essential for those on Class 1 and Class 2 flight status. Generally, a torn ACL is **CD WNR** if treated conservatively and **CD WR** if treated surgically and return of normal stability. Up to 15% of ACLR can have recurrent instability (failure of reconstruction) so clinical and functional testing are necessary after surgical treatment and rehabilitation prior to waiver request.

In contrast, PCL isolated tears (Grade I) may be treated conservatively the majority of the time if the patient has a functionally stable knee after completing rehabilitation. An isolated PCL tear does not cause significant functional knee instability. A waiver may be granted if the member has no functional instability (able to enter, maneuver, and egress their type aircraft).

The most commonly injured ligament is the medial collateral ligament (MCL) complex, but this is usually a strain (Grade I and II) and are **NCD** after healing and return to full function. Grade III MCL injuries are commonly associated with an ACL injury or other multi-ligament tear and may need surgical intervention. Multi-ligament injuries require surgical treatment and are **CD WR** only when stability, range of motion, strength and pain free function return.

**DIAGNOSIS/ICD-9 Code:**

**717.84 Posterior Cruciate Ligament disruption, old**
**717.83 Anterior Cruciate Ligament disruption, old**
**844.0 Sprain and strains of knee and leg; lateral collateral ligament of knee**
**717.81 Old disruption of knee ligament; lateral collateral ligament**

**844.1 Sprain and strains of knee and leg; medial collateral ligament of knee**
**717.82 Old disruption of knee ligament; medial collateral ligament**
**P80.26 Knee Arthroscopy**
**For PLC list 717.81 or code for specific structures injured**

**SERVICE MEMBER - MUST COMPLETE PRIOR TO INITIATING WAIVER**

- Released from Orthopedic after care with recommendation of return to full duty with no physical limits or restrictions.
- Service member will e-mail or provide the flight surgeon with administrative information to include command UIC, command address, personal address, phone number, designator, flight hours (total and last 6 months), primary aircraft flown, and years of service. This information is required in AERO as part of the waiver.

**STANDARDS & REQUIRMENTS - TO BE MET PRIOR TO SCHEDULING WAIVER EXAM WITH FLIGHT SURGEON**

**CURRENT PHYSICAL LIMITATIONS**: Patient must be Fit for Full duty with no limitations including flight duty.
**RADIOLOGY FINDINGS**: MRI Report of the knee.
**SPECIALTY EVALUATIONS:** ORTHOPEDIC- Surgery/Procedure Note (electronic or paper). Orthopedic evaluation must state that the knee is asymptomatic, rehabilitation complete, and if surgery was performed, the successful outcome of the surgery. Evaluation must include a complete knee physical documentation. This should include ROM, strength, stability assessment to include Lachman test, Pivot Shift tests, Posterior Drawer test at $90^0$ flexion, and Posterior Sag test and Varus/Valgus test.
PHYSICAL THERAPY/REHAB**:** Physical Therapy/Rehabilitation discharge note documenting functional stability and normal strength of involved leg.
**SPECIAL TEST STANDARDS/FINDINGS/LEVELS**: Ability to ingress, egress, use rudders and brakes without limitations.
**MEDICATIONS**: Must not require medication to control pain

**AEROMEDICAL SUMMARY - REQUIRED DOCUMENTATION BY FLIGHT SURGEON**

How Condition Was Discovered: Mechanism of injury, grade of injury, date of injury, and whether first time or recurrent.
Aviation History: Type of aircraft, type of egress.
Physical Exam: Lachman, Pivot Shift test, Medial and Lateral Stability, absence of swelling or effusion, and active range of motion (Do not document “Full Range Of Motion (FROM)”, be specific → hyperextension/neutral/full flexion.
Labs And X-ray Data: MRI report.
Procedure: Upload Op Note, if Op Note not available then detail surgery performed, type of graft used, and any untreated injuries found prior or during surgery.
Discussion: Brief summary of why this member should have a WR based on AMRWG standards and their functional capability. Include specific functional picture as it relates to their specific aircraft and egress.
Recommendation: NPQ but AA and any caveats for follow on care
Medications: Document no longer using any medication for tolerating pain. Patient may be on PRN NSAIDs, but not daily. Continued pain three months after surgery can be indicative of a missed additional injury.
Consults: Upload final Ortho consult and Physical therapy summary of care note (may include: Isokinetic muscle testing with dynamometers (Isok) or One Leg Jump Test). Navy or USMC PFA testing: PASSED.

| FOLLOW UP REQUIREMENTS | Five-Year Physical |
|---|---|
| **EXAM** | Lachman, Pivot Shift test, Posterior Drawer test at $90^0$ flexion, Posterior Sag test, McMurray's test, Medial and Lateral Stability, absence of swelling or effusion, absence of tenderness, and full active range of motion without locking (hyperextension/neutral/full flexion - Example 5/0/130). |

## 13.5.2 KNEES: MENISCAL INJURIES

Last Revised: September 15 Last Reviewed: September 15

| | Applicant | Class I | | | Class II | Class III | Class IV |
|---|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | | |
| CD | X | X* | X* | X* | X* | | |
| NCD | | | | | | X | X |
| WR | X | X | X | X | X | | |
| WNR | | | | | | | |
| LBFS | No | Yes** | Yes** | Yes** | Yes** | N/R | |
| EXCEPTIONS | * Lateral or Medial **Bucket-Handle, Radial, Parrot Beak** tears are **CD if symptomatic**. Other isolated (no ligament tears) degenerative meniscal tears treated conservatively that are asymptomatic are **NCD.** Surgically treated tears (repaired or debrided) can be considered **NCD**, if the patient is cleared by ortho and is pain free and has no functional deficit or limitations.<br>**Applicants** who have a history of meniscal injury are **CD** and require MRI of the knee to determine level of degeneration and whether there are other occult injuries.<br>** Only if grounded for less than 60 days | | | | | | |
| LIMDU/PEB | Usually not required unless significant trauma resulting in meniscus and ligament injuries. | | | | | | |

**AEROMEDICAL CONCERNS:** The menisci of the knee act primarily as load bearing structures to decrease joint contact forces across the joint. Secondarily, they function to stabilize the knee, especially to resist the tendency for the tibia to subluxate forward when joint load is applied. Acute injury (tear) of the menisci can occur with axially load, rotational or translational force to the knee. Chronic tears occur with age and are very common in over 35 yr olds with minimal force. Chronic tears also occur with ligament deficient knees due to increased stress as a secondary restraint. Acute and chronic tears of either menisci can cause pain, limitation in motion, buckling, swelling, catching and weakness. A functional knee is necessary for those in aviation that have to enter and egress their aircraft, especially in emergency egress situations.

**DIAGNOSIS/ICD-9 Code:**

**717.0 Internal Derangement of Knee**
**717.30 Medial Meniscal Derangement**
**717.40 Lateral Meniscal Derangement**
**717.2 Derangement of Posterior Horn of Medial Meniscus**
**836.0 Tear of Medial Cartilage or Meniscus of knee, current Bucket Handle Tear**
**836.2 Other Tear of Cartilage or Meniscus of knee, current**

**SERVICE MEMBER - MUST COMPLETE PRIOR TO INITIATING WAIVER**

- Released from Orthopedic after care with recommendation of return to full duty with no physical limits or restrictions.
- Service member to e-mail or provide flight surgeon with administrative information to include command UIC, command address, personal address, phone number, designator, flight hours (total and last 6 months), primary aircraft flown, and years of service. This information is required in AERO as part of the waiver.

**STANDARDS & REQUIRMENTS - TO BE MET PRIOR TO SCHEDULING WAIVER EXAM WITH FLIGHT SURGEON**

**CURRENT PHYSICAL LIMITATIONS**: Patient must be Fit for Full duty with no limitations including flight duty.
**RADIOLOGY FINDINGS**: MRI Report of the knee if treated conservatively.

**SPECIALTY EVALUATIONS:** ORTHOPEDIC- Surgery/Procedure Note (electronic or paper). Orthopedic evaluation must state that the knee is asymptomatic, rehabilitation complete, and if surgery was performed, the successful outcome of the surgery. Evaluation must include a complete knee physical documentation. This should include ROM, strength, stability assessment to include Lachman test, Pivot Shift tests, Posterior Drawer test at $90^0$ flexion, and Posterior Sag test and Varus/Valgus test. Negative McMurray sign and no meniscal jointline tenderness. No chronic effusions.
PHYSICAL THERAPY/REHAB**:** Physical Therapy/Rehabilitation discharge note documenting functional stability and normal strength of involved leg.
**SPECIAL TEST STANDARDS/FINDINGS/LEVELS**: Ability to ingress, egress, use rudders and brakes without limitations.
**MEDICATIONS**: Must not require medication to control pain

## AEROMEDICAL SUMMARY - REQUIRED DOCUMENTATION BY FLIGHT SURGEON

How Condition Was Discovered: Mechanism of injury, grade of injury, date of injury, and whether first time or recurrent.
Aviation History: Type of aircraft, type of egress.
Physical Exam: Lachman, Pivot Shift test, Medial and Lateral stability, absence of locking, absence of swelling or effusion, and active range of motion.
Procedure: Upload Op Note, if Op Note not available then detail surgery performed, extent of tear seen during surgery, and any untreated injuries found prior or during surgery.
Labs And X-ray Data: MRI report.
Discussion: Brief summary of why this member should have a WR based on AMRWG standards and their functional capability. Include specific functional picture as it relates to their specific aircraft and egress. If treatment conservative, a risk assessment of the patient's potential for locking and any other physical limitation should be included.
Recommendation: NPQ but AA and any caveats for follow on care
Medications: Document no longer using any medication. Patient may be on PRN NSAIDs, but not daily. Continued pain six months after surgery can be indicative of a missed additional injury or failed healing of a tear if surgically repaired.
Consults: Upload final Ortho consult and Physical therapy summary of care note (if consulted). If report not available, document reason. Navy or USMC PFA testing: PASSED after recovery.

| **FOLLOW UP REQUIREMENTS** | **Five-Year Physical** |
|---|---|
| **EXAM** | Lachman, Pivot Shift test, Posterior Drawer test at $90^0$ flexion, Posterior Sag test, McMurray's test, Medial and Lateral Stability, absence of swelling or effusion, absence of tenderness, and full active range of motion without locking. |

## 13.6 ORTHOPEDIC HARDWARE, RETAINED

Last Revised: February 25 Last Reviewed: Feb 25

**AEROMEDICAL CONCERNS:** Discomfort due to retained hardware and risk of refracture are safety of flight and mission completion concerns.

**WAIVER:** Retained hardware is NCD with no submission required if applicant or designated personnel have completed treatment, are free from symptoms, and retained hardware does not create an obstruction to interfere with flight duties. Facial, orbital, and dental hardware are NCD with no submission required if applicant or designated personnel have completed treatment, are free from symptoms to include a normal vision, eye, and neuro exam, and retained hardware does not create an obstruction to interfere with flight duties. Per DODI 6130.03 *Medical Standards for Military Service*, retained hardware is not disqualifying if fractures are healed, ligaments are stable, there is no pain, and there is no evidence of hardware complications.
Current retained hardware (including plates, pins, rods, wires, or screws) used for fixation that is symptomatic or may reasonably be expected to interfere with properly wearing military equipment or uniforms is disqualifying.

If applicant or designated personnel do not meet the above criteria, please submit all information listed below so that a determination can be made whether a waiver is required for retained hardware.

Retained hardware in the spine is CD in applicants, no waiver. Designated personnel may be considered strictly on a case-by-case basis. See ARWG Section 13.4 for guidance related to hardware in the cervical spine related to fusion or disk replacement. History of joint replacement or resurfacing of any site is considered disqualifying but may be waived in designated personnel on a case-by-case basis (not applicants).

If retained hardware is installed due to high velocity trauma mechanism of injury (aircraft mishaps, motorcycle accidents, falls from significant height, etc.), investigate for other possible trauma related disqualifying injuries. In these cases, please submit all information listed below to NAMI Code NA05 so that a determination can be made whether a waiver is required for hardware or other injuries.

**INFORMATION REQUIRED:**

1. Orthopedic, Neurosurgery, ENT /Oral Surgery, or Podiatry consultation notes/clearance as applicable.
2. Radiographs as required clinically or requested by specialist (actual film images required).

**TREATMENT:** Removal of retained hardware may be a consideration when associated with any of the problems noted above. If hardware has been removed and bone is healed, is NCD no submission required.

**DISCUSSION:** Often the underlying orthopedic condition is disqualifying and of greater concern. Retained bioelectric devices (implanted bone stimulators) imply the persistence of a disqualifying condition and are CD, no waiver. If the device has been "curative" then it is no longer required and should be removed. Most implanted hardware (screws, plates, staples, wires) are used as part of an open reduction and internal fixation of a fracture. After the fracture has healed, the hardware has been effective it should be removed if it causes discomfort, is easily accessible, and there is minimal morbidity associated with the removal. Intramedullary rods are typically placed in long bone fractures (femur, tibia, radius, ulna) for stable internal fixation. Because of its anatomic position, these devices are typically permanent implants, and

removal is not warranted after fracture healing. Hardware which is subcutaneous (i.e. screws in the medial malleolus or olecranon process of the elbow) may cause pain and chronic inflammatory changes warranting elective removal. Clavicle fractures are often fixed with plate and screws which are subcutaneous and may cause discomfort due overlying shoulder straps, particularly in tactical pilots. Elective removal should be considered. Some types of hardware (metallic bone anchors) are used to affix soft tissue to bone (i.e. knee ligament and rotator cuff repair, shoulder capsulorraphy). Removal of these is generally not indicated. Pedicle screws, rods, circlage wires, and fixation plates are subject to breaking as a result of metal fatigue over time and may require observation.

**ICD-9 CODE:**
**V54.90 Orthopedic Hardware, Retained**

## 13.7 SHOULDER DISLOCATION

**AEROMEDICAL CONCERNS:** Dislocation of the shoulder in flight is a safety of flight issue and may adversely affect rapid egress and survival, particularly in the event of a water landing.

**WAIVER:** More than one episode of dislocation is CD for both applicants and designated personnel. Recurrent instability, if surgically corrected, is CD regardless of interval since repair, but may be considered for a waiver. If corrected surgically and heals without complications and full range of motion, the aviator may request a waiver.

**INFORMATION REQUIRED:**

1. Orthopedic consult
2. Physical therapy consult documenting full range of motion

**TREATMENT:** Surgical correction and rehabilitation. Member should also be taught a method for self-reduction.

**DISCUSSION:** The aeromedical concerns are obvious. Initially, annual submission will be required to document the absence of symptoms and recurrence. If the shoulder remains stable for more than one year post-op, less frequent submission may be requested.

**ICD-9 CODES:**
**718.31 Recurrent Shoulder Dislocation**
**P81.82 Repair of Recurrent Shoulder Dislocation**

## 13.7.1 PATELLAR DISLOCATION

Last revised: January 25 Last reviewed: Jan 25

**AEROMEDICAL CONCERNS:** Dislocation of the patella in flight is a safety of flight issue and may adversely affect control of the aircraft, rapid egress and survival.

**WAIVER**: First time patella instability without recurrence, with full range of motion and strength in the absence of apprehension or significant pain is NCD. Recurrent instability is CD WNR. Waivers can be granted if instability is corrected surgically and heals without complications, the patient has no recurrence or apprehension, has full range of motion and strength and has minimal to no knee pain.

### STANDARDS & REQUIRMENTS - TO BE MET PRIOR TO SCHEDULING WAIVER EXAM WITH FLIGHT SURGEON

**CURRENT PHYSICAL LIMITATIONS**: Patient must be Fit for Full duty with no limitations including flight duty.
**SPECIALTY EVALUATIONS:** ORTHOPEDIC- Surgeon's full Operative Report. Orthopedic evaluation must state that the knee is asymptomatic, without recurrence, that rehabilitation is complete, and if surgery was performed, the successful outcome of the surgery without the need for additional procedures. Evaluation must include a complete knee (bilateral) physical documentation.
**PHYSICAL THERAPY/REHAB:** Physical Therapy/Rehabilitation discharge note documenting functional stability and normal strength of involved leg.
**SPECIAL TEST STANDARDS/FINDINGS/LEVELS**: Ability to ingress, egress, and use rudders and brakes without limitations.
**MEDICATIONS**: Must not require medication to control pain

### AEROMEDICAL SUMMARY - REQUIRED DOCUMENTATION BY FLIGHT SURGEON

How Condition Was Discovered: Mechanism of injury, date of injury or injuries, and whether first time or recurrent.
Aviation History: Type of aircraft, type of egress.
Physical Exam: Bilateral knee exam with range of motion (in degrees), presence/absence of apprehension in extension and J sign, quadriceps strength/atrophy, signs of systemic hyperlaxity.
Procedure: Upload Surgeons Operative Note
Labs And X-ray Data: As performed.
Discussion: Brief summary of why this member should have a WR based on AMRWG standards and their functional capability. Include specific functional picture as it relates to their specific aircraft and egress. If treatment conservative, a risk assessment of the patient's potential for stability concerns and any other physical limitation should be included.
Recommendation: NPQ but AA and any caveats for follow on care
Medications: Document no longer using any medication. Patient may be on PRN NSAIDs, but not daily.
Consults: Upload final Ortho consult and Physical therapy summary of care notes. If report not available, document reason. Navy or USMC PFA testing: PASSED after recovery.

**INFORMATION REQUIRED:**

1. Orthopedic consult
2. Physical therapy final consult documenting full range of motion, strength, and stability.

**TREATMENT:** Surgical correction and rehabilitation.

**DISCUSSION:** The aeromedical concerns involve ingress, egress, and the use of rudders and breaks without distraction. Initially, annual submission will be required to document the absence of symptoms and recurrence. If the knee remains stable for more than one-year post-op, less frequent submission may be requested.

**ICD-10 CODES:**
**M22.0 Recurrent Dislocation of Patella**
**S83.0 Subluxation and Dislocation of the Patella**

## 13.8 SPINAL FRACTURES

**AEROMEDICAL CONCERNS:** An unstable spine can result in sudden spinal cord injury. Spinal fractures may be associated with spinal cord, nerve root, or plexus injuries. There are significant clinical implications related to whether the fractures occur in the cervical, thoracic, or lumbar spine. Statistically, compression fractures cluster at the thoraco-lumbar junction with T12 being the most common vertebral body involved, followed by L1 and T11.

**WAIVER:**

***Cervical:*** Cervical fractures are CD and require waiver, regardless of extent. **Spinous process fractures not involving the lamina, pedicle, or vertebral body are NCD.** A 6 month period of grounding is required for patients with small anterior chip fracture or compression fractures of less than 25%. At 6 months, if the patient is pain-free, has full ROM, no instability on lateral views, and has no radicular symptoms, he will be considered for a waiver for non-ejection-seat aircraft only. At 12 months, if all the above criteria are still met, waiver will be considered for ejection-seat aircraft. Cervical spine fractures with more than 25% compression, with evidence of instability on lateral views, or with radicular symptoms will only be considered on a case by case basis.

***Thoracic:*** A three month period of grounding for a single compression fracture with less than 50% compression or a single wedge fracture with no scoliosis on AP views. At 3 months, if the patient is pain free and with no instability, a waiver will be considered for non-ejection seat aircraft only. At 12 months, waiver will be considered for ejection-seat aircraft if all of the above criteria are still met. Thoracic spine fractures with more than 50% compression, with evidence of scoliosis, or more than one compression fracture are NPQ with a waiver considered on a case by case basis.

***Lumbar:*** A three month period of grounding is required for a single compression fracture of less than 50% or a single wedge fracture with no scoliosis on an AP view. After a 3 month period of grounding, a waiver will be considered for non-ejection seat aircraft only providing the patient is pain free, no instability, no spondylolysis or spondylolisthesis, and no radicular pain. At 12 months, waiver will be considered for ejection-seat aircraft providing all of the above criteria are still met. If more than 50% compression, instability present on x-ray, radicular symptoms are present, or there is an associated HNP, then the patient is NPQ with waiver possible only on case by case basis.

**INFORMATION REQUIRED:**

1. Orthopedic or neurosurgical consultation
2. All X-rays
3. MRI scan of regional neuroanatomical structures may also be required.

**TREATMENT:** Stable fractures without neurological injury respond well to conservative management. Those injuries requiring surgical decompression and/or stabilization usually leave the member with permanent disabilities incompatible with return to DIFOPS.

**DISCUSSION:** In C-spine injuries, the key element in determining aeromedical disposition is stability of the spine. Often times, the bony injuries heal with no residual instability. Ligamentous injuries, in contrast, may heal with various degrees of instability. Early on,

instability is detectable by obtaining lateral views in flexion and extension of the C-spine. Chronic instability results in degenerative changes such as disc space narrowing and asymmetry. Also, osteophytic changes and foraminal narrowing are seen in the oblique views. The common wedge or chip fracture, often seen at the C4-6 level with no instability noted, has an excellent prognosis. Lumbar compression/wedge fractures generally heal with no instability. Purely ligamentous injuries of the L-spine are uncommon, however, there is potential for degenerative disc disease which could lead to herniation. Spinal compression fractures are a common ejection injury (20 - 30% of ejections), with most fractures occurring between T9 and L1. For this reason, all survivors of ejections should undergo complete spine x-rays. Finding a compression fracture on x-ray often raises the question of the age of the fracture. Widening of the paraspinous line on x-ray and symptoms appropriate to the location of the identified fracture are indicative of an acute injury. A radioisotope bone scan may remain "hot" for up to two years post compression fracture. Once healed, the damaged area does not appear to be unduly susceptible to repeat fracture. The USAF has records of six pilots with compression fractures who ejected a second time without suffering injury. One aviator ejected four times without subsequent injury. Patients with persistent pain after fracture healing and no other radiological evidence of disease or trauma may benefit from OMT/Manual medicine consultation. C-spine treatment and evaluation should only be undertaken by the most experienced physicians. Somatic Dysfunction with traumatic fractures occurs frequently. C-spine treatment and evaluation should only be undertaken by the most experienced physicians.

**ICD-9 CODES:**
**805 Spinal Fractures**
**805.0 Fracture of Cervical spine, closed, without spinal injury**
**805.2 Fracture of Thoracic spine, closed**
**805.4 Fracture of Lumbar spine, closed**

## 13.9 SPONDYLOLYSIS AND SPONDYLOLITHESIS

Last Revised: Dec 2023

| | Applicant | Class I | | | Class II | Class III | Class IV |
|---|---|---|---|---|---|---|---|
| | | SG1 | SG2 | SG3 | | | |
| **CD** | X | X | X | X | X | X | X |
| **NCD** | No | No | No | No | No | No | No |
| **WR** | +/- | +/- | +/- | +/- | +/- | +/- | +/- |
| **WNR** | +/- | +/- | +/- | +/- | +/- | +/- | +/- |
| **LBFS** | No | No | No | No | No | No | No |
| **EXCEPTIONS** | | | | | | | |
| **LIMDU/ PEB** | No waivers considered while on LIMDU or pending PEB. Must be on full duty status prior to waiver consideration. Details about any LIMDU periods or PEB shall be included with waiver request. | | | | | | |

**AEROMEDICAL CONCERNS**:

Spondylolysis and spondylolisthesis are conditions resulting from injury to the pars interarticularis which can result in acute or chronic low back pain although that association is controversial (Kalichman et al., 2009). Both conditions are often discovered incidentally during imaging studies of the lumbar spine. They tend to develop in early childhood and adolescence especially among athletes. Current literature suggests spondylolisthesis occurs in 6 to 7% of the general population by age 18 and is present in up to 35% of some athlete groups (Kalichman et al., 2009; Schlenzka, 2015).

Despite their high prevalence, stable spondylolysis is often asymptomatic and low grade (Myerding class I and II) isthmic spondylolisthesis shows little progression radiographically and in terms of symptoms after the age of 20 (Ebraheim, Elgafy, Gagnet, Andrews, & Kern, 2018). Both conditions respond well to conservative management (Alfieri, Gazzeri, Prell, & Röllinghoff, 2013).

While any cause of low back pain can impair performance in the aviation environment, stable, relatively asymptomatic spondylolysis and spondylolisthesis pose a negligible of acute progression and are unlikely to affect aviation performance differently than other forms of mechanical low back pain (Ebraheim et al., 2018; Froom et al., 1984).

**WAIVER**:

Asymptomatic spondylolysis and asymptomatic Grade 1 or 2 isthmic spondylolisthesis will be considered for a waiver for all classes of applicants and designated personnel including aircrew in ejection seat aircraft. Designated personnel with a history of related symptoms that have responded well to conservative treatment will also be considered. Higher grades of spondylolisthesis, degenerative spondylolisthesis, and conditions requiring surgical treatment can be considered on a case-by-case basis for designated personnel, but waivers will generally not be recommended.

**INFORMATION REQUIRED:**

1. Aviation history specifically including type of aircraft and method of egress.
2. Physical exam with emphasis of any provocative maneuvers and neurological findings.
3. All imaging studies related to the diagnosis.

4. Complete history including how the condition was discovered, any history of related symptoms, summary of treatment, and any other pertinent details.
5. Reports from all related evaluation and treatment.
6. Consult reports from a spinal surgeon (neurosurgery or orthopedic spine) and any other consults related to the diagnosis and/or treatment of the condition.

**REFERENCES:**


Alfieri, A., Gazzeri, R., Prell, J., & Röllinghoff, M. (2013). The current management of lumbar spondylolisthesis. *Journal of Neurosurgical Sciences*, *57*(2), 103–113. Retrieved from https://pubmed.ncbi.nlm.nih.gov/23676859/

Ebraheim, N., Elgafy, H., Gagnet, P., Andrews, K., & Kern, K. (2018). Spondylolysis and spondylolisthesis: A review of the literature. *Journal of Orthopaedics*, *15*(2), 404–407. https://doi.org/10.1016/j.jor.2018.03.008

Froom, P., Froom, J., Van Dyk, D., Caine, Y., Ribak, J., Margaliot, S., & Floman, Y. (1984). Lytic spondylolisthesis in helicopter pilots. *Aviation, Space, and Environmental Medicine*, *55*(6), 556–557.

Kalichman, L., Kim, D. H., Li, L., Guermazi, A., Berkin, V., & Hunter, D. J. (2009). Spondylolysis and spondylolisthesis: Prevalence and association with low back pain in the adult community-based population. *Spine*, *34*(2), 199–205. https://doi.org/10.1097/BRS.0b013e31818edcfd

Schlenzka, D. (2015). Spondylolisthesis. In *The Growing Spine: Management of Spinal Disorders in Young Children, Second Edition* (pp. 415–448). https://doi.org/10.1007/978-3-662-48284-1_24


ICD-9 CODES:
738.4 Acquired spondylolisthesis
756.12 Congenital spondylolisthesis
756.18 Traumatic spondylolisthesis

# 14.0 PSYCHIATRY

Last Revised: April 2025 Last Reviewed: April 2025

This section provides guidance on various psychiatric disorders that may be seen in the military aviation community, the associated effects on aviation duties, and guidelines for requesting a waiver as applicable. For the benefit of mental health professionals conducting mental health, neuropsychological, and/or substance evaluations of individuals with flight status, guidance is provided to ensure evaluations provide sufficient information for NAMI to be able to make timely decisions.

First, some general guidelines for all flight waivers that also apply to psychiatric waivers as referenced in ARWG Chapter 2.1-2.3:

1. Waivers are considered for those who do not meet physical standards for special duty per the Manual of the Medical Department (MMD) Chapter 15, Section IV. Waivers for special duty may be granted on the need of the service, consistent with training, experience, performance, and proven safety of the aircrew personnel. In general, applicants are held to a stricter standard than designates and are less likely to be recommended for a waiver.

In addition to the criteria mentioned above, waivers are also based upon risk management and how it is applied to nine criteria as listed in ARWG 2.2 (please reference as needed). Further, waiver granting authority is a function of BUPERS, CMC (ASM), or other appropriate waiver granting authority. Waivers are not officially granted until BUPERS or CMC acts.

General waiver submission advice for the most timely processing of requests:

1. Properly label uploaded documents for AERO waiver submissions (e.g., do not bundle mental health records with PRK notes, ONLY upload PDF files).
2. Make sure the waiver package is complete, that is, it should contain all requested information (“See GENESIS/JLV” is not sufficient). The submitting Flight Surgeon (FS)/Aeromedical Physician Assistant (APA) should upload all supporting documentation so that the package can be reviewed as a stand-alone document. A general rule of thumb is that if a GENESIS/JLV note is informative it should be uploaded to AERO.
3. Be sure the waiver package is internally consistent, or explain any discrepancies in the Aeromedical Summary (AMS).

Information required for all psychiatric waivers:

1. FS/APA AMS documenting all prior symptoms, absence of persistent features, course of the disorder, medication use, and current level of functioning.
2. All mental health notes (e.g., mental health evaluation, treatment summary/termination notes). Please do not simply state, “See GENESIS/JLV records.” Also include items not in GENESIS/JLV (e.g., civilian medical records, college counseling center records, legal records where applicable).
3. A current mental health evaluation to document complete, sustained remission of all symptoms.
4. Include a copy of all mental health-related Medical Boards which have been written for the member (if applicable).

The above four items are the minimum required. Many psychiatric waiver requests will need additional items, as listed for each specific condition below. Again, this is just an overview.

**REMEMBER: IF THE ESTABLISTMENT OF THE DIAGNOSIS AND ACHIEVEMENT OF THE MAINTENANCE PHASE OF TREATMENT WILL TAKE GREATER THAN 60 DAYS, A GROUNDING PHYSICAL AND AERO GENERATED AMS IS REQUIRED AT THE TIME OF DIAGNOSIS. CLEARANCE CANNOT BE GRANTED BY A LOCAL BOARD OF FLIGHT SURGEONS.**

This section of the ARWG will outline guidance for DSM-5-TR diagnoses in the following order:

1. Psychoeducation, Non-Medical Counseling, and Supportive Psychotherapy
2. Adjustment Disorders
3. ADHD/Neurodevelopmental Disorders (e.g., Specific Learning Disorders, Attention Deficit/Hyperactivity Disorder)
4. Alcohol and Other Addictive Disorders
5. Anxiety Disorders
6. Bipolar and Related Disorders
7. Depressive Disorders
8. Disruptive, Impulse-Control, and Conduct Disorders
9. Eating Disorders (e.g., Anorexia Nervosa, Bulimia)
10. Obsessive-Compulsive and Related Disorders
11. Personality Disorders
12. Psychosis/Schizophrenia Spectrum and Other Psychotic Disorders
13. Sexual Dysfunctions and Paraphilias
14. Sleep-Wake Disorders
15. Somatic Symptom and Related Disorders
16. Suicidal Behavior and Non-Suicidal Self Harm
17. Trauma and Stressor-Related Disorders (e.g., Posttraumatic Stress Disorder, Acute Stress Disorder)

**NOTA BENE: WHENEVER DESIGNATED AVIATION PERSONNEL ARE PSYCHIATRICALLY HOSPITALIZED, NO MATTER WHAT THE ULTIMATE DIAGNOSIS IS DETERMINED TO BE, A GROUNDING PHYSICAL AND AERO GENERATED AMS ARE TO BE SUBMITTED.**

Because this document does not include all psychiatric disorders, FS/APA is encouraged to contact NAMI Psychiatry Department (850-452-2783) for specific assistance as needed.

It is highly recommended that all aeromedical officers become familiar with the following instructions and guidelines as well. The documents highlighted below are some of the more relevant sources of information to assist in the performance of aeromedical duties. However, it remains the professional obligation of aeromedical officers to keep up to date on any newly published instructions, and to continually expand awareness of other existing pertinent publications.

- **Assistant Secretary of Defense/Health Affairs (ASD/HA) Memorandum (November 7, 2006), "Policy Guidance for Deployment-Limiting Psychiatric Conditions and Medications"** – This document provides guidance for deployment, and continued service in a deployed environment, for military personnel who experience psychiatric disorders and/or who are prescribed psychotropic medications.

- **DoDI 6490.07 (February 5, 2010), "Deployment-Limiting Medical Conditions for Service Members and DoD Civilian Employees"** – This instruction expands upon the ASD/HA Memo above. Enclosure 3, "Medical Conditions Usually Precluding Contingency Deployment," is especially relevant for aeromedical officers in the consideration of mental health disorders and psychiatric treatments, and the associated impact of such in an operational setting.

- **DoDI 6490.04 (March 4, 2013), "Mental Health Evaluations of Members of the Military Services"** – This instruction establishes policy, assigns responsibilities, and prescribes procedures for the referral, evaluation, treatment, and medical and command management of service members who may require assessment for mental health issues, psychiatric hospitalization, and risk of imminent or potential danger to self or others.

- **DoDI 6490.08 (September 6, 2023), "Command Notification Requirements to Dispel Stigma in Providing Mental Health Care to Service Members"** – This instruction establishes policy, assigns responsibilities, and prescribes procedures for healthcare providers for determining command notification requirements. It also provides guidance to help achieve balance between service members' confidentiality rights and commanders' right to know for operational and risk-management decisions. The instruction states that healthcare providers shall notify the commander when a service member meets any of the instruction's nine delineated criteria for mental health and/or substance misuse conditions or related circumstances. Criteria covered include: harm to self, harm to others, harm to mission, special personnel, inpatient care, acute medical conditions interfering with duty, problematic substance use treatment program, command-directed mental health evaluation, and other special circumstances. The instruction contains discussion and examples for each of the criteria that warrant command notification. It also covers the appropriate manner in which disclosures should be made.

Flight Surgeons, Aerospace Clinical Psychologists, and Aeromedical Physician Assistants are encouraged to help expand the awareness and understanding of aeromedical issues/concerns/disposition by sharing relevant ARWG sections with local medical staff and specialists. Close collaboration with non-aeromedical colleagues not only ensures that the operational service member receives appropriate treatment and disposition but also improves cooperation between local medical and line units; these measures ultimately optimize force readiness and effectiveness.

General guidance for mental health professionals evaluating flight personnel:

Risks presented in the aviation environment cannot be overstated, and over 80% of aviation mishaps are attributable to human error. The thorough evaluation of mental health, cognitive, and addictive symptomatology is critical in ensuring flight safety, mission completion, and effective crew coordination. Thus, the psychological, psychiatric, and substance abuse evaluations of individuals with flight status have critical components which are considerate of the aviation culture and the risks and demands associated with military aviation.

One of the key challenges in conducting these evaluations is the tendency of aviation personnel to avoid disclosing medical and mental health concerns. In one study, researchers found that 72% of military aviators have engaged in healthcare avoidance.[1] Another study found that of those military aviators currently experiencing mental health concerns, 83% had not sought

care.[2] Because of this substantially high prevalence of reluctance to disclose medical and mental health information, aeromedical psychological, psychiatric, and substance abuse evaluations must account for the high likelihood of an incomplete picture based solely on self-report.

To allow for a complete picture of aviation personnel, mental health evaluations of these individuals must include various forms of collateral information. Evaluations with which NAMI is best able to make timely decisions include:

- medical, legal, military, and/or academic record review (dependent on the referral question);
- psychological testing, using at least one psychometric test with validity scales (i.e., a version of the MMPI, MCMI, and/or PAI). Short face-valid screeners are considered inadequate forms of psychometric testing for flight personnel unless the individual is openly asking for help and freely disclosing concerns.
- collateral source information (e.g., flight surgeon, supervisor, etc.). Releases of information are required to talk to anyone besides the FS/APA and CO.

Evaluations reviewed by NAMI which are based solely on self-report are highly likely to result in the need for a second evaluation or a face-to-face evaluation at NAMI in Pensacola, FL.

Questions about evaluations, psychological or neurocognitive testing, waiver standards, etc. may be asked directly by calling NAMI Psychiatry at 850-452-2783.

[1]Hoffman WR, Aden JK, Barbera D, Tvaryanas A. *Self-Reported Health Care Avoidance Behavior in U.S. Military Pilots Related to Fear for Loss of Flying Status*. Mil Med. 2023 Mar 20;188(3-4):e446-e450. doi: 10.1093/milmed/usac311. PMID: 36242520.

[2]Weipert, M. J., Westerburg J. R., & Elliott, J. N. (2024, May 5-9). *Medical self-disclosure rates among Naval aviators* [Conference presentation]. Aerospace Medical Association 2024 Meeting, Chicago, IL, United States.

## 14.1 PSYCHOEDUCATION, NON-MEDICAL COUNSELING, AND SUPPORTIVE PSYCHOTHERAPY

Last Revised: April 2025 Last Reviewed: April 2025

**AEROMEDICAL CONCERNS**: Conditions and situations such as relational/marital problems, housing and economic problems, abuse and neglect, educational and occupational problems, or other problems related to the social environment (Z Codes in the DSM-5-TR and ICD 10) may come to the attention of a Flight Surgeon (FS)/Aeromedical Physician Assistant (APA) or other clinician, and/or result in a self-referral to a variety of support resources. Such issues may occur in isolation, result from a mental health disorder, or lead to or worsen an existing mental health problem. Given the complicated and stressful factors present in these situations, they may interfere with safe or effective flying.

The key component that distinguishes these entities from other disqualifying conditions (such as clinical depression and anxiety) is the *absence of clinically significant distress or impairment in social, occupational, or other important areas of functioning*.

If these conditions are untreated or the problems go unaddressed, there is the potential that they will develop into clinically significant depressive or anxiety conditions such as a Major Depressive Disorder or Generalized Anxiety Disorder. For this reason, all personnel on flight status are encouraged to seek services when they could benefit from extra support, and to seek this support from qualified resources (e.g., Fleet and Family Services, Marine Corps Community Services, Military One Source, college counseling center, military treatment facility, etc.).

**WAIVER PROCESS**: For all Navy and Marine Corps personnel on flight status, temporary aeromedical disqualification (i.e. grounding) is NOT required while receiving psychoeducation, non-medical counseling, or supportive psychotherapy services for any of the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5-TR) conditions included in the chapter, Other Conditions That May Be a Focus of Clinical Attention (i.e. Z codes), *in the absence of clinically significant distress or impairment in social, occupational, or other important areas of functioning*. If an individual pursues any of these services, however, they must report this to their flight surgeon and, for applicants, any history of receiving these services must be reported on any flight physical.

**INFORMATION REQUIRED:** No information is required to be submitted to NAMI for Naval aviation personnel who are receiving any of the services noted above. However, it is imperative that the squadron FS/APA develop a sufficiently-robust rapport with those in their care that service members feel comfortable discussing all aspects of their medical care. These problems frequently need additional administrative, medical, or mental health support, as well as support from the chain of command to effect the best outcomes for service members. Unqualified support from the flight surgeon/APA for seeking these services early can prevent further problems from developing.

**DIAGNOSIS/ICD 10 CODE:**
The use of psychoeducation, non-medical counseling, or supportive psychotherapy services for any condition that is listed in the “Other Conditions That May Be a Focus of Clinical Attention” section of the DSM-5-TR is not considered disqualifying for continued duty involving flying *as long as the FS/APA concurs that it is not associated with functional impairment*. Should the FS/APA assess that there are concerns related to functional impairment, a referral will be made for formal mental health evaluation for differential diagnosis and recommendations.

## 14.2 ADJUSTMENT DISORDERS

Last Revised: April 2025 Last Reviewed: April 2025

**AEROMEDICAL CONCERNS:** Adjustment Disorders are characterized by the development of emotional or behavioral symptoms in response to an identifiable stressor or stressors, occurring within three months of the onset of the stressor(s). The development of psychiatric symptoms as a consequence of adverse life events is considered an expectable part of the human experience, so the diagnosis of this - or any - psychiatric disorder requires that symptoms exceed a "clinical significance threshold." This means the presence of "marked distress that is out of proportion to the severity or intensity of the stressor," and/or "significant impairment in social, occupational, or other important areas of functioning." Symptoms can vary widely in form and severity, and unlike other DSM-5-TR disorders, adjustment disorder diagnostic criteria have no clear and specific symptom profile to define the condition. When symptoms such as depressed mood, anxiety, fatigue, problems with concentration, attention, judgment and decision-making, misconduct, and others reach the diagnostic threshold, the potential for adverse effects on flight safety, crew coordination, and mission effectiveness necessitate grounding until the condition has fully resolved, either naturalistically or by way of treatment.

Adjustment disorder cannot be diagnosed if the disturbance meets criteria for another mental health disorder (e.g. a depressive or anxiety disorder), or is merely an exacerbation of a preexisting mental disorder. In addition, symptoms must not represent normal bereavement, or be better explained by prolonged grief disorder. Per DSM-5-TR, "By definition, an adjustment disorder must resolve within 6 months of the termination of the stressor or its consequences; if symptoms persist beyond 6 months after the stressor or its consequences have ceased, the diagnosis of adjustment disorder would no longer apply." Well-meaning clinicians, considering a diagnosis of adjustment disorder "less stigmatizing" than other psychiatric disorders, may choose this diagnosis, to protect patients, for example, from the risk of discrimination in health, life, and disability insurance. In the aviation community, this category of diagnosis has sometimes been chosen to speed up waiver approval by side-stepping the *Period of Observation in a Non-flying Status* (PONS) stipulated for other diagnostic categories. This practice is at odds with the need for diagnostic precision in applying proper aeromedical risk controls. Regarding treatment, psychotherapy is the mainstay, generally short-term, goal-focused approaches. While it is reasonable to consider short-term pharmacologic interventions for insomnia and severe anxiety, the evidence for effectiveness of antidepressants for depressive symptoms in adjustment disorder is scant. Need for medication generally suggests another mental health disorder.

The current policy is to submit a grounding physical once the diagnosis is established. Once the condition is resolved, a new physical and AMS must be submitted in AERO with all supporting documentation for the member to be returned to flight status (since the member must be returned to flight duty by the waiver authority after a grounding physical). An adjustment disorder which resolves within 60 days is NCD while one which takes longer to resolve will remain CD, with waiver required for return to duty involving flying. Aeromedical clearance, with or without a waiver, depending on the duration of the adjustment disorder, may be requested when the member is completely asymptomatic in a "Fit for Full Duty" status after completion of all treatment.

It should be noted that multiple adjustment disorders warrant further scrutiny to ensure that the disturbance does not meet the criteria for another mental disorder and is not merely an exacerbation of a pre-existing mental health disorder.

**Suicidal Behavior and Non-Suicidal Self-Harm (see also Section 14.16)**: When suicidal thoughts and behavior or non-suicidal self-harm occurs in the context of an Adjustment Disorder (or Z Code), a minimum 6-month PONS is required, after symptom remission has occurred. In these cases, given the seriousness of suicidal thinking, planning, and actions, and their high risk for recurrence, immediate return to flying upon initial resolution of symptoms is not considered safe. Additionally, in these cases there must be evidence of psychotherapy or education/training in stress management, coping, and/or resilience, as well as evidence of the development of improved and effective coping strategies.

**Maintenance Pharmacotherapy:** Maintenance pharmacotherapy is sometimes used to mitigate the risk of future recurrence of, for example, depressive disorders, after several discrete episodes. It is rarely, if ever, a rational choice in the treatment of adjustment disorders, given the transient and usually self-limited nature of the condition, especially in the hardy and resilient population of Naval Aviation. In those rare instances of persistent (chronic) adjustment disorders, maintenance pharmacotherapy may be considered. In such cases, Designated Members are eligible for waiver consideration while on maintenance pharmacotherapy. Waiver consideration may be requested after a suitable PONS has elapsed, which for adjustment disorder is 12 months. The PONS begins once an authorized mental health provider (an aeromedically trained clinical psychologist or psychiatrist whenever possible) has declared, by way of a formal medical record entry, that the service member's condition is in full remission. Applicants will not be considered for a waiver if on maintenance pharmacotherapy. Please see Section 18.7 of the ARWG for full details.

**DIAGNOSIS/ICD-10 Code:**

**F43.21 Adjustment Disorder with depressed mood**
**F43.22 Adjustment Disorder with anxiety**
**F43.23 Adjustment Disorder with mixed anxiety and depressed mood**
**F43.24 Adjustment Disorder with disturbance of conduct**
**F43.25 Adjustment Disorder with mixed disturbance of emotions and conduct**
**F43.20 Adjustment Disorder unspecified**

**Specify if:**

**Acute:** Persistence of symptoms for less than six months.
**Persistent (chronic):** Persistence of symptoms for six months or longer. By definition, symptoms cannot persist for more than six months after termination of the precipitating stressor or its consequences. The "persistent" specifier thus applies when the duration of the disturbance is longer than six months in response to a chronic stressor that has enduring consequences.

**INFORMATION REQUIRED:**

1. Flight Surgeon (FS)/Aeromedical Physician Assistant (APA) Aeromedical Summary (AMS) documenting all prior symptoms, absence of persistent features, course of the disorder, medication use, and current level of functioning.
2. All mental health notes including treatment summary (e.g., mental health evaluation, treatment summary/termination notes). Please do not simply state, "See GENESIS/JLV records." Also include items not in GENESIS/JLV (e.g., civilian medical records, college counseling center records, legal records).

3. A current mental health evaluation is required to document complete, sustained remission of all symptoms. Evaluation should be completed by an aeromedically-trained clinical psychiatrist or psychologist whenever possible.
4. Include a copy of all mental health-related Medical Boards which have been written for the member (if applicable).

## 14.3 ADHD/NEURODEVELOPMENTAL DISORDERS (E.G., SPECIFIC LEARNING DISORDER, ATTENTION DEFICIT/ HYPERACTIVITY DISORDER)

Last Revised: April 2025 Last Reviewed: April 2025

**AEROMEDICAL CONCERNS:** Continuing symptomatology of Neurodevelopmental Disorders present a number of challenges in the aviation environment, which routinely demands sustained attention, vigilance, dual tasking, working memory, processing speed, reaction time, vigilance, concise communication, effective decision-making, and a host of other cognitive abilities. Symptoms of Neurodevelopmental Disorders which persist into adulthood are not conducive to safe and effective flight duties. Communication Disorders are associated with deficits in language, speech, and communication. Aeromedical concerns are foremost in the domains of crew coordination and mission completion (e.g., effective radio communications). Autism Spectrum Disorder involves pervasive problems with social communication, social interaction, and restricted patterns or behavior, interests and/or activities. Aeromedical concerns include safety of flight, mission completion, and crew coordination. Attention Deficit/Hyperactivity Disorder (ADHD) involves a pattern beginning in childhood of problems in such areas as attention, vigilance, organization, impulse control, set shifting, dual tasking, working memory, and both verbal and visual memory. Aeromedical concerns include safety of flight, mission completion, and crew coordination. Current use of either non-stimulant or stimulant medication to treat ADHD is incompatible with aviation duty, and waivers are not granted in such cases. Specific Learning Disorders may be associated with underlying abnormalities in cognitive processes, including deficits in specific academic abilities, visual perception, or linguistic processes. Depending on the severity of the disorder, these deficits may jeopardize both safety and mission execution in the highly dynamic aviation environment. Motor Disorders include impairments in motor abilities and can impact safety of flight, mission completion, and crew coordination.

**DIAGNOSIS/ICD-10 Code:**

| | |
|---|---|
| **F89.9** | **Language Disorder** |
| **F80.81** | **Childhood-Onset Fluency Disorder (Stuttering)** |
| **F80.89** | **Social (Pragmatic) Communication Disorder** |
| **F80.9** | **Unspecified Communication Disorder** |
| **F84.0** | **Autism Spectrum Disorder** |
| **F90.0** | **Attention-Deficit/Hyperactivity Disorder, Predominantly inattentive presentation** |
| **F90.1** | **Attention-Deficit/Hyperactivity Disorder, Predominantly hyperactive/impulsive presentation** |
| **F90.2** | **Attention-Deficit/Hyperactivity Disorder, Combined presentationF81.0 Specific Learning Disorder with impairment in reading** |
| **F81.2** | **Specific Learning Disorder with impairment in mathematics** |
| **F81.81** | **Specific Learning Disorder with impairment in written expression** |
| **F82** | **Developmental Coordination Disorder** |
| **F98.4** | **Stereotypic Movement Disorder** |
| **F95.2** | **Tourette's Disorder** |
| **F95.1** | **Persistent (Chronic) Motor or Vocal Tic Disorder** |
| **F95.8** | **Other Specified Tic Disorder** |
| **F95.9** | **Unspecified Tic Disorder** |

**WAIVER:**

**Communication Disorders:** History of a communication disorder is not necessarily disqualifying. The severity, nature, and course of the disorder should be documented. Any residual problems or history of a persistent communication disorder requires a mental health evaluation, speech-language pathology evaluation, and for mild residual symptoms (e.g., stuttering), a functional assessment may be required.

**Autism Spectrum Disorder:** A diagnosis of Autism Spectrum Disorder at any time of life is considered disqualifying. Because symptoms of Autism Spectrum Disorder are pervasive, are frequently associated with intellectual impairment, have high rates of co-morbidity with other medical and mental health diagnoses, and interfere with requisite social abilities, job demands, and stress tolerance, waivers are not considered.

**Attention Deficit/Hyperactivity Disorder:** A diagnosis of ADHD at any time of life is considered disqualifying. Applicants with childhood diagnoses of ADHD who have not taken medication for the past 12 months for enlisted and 24 months for officers, have received no academic or occupational accommodations during that time, who have been engaged in consistent academic and/or occupational activities (e.g., formal school or training, employment) during that time, and who demonstrate no symptoms/functional impairment may be considered for a waiver. Documentation of the initial diagnosis, severity, nature, and course of the disorder will be reviewed, including all medical records, Individual Educational Plans/504 Plans, high school and/or college transcripts, and other pertinent documentation (e.g., letters from employers). Waivers are not considered for applicants who have continuing evidence of symptoms or disability into adulthood, as indicated for example, by the need for medication and/or accommodations in graduate school, need for ADHD medications while serving on active duty, or other evidence of continuing symptoms. For active-duty service members who believe they were erroneously diagnosed with ADHD as adults or who used stimulant medications in an effort to improve grades or job performance, a waiver will not be considered until the service member has been off of medications for 24 months and has demonstrated sustained successful occupational performance during that time.

**Specific Learning Disorders:** History of a learning disorder is not necessarily disqualifying. The severity, nature, and course of the disorder should be documented. Any residual problems or history of a persistent learning disorder requires a neuropsychological evaluation, which includes formal academic testing.

**Motor Disorders**: History of a motor disorder is not necessarily disqualifying, if problems resolve in childhood. Depending on the history, documentation of initial diagnosis, severity, nature, and course of the disorder will be reviewed, including all medical, educational, and mental health records. Any residual problems will require a current mental health, neurologic, occupational therapy, and/or functional assessment.

**INFORMATION REQUIRED:**

**Communication Disorder:**

1. Flight Surgeon (FS)/Aeromedical Physician Assistant (APA) Aeromedical Summary (AMS) documenting all prior symptoms, absence of persistent features, course of the disorder, and current level of functioning.
2. Childhood medical and school records documenting the diagnosis and any academic interventions and accommodations (e.g., Individual Educational Plans/504 Plans).
3. High school and college transcripts (if applicable).

4. If absence of academic/functional impairment cannot be determined from available records, a speech-language pathology evaluation and/or a comprehensive neuropsychological evaluation is required.
5. A functional assessment may be required. This would be determined by NAMI Psychiatry.

**Attention-Deficit/Hyperactivity Disorder:**

1. FS/APA AMS documenting all prior symptoms, absence of persistent features, severity and course of the disorder, medication use, need for academic or other accommodations, and current level of functioning.
2. For non-college graduates, a comprehensive mental health evaluation which includes the following:
    - Review of high school transcripts and college transcripts (if applicable)
    - Review of high school and college Individual Education Plans and other accommodations (if applicable)
    - Review of all medical records relevant to ADHD and any comorbidities
    - Review of the last 5 years of prescription data
    - Standard elements of mental health evaluations (substance use history, social history, mental health and medical history, family mental health and medical history, legal history, mental status examination)
    - Evaluation must be performed by a clinical psychologist or psychiatrist
    - If the mental health evaluation substantiates the diagnosis of childhood ADHD or cannot definitively rule it out, a comprehensive neuropsychological evaluation is required which includes:
        a. Administration of the full current edition of the Wechsler Adult Intelligence Scale with all index scores
        b. Verbal and Visual Memory Testing (i.e., current Wechsler Memory Scale Logical Memory, California Verbal Learning Test, Rey Complex Figure Test or equivalents)
        c. Vigilance Testing (i.e., current Conner's Continuous Performance Test, Aviation Vigilance Test or equivalent)
        d. Testing of Executive Function (FOUR of the following are required: Trail Making A and B, Wisconsin Card Sorting Test or Booklet Category Test, Paced Auditory Serial Addition Test, Iowa Gambling Task, Stroop Color and Word Test, Tower of London-Drexel).
        e. ADHD Self Report Measures
        f. Alcohol Screening (Alcohol Use Disorders Identification Test or equivalent)
        g. Depression Screening (Beck Depression Inventory-II or equivalent)
        h. Personality Testing (Minnesota Multiphasic Personality Inventory-II, RF, or 3, Personality Assessment Inventory or equivalent)
        i. Standard elements of mental health evaluations (substance use history, social history, mental health and medical history, family mental health and medical history, legal history, mental status examination)
        j. Evaluation must be performed by a credentialed neuropsychologist
        k. Evaluation must be performed when the service member is off of ADHD medications. This must be confirmed by laboratory testing for the specific ADHD medication(s) that the individual was previously prescribed. Testing must be conducted immediately following cognitive test administration.

3. For college graduates who did not require (or use) either medication or academic accommodations for the entire college experience, no mental health evaluation is required. The service member must provide:
    - Childhood medical and school records documenting the diagnosis, course and cessation of treatment
    - College transcripts
    - Letter from the college/university academic learning center (or equivalent) stating that the service member was never evaluated for, qualified for, or provided academic accommodations during their entire college experience. If the service member transferred to/from another college at any time, letters from both academic centers are required.
    - A member statement attesting to the fact that he/she did not use or require medications or accommodations/extra assistance for ADHD throughout college. The statement must also include a narrative of their ADHD diagnosis, evolution over time, and personal perceptions of their current level of functioning.
4. Given that there are no available academic accommodations at the U.S. Naval Academy, USNA Midshipmen in their senior year must provide:
    - Childhood medical and school records documenting the diagnosis, course, and cessation of treatment
    - College transcripts
    - Last 5 years of prescription data.
    - A member statement attesting to the fact that he/she did not use or require medications or accommodations/extra assistance for ADHD throughout college. The statement must also include a narrative of their ADHD diagnosis, evolution over time, and personal perceptions of their current level of functioning.
5. For college graduates who required and/or utilized ADHD medication (stimulant or non-stimulant) and/or academic accommodations at any time while in college, a neuropsychological evaluation is required which includes:
    - Administration of the full current edition of the Wechsler Adult Intelligence Scale with all index scores
    - Verbal and Visual Memory Testing (i.e., current Wechsler Memory Scale Logical Memory, California Verbal Learning Test, Rey Complex Figure Test or equivalents)
    - Vigilance Testing (i.e., current Conner's Continuous Performance Test, Aviation Vigilance Test or equivalent)
    - Testing of Executive Function (FOUR of the following are required: Trail Making A and B, Wisconsin Card Sorting Test or Booklet Category Test, Paced Auditory Serial Addition Test, Iowa Gambling Task, Stroop Color and Word Test, Tower of London-Drexel).
    - ADHD Self Report Measures
    - Alcohol Screening (Alcohol Use Disorders Identification Test or equivalent)
    - Depression Screening (Beck Depression Inventory-II or equivalent)
    - Personality Testing (Minnesota Multiphasic Personality Inventory-II, RF, or 3, Personality Assessment Inventory or equivalent)
    - Standard elements of mental health evaluations (substance use history, social history, mental health and medical history, family mental health and medical history, legal history, mental status examination)
    - Evaluation must be performed by a credentialed neuropsychologist
    - Evaluation must be performed when the service member is off of ADHD medications. This must be confirmed by laboratory testing for the specific ADHD medication(s)

that the individual was previously prescribed. Testing must be conducted immediately following cognitive test administration.

**Specific Learning Disorder:**

1. FS/APA AMS documenting all prior symptoms, absence of persistent features, course of the disorder, and current level of functioning.
2. Childhood medical and school records documenting the diagnosis and any academic interventions and accommodations (e.g., Individual Educational Plans/504 Plans).
3. High school and college transcripts (if applicable).
4. For college graduates who did not require (or use) academic accommodations for the entire college experience, no evaluation is required. The service member must provide:
   - Childhood medical and school records documenting the diagnosis, course and cessation of treatment
   - College transcripts
   - Letter from the college/university academic learning center (or equivalent) stating that the service member was never evaluated for, qualified for, or provided academic accommodations during their entire college experience. If the service member transferred to/from another college at any time, letters from both academic centers are required.
   - A member statement attesting to the fact that he/she did not use or require accommodations/extra assistance for the learning disorder throughout college. The statement must also include a narrative of their diagnosis, evolution over time, and personal perceptions of their current level of functioning.
5. If absence of academic/functional impairment cannot be determined from available records, a comprehensive neuropsychological evaluation including academic testing and conducted by a credentialed neuropsychologist is required.

**Motor Disorder:**

1. FS/APA AMS documenting all prior symptoms, absence of persistent features, course of the disorder, and current level of functioning.
2. Childhood medical and school records documenting the diagnosis and any academic interventions and accommodations (e.g., Individual Educational Plans/504 Plans).
3. High school and college transcripts (if applicable).
4. If absence of academic/functional impairment cannot be determined from available records, an occupational therapy, neurology, or other applicable specialty evaluation is required.
5. A functional assessment may be required. This would be determined by NAMI Psychiatry.

## 14.4 ALCOHOL AND OTHER ADDICTIVE DISORDERS

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**AEROMEDICAL CONCERNS**: The consumption of alcoholic beverages is a widely accepted practice in our society, and most people are able to drink moderately and responsibly without any adverse effects. In addition to its use as a “social lubricant,” alcohol used in moderation was long thought to confer modest health benefits, although more recent findings have effectively dispelled that notion. While most aviators can drink with impunity, a minority suffer from an Alcohol Use Disorder which, unless properly treated, presents an unacceptable risk to aviation safety. Alcohol is a sedative and hypnotic drug that has both acute and chronic effects on cognitive and physical performance. Cognitive effects include impairment of short-term memory, degradation of reasoning and decision-making, and inattentiveness. Psychomotor dysfunction includes an increase in reaction time and procedural errors. These damaging effects can occur at blood alcohol levels as low as 0.02 mg/dL, or after as little as a single standard drink. In addition, after moderate alcohol consumption, these effects can persist for many hours even after the blood alcohol level has returned to zero. Alcohol can also cause problems with visual acuity, oculovestibular dysfunction (positional alcohol nystagmus), and vertigo. This susceptibility persists long into the "hangover" period. In addition, alcohol reduces Gz tolerance by 0.1-0.4 G. Acute alcohol intoxication can also produce ataxia, vertigo, nausea, and cardiac dysrhythmias that usually disappear quickly but can leave moderate conduction delays for up to one week (the "holiday heart" syndrome). Aviation duties involve highly demanding cognitive and psychomotor tasks, frequently performed in inhospitable environments, so it is not difficult to see how the presence of an untreated Alcohol Use Disorder with impaired control over drinking, or even the injudicious use of alcohol by non-alcoholic individuals, can introduce a potentially lethal risk to the safety-sensitive occupation of flying.

Gambling Disorder also involves an inability to resist acting on impulse that may lead to aviation safety problems. Individuals with Gambling Disorder are generally preoccupied with gambling, irritable or distracted when attempting to cut down or stop gambling, and often lie to conceal the extent of involvement with gambling. Gambling Disorder is typically treated with behavior therapy. A solid aftercare program, similar to that required for Alcohol Use Disorder, is required for a waiver.

With the publication of DSM-5 in 2013, Internet Gaming Disorder was included as a Condition for Further Study, and remained in that section of the Manual a decade later when DSM-5-TR was released. In 2018, the World Health Organization added Gaming Disorder to the International Classification of Disease (ICD-11), with subcategories for “predominantly online” and “predominantly offline” types. Other behavioral (i.e. non-substance) addictions, including “sex addiction,” were considered for inclusion by the *DSM*-5 working group, but ultimately rejected, due to what the group considered insufficient scientific evidence of the validity of those as diagnostic categories. The WHO took the other side in the sexual addictions classification debate, and added the new category of Compulsive Sexual Behaviour Disorder to ICD-11. The aeromedical relevance of this is that NAMI has reviewed multiple waiver requests for gaming and sex addiction, and when waivers were recommended, aeromedical risk controls analogous to the published stipulations for substance addictions were implemented, with good success. For that reason, these behavioral addictions have been included in the ARWG.

**HISTORY OF ALCOHOL RELATED INCIDENT:** (Applicants and Designated Personnel): Any history of an Alcohol Related Incident (e.g. DUI, Minor in Possession/Underage Drinking, Open Container, Drunk and Disorderly, etc.) requires due diligence to rule out a possible Alcohol Use Disorder or a pattern of hazardous use requiring early intervention. To that end, all Police/Arrest Reports and Court Records of the incident(s) are required, as are certificates of completion of any court-directed substance use evaluation(s), alcohol education, or alcohol treatment program(s). Upload these documents into AERO with the Physical. Also required is an Aeromedical Summary (AMS) with a detailed history of events surrounding the incident. An alcohol related incident in the absence of a diagnosed Alcohol Use Disorder is Not Considered Disqualifying (NCD) for Duty Involving Flying.

**DIAGNOSIS/ICD-10 Code:**

| | |
|---|---|
| **F10.10** | **Alcohol Use Disorder, Mild** |
| **F10.20** | **Alcohol Use Disorder, Moderate** |
| **F10.20** | **Alcohol Use Disorder, Severe** |
| **F10.99** | **Unspecified Alcohol-Related Disorder** |
| **F63.0** | **Gambling Disorder** |
| **F91.9** | **Gaming Disorder, unspecified (ICD-11 Code 6C51.Z)** |
| **F91.9** | **Gaming Disorder, predominantly online (ICD-11 Code 6C51.0)** |
| **F91.9** | **Gaming Disorder, predominantly offline (ICD-11 Code 6C51.1)** |
| **F91.9** | **Compulsive Sexual Behavior Disorder (ICD-11 Code 6C72)** |

**ABSTINENCE:** Abstinence is required of all aeronautically designated personnel or students (aviators, aircrew, air traffic controllers, unmanned aerial vehicle operators, and instructors) diagnosed with Alcohol Use Disorder, Gambling Disorder, or other behavioral addiction, as follows:

- Navy/Marine Corps active/reserve personnel serving in a flying status involving operational or training flights (DIFOT)
- Personnel on orders to duty in a flying status not involving flying (DIFDEN) orders
- Instructors under hazardous duty incentive pay (HDIP) orders
- Civilian DON employees including non-appropriated fund employees and contract employees involved with frequent aerial flights or air traffic control duties

**PREVIOUS DIAGNOSIS OF ALCOHOL USE/GAMBLING DISORDER:**
If the member has a previous diagnosis of Alcohol Abuse or Dependence (DSM-III through DSM-IV-TR) or Alcohol Use Disorder (DSM-5 and DSM-5-TR), Gambling Disorder, or other behavioral addiction, and a waiver has not been granted, follow the guidelines for *New Diagnosis of Alcohol Use or Behavioral Addiction (Gambling Disorder, Sex or Gaming Addiction)* as outlined below.

If the member has a previous diagnosis of Alcohol Abuse or Dependence or Alcohol Use Disorder, Gambling Disorder, or other behavioral addiction, and has been granted a waiver, follow the guidelines for *Annual Waiver Continuance Process* (outlined below).

**NEW DIAGNOSIS OF ALCOHOL USE DISORDER OR BEHAVIORAL ADDICTION (GAMBLING DISORDER, SEX OR GAMING ADDICTION):** Flight Surgeon (FS)/ Aeromedical Physician Assistant (APA) must submit a grounding physical to NAMI Code NA05. Waiver is possible 90 days after the service member has:

1. Successfully completed Outpatient, Intensive Outpatient, or Residential treatment (the appropriate level of treatment will be determined by the treatment facility, using the current edition of the American Society of Addiction Medicine treatment criteria, The ASAM Criteria).
2. Maintained a positive attitude and an unqualified acknowledgment of the alcohol use/addictive disorder.
3. Remained abstinent from alcohol without the need for amethystic medications.
4. Fully complied with aftercare requirements post-treatment during the minimum of 90 days (see below).

**AFTERCARE REQUIREMENTS:** The member must document participation in an organized recovery program. **FOR ALCOHOL USE DISORDER, THIS IS ALCHOLICS ANONYMOUS (AA), INCLUDING "BIRDS OF A FEATHER" FOR PILOTS AND COCKPIT CREW MEMBERS**. For Gambling Disorder, Gamblers Anonymous (GA) is preferred, but the member may use a combination of GA and (open) AA meetings, e.g., when there are not sufficient GA meetings available locally to satisfy the requirement. For other behavioral addictions, appropriate mutual support meeting attendance and participation will likewise be required. Unless otherwise specified, the requirement for mutual support group participation must be in the form of attendance at "face-to-face" meetings. Alternatives, such as online or telephone "meetings" may be considered on a case-by-case basis, but will only be approved if operational limitations preclude attendance at face-to-face meetings; in all such cases, prior approval by NAMI will be required. Under no circumstances will such alternatives be considered for approval if face-to-face meetings are available. In addition to mutual support group attendance, the member must satisfy the following requirements in the specified timeframes:

**Aftercare Timeframe**

| **Professional /Meetings** | **First Year** | **Second/Third Year** | **Fourth Year +** |
|---|---|---|---|
| FS/APA | Monthly | Quarterly | Annually |
| DAPA/SACO | Monthly | Monthly | No formal requirement |
| Psychiatrist/Psychologist/Licensed Clinical Social Worker/Psychiatric Nurse Practitioner | Annually | Annually | No formal requirement |
| Alcoholics Anonymous, Gamblers Anonymous, or other appropriate mutual support meeting for Sex or Gaming Addiction | 3x weekly | 1x weekly | Strongly recommended but not required |
| Random Urine Ethyl Glucuronide (EtG) and Ethyl Sulfate (EtS) | Quarterly | Quarterly | No formal requirement |
| Random Blood Phosphatidylethanol (PEth) | Annually | Annually | No formal requirement |

**INITIAL WAIVER PROCESS:** As with any other waiver, the member should initiate the request. *In the waiver request letter, the member must acknowledge the specific aftercare requirements listed above.* Further, the member must provide specific evidence of current compliance. This will avoid claims that the member was never advised of all the requirements for requesting and maintaining an alcohol waiver.

**INFORMATION REQUIRED:**

1. Complete flight physical, including Mental Status Exam.
2. Aeromedical Summary (AMS) to include:
   a. Detailed review of all factors pertaining to the diagnosis, including events preceding and after the initial clinical presentation.
   b. Statements concerning safety of flight, performance of duties, potential for recovery, and any symptoms of co-occurring disorders or significant stressors.
   c. Documentation of compliance with aftercare requirements including abstinence and attendance at AA meetings for Alcohol Use Disorder, GA meetings for Gambling Disorder, or other appropriate mutual support group meetings for Sex or Gaming Addiction.
3. Outpatient/Intensive Outpatient/Residential treatment summary.
4. Blood Phosphatidylethanol (PEth) level – may utilize level drawn from SARP or other evaluation. If no recent PEth, obtain a separate lab value prior to submission.
5. DAPA's statement documenting aftercare including attendance at AA meetings for Alcohol Use Disorder, GA meetings for Gambling Disorder, or other appropriate mutual support group meetings for Sex or Gaming Addiction.
6. Psychiatric evaluation by a privileged psychiatrist, clinical psychologist, licensed clinical social worker, or psychiatric nurse practitioner—this should be completed at the 90-day mark following successful completion of the appropriate level of treatment.
7. Commanding officer's endorsement on command letterhead.
8. Signed member statement:

   The waiver request must include a personal statement, written, signed and dated by the member, that includes the following paragraph (**NOTA BENE:** the member's statement should contain not only the following paragraph, but also demonstrate unqualified acknowledgment of the condition and give evidence of a positive attitude towards recovery. In other words, simply copying and pasting this paragraph is necessary but NOT SUFFICIENT for the purpose of gaining waiver approval; the member MUST also write a personal statement). In the case of Gambling Disorder or other behavioral addiction, the appropriate verbiage, pertaining to the specific condition, should be substituted.

   "I have reviewed the relevant sections of the Aeromedical Reference and Waiver Guide with my Flight Surgeon/Aeromedical Physician Assistant. I understand that I must remain abstinent from alcohol for the duration of my flying career in order to remain eligible for this waiver. I must meet with my Flight Surgeon/Aeromedical Physician Assistant monthly for the first year, then quarterly for the next two years of formal aviation aftercare. I must meet with the command DAPA/SACO monthly and undergo a mental health evaluation yearly throughout the first three years of formal aviation aftercare. And I must document required attendance at meetings of Alcoholics Anonymous (AA) a MINIMUM of three times per week for the first year and once per week for the next two years of formal aviation aftercare."

**ANNUAL WAIVER CONTINUANCE PROCESS:**

1. During first three years of aftercare
   a. Complete long-form flight physical (SF 88 and SF 93 or DD2807/2808).
   b. FS/APA statement (must address the following)
      (1) Safety of flight, performance of duties, potential for sustained recovery, and any symptoms of co-occurring disorders
      (2) Documentation of compliance with aftercare requirements including abstinence and AA attendance.
   c. Alcohol Biomarkers obtained either from other required evaluations (e.g. SARP) or separately by FS/APA. Random, unannounced testing is preferred. Biomarker testing shall include:
      (1) **Quarterly Monitoring**: Urine ethyl glucuronide (EtG) and ethyl sulfate (EtS) tests conducted on a random basis at least once quarterly. Alternatively, blood phosphatidylethanol (PEth) levels may be used as a substitute for EtG/EtS testing, as PEth is a more sensitive and reliable biomarker for alcohol consumption.
      (2) **Annual Monitoring**: A blood phosphatidylethanol (PEth) level test conducted on a random basis at least once annually.
   d. DAPA's statement documenting aftercare including attendance at AA meetings for Alcohol Use Disorder, GA meetings for Gambling Disorder, or other appropriate mutual support group meetings for Sex or Gaming Addiction.
   e. Psychiatric evaluation by a privileged psychiatrist, clinical psychologist, licensed clinical social worker, or psychiatric nurse practitioner.
2. After three years of aftercare
   a. Short-form flight physical (NAVMED 6410/10)
   b. Aeromedical Summary (must address the following)
      (1) Safety of flight, performance of duties, potential for sustained recovery, and any symptoms of co-occurring disorders.
      (2) Documentation of member's continued abstinence

**NONCOMPLIANCE OR AFTERCARE FAILURE:** The following guidance pertains to any member in denial of an alcohol, gambling, or other behavioral addiction, failing to abstain, or not compliant with all aftercare requirements as enumerated above. These members are to be considered NPQ and the following actions shall be performed:

1. Ground the member immediately! Grounding period is a minimum of 6-12 months.
2. Submit grounding physical to NAMI Code NA05 (MED-236).
3. Re-evaluation by Flight Surgeon, DAPA, and Alcohol Treatment Facility to determine potential for re-treatment.

**NOTE:** If member requests a waiver after the 6-12 month grounding period, follow the Initial Waiver Process (above). Please discuss these waiver requests with NAMI Psychiatry Department before submission. NAMI will review these waiver requests on a case-by-case basis.

**DISCUSSION:** Use the current American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders (as of this writing, DSM-5-TR) criteria to diagnose Substance-Related and Addictive Disorders. The evidenced-based aftercare requirements (outlined above) will help a member diagnosed with an Addictive Disorder maintain long-term sobriety/abstinence/recovery in the interest of aviation safety.

To assist with deterrence of lapses and relapses that may occur with Alcohol Use Disorders, the inclusion of EtG, EtS, and PEth laboratory values into the monitoring process aligns with evolving medical practices, the FAA and other military services, and highlights the need for a compassionate, disease-focused framework that prioritizes safety and rehabilitation. Utilizing EtG and EtS together for random quarterly urine collections as well as at least annual random PEth levels offers enhanced sensitivity and specificity for detecting alcohol use, enabling a more objective and reliable assessment of abstinence. This modernization emphasizes deterrence rather than punitive measures, recognizing the vulnerability to relapse during the early recovery stages of the disease. By providing clear, measurable feedback on alcohol use, these biomarkers reinforce the importance of abstinence while supporting aviation personnel in maintaining their health and readiness.

## AMERICAN SOCIETY OF ADDICTION MEDICINE (ASAM) CRITERIA LEVELS OF CARE

Early intervention and secondary prevention services are recommended for individuals at risk of developing a Substance-Related or Addictive Disorder, usually recommended after a single ARI; analogous to the civilian “DUI school.” This was known as “Level 0.5” in the Third Edition of The ASAM Criteria, and is not considered adequate for anyone meeting diagnostic criteria for a Substance-Related or Addictive Disorder and hence is not sufficient for waiver eligibility.

Level 1 – OUTPATIENT.
Level 2 – INTENSIVE OUTPATIENT.
Level 3 – RESIDENTIAL.
Level 4 – MEDICALLY MANAGED INTENSIVE INPATIENT. (Rarely necessary for military aviation personnel.

**TOBACCO-RELATED DISORDERS AND SMOKING CESSATION:**

**DIAGNOSIS/ICD-10 Code:**
**Z72.0 Tobacco Use Disorder, Mild**
**F17.200 Tobacco Use Disorder Moderate**
**F17.200 Tobacco Use Disorder Severe**

Tobacco use in any form, while Not Considered Disqualifying for Duty Involving Flying, should nonetheless be discouraged, as the evidence for adverse health effects is overwhelming and there can be no doubt that many, if not most, regular users meet DSM-5-TR criteria for Tobacco Use Disorder. Happily, many patients are able to quit without pharmacologic intervention once equipped with the knowledge and behaviors needed to abstain. For those who do require pharmacologic support, the following aeromedical guidelines apply.

Nicotine replacement therapy (transdermal and gum) is approved with the following stipulations:

**NICORETTE GUM®:** NCD if the following conditions are met:

1. Enrolled in formal organized stop smoking program.
2. Close observation by Flight Surgeon (FS)/Aeromedical Physician Assistant (APA).
3. No adverse effects.
4. Duration of use does not exceed three months.

**NICOTINE TRANSDERMAL SYSTEM (NICODERM®):** NCD. Aviators should be grounded for 48 hours following application of first patch.

All other medications for tobacco cessation are not approved for use by personnel on active flight status, so require grounding during treatment. This can often be planned to coincide with non-flying periods. Guidance for timing of return to flight is based on the elimination half-life of the drug being used, as follows:

**VARENICLINE (CHANTIX®):** Varenicline has an elimination half-life of 24 hours, so individuals may be returned to flight no sooner than one more week after finishing Chantix.

**BUPROPION (ZYBAN®, WELLBUTRIN®):** Bupropion is cleared more quickly, but only about 1% is excreted unchanged in the urine; the rest is metabolized to three major active metabolites, threohydrobupropion, erythrohydrobupropion and hydroxybupropion, which accumulate to levels much higher than the parent compound and can have extended half-lives of as long as 43 hours. Individuals taking bupropion should therefore be kept down for two weeks following completion of treatment.

## 14.5 ANXIETY DISORDERS

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**AEROMEDICAL CONCERNS**: The symptoms associated with anxiety disorders may produce sudden and dangerous distraction in flight with autonomic symptoms as well. Panic attack episodes are particularly hazardous due to the risk that symptoms that can appear unexpectedly and lead to sudden incapacitation. Service members with Panic Disorder and Generalized Anxiety Disorder may complain of palpitations, dizziness, headaches, shortness of breath, tremulousness, and impaired concentration and memory. Panic Disorder has a high rate of recurrence, and is associated with increased mortality from cardiovascular disease and suicide. Some medications used to treat these disorders are incompatible with flying status.

**DIAGNOSIS/ICD-10 Code:**

| | |
|---|---|
| **F40.00** | **Agoraphobia** |
| **F40.10** | **Social Anxiety Disorder (Social Phobia)** |
| **F40.218–298** | **Specific Phobia (animal, natural environment, blood-injection-type, situational, other)** |
| **F41.0** | **Panic Disorder** |
| **F41.1** | **Generalized Anxiety Disorder** |
| **F41.8** | **Other Unspecified Anxiety Disorder** |
| **F41.9** | **Unspecified Anxiety Disorder** |

The above diagnoses are all CD for aviation. **Waiver may be requested when the member has been completely asymptomatic in a "Fit for Full Duty" status for a minimum of 12 months after completion of all treatment.**

**Maintenance Pharmacotherapy:** Maintenance pharmacotherapy is sometimes used to mitigate the risk of future recurrence of Anxiety Disorders, typically after several discrete episodes. In cases of persistent (chronic) or recurrent Anxiety Disorders, maintenance pharmacotherapy may be considered. In such cases, Designated Members are eligible for waiver consideration while on maintenance pharmacotherapy. Waiver consideration may be requested after a suitable Period of Observation in a Non-flying Status (PONS) has elapsed, which for Anxiety Disorders is 12 months. The PONS begins once an authorized mental health provider (an aeromedically trained clinical psychologist or psychiatrist whenever possible) has declared, by way of a formal medical record entry, that the service member's condition is in full remission. Applicants will not be considered for a waiver if on maintenance pharmacotherapy. Waivers will not normally be recommended for acute-phase treatment of initial episodes of Anxiety Disorders. Please see Section 18.7 of the ARWG for full details.

**INFORMATION REQUIRED:**

1. Flight Surgeon (FS)/Aeromedical Physician Assistant (APA) Aeromedical Summary (AMS) documenting all prior symptoms, absence of persistent features, course of the disorder, medication use, and current level of functioning.
2. All mental health notes including treatment summary (e.g., mental health evaluation, treatment summary/termination notes). Please do not simply state, "See GENESIS/JLV records." Please also include items not in GENESIS/JLV (e.g., civilian medical records, college counseling center records, legal records).

3. A current psychiatric evaluation is required to document complete, sustained remission of all symptoms. Evaluation should be completed by an aeromedically-trained clinical psychiatrist or psychologist whenever possible.
4. Include a copy of all mental health-related Medical Boards which have been written for the member (if applicable).

**Substance/Medication-Induced Anxiety Disorder:** Substance/Medication-Induced Anxiety Disorder with clear evidence from the history, physical examination, or laboratory findings that the disturbance is etiologically related to substance/medication use is CD and waivers are considered on a case-by-case basis after all symptoms have cleared. In the case of psychiatric syndromes caused by alcohol or illicit drugs, a SARP evaluation should be included in the waiver package to rule out a Substance-Related or Addictive Disorder. A Local Board of Flight Surgeons (LBFS) may issue a temporary up-chit in accordance with Manual of the Medical Department Article 15-80.

**Anxiety Disorder Due To Another Medical Condition (F06.4):** NCD when resolved if precipitating organic factors identified and not likely to recur. Physical illness or other disorders causing persistent delirium are permanently disqualifying and should be referred to a medical board.

## 14.6 BIPOLAR AND RELATED DISORDERS

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**AEROMEDICAL CONCERNS:** Bipolar spectrum disorders are especially concerning due to lack of insight and impaired reality-testing, often coupled with compromised judgment and poor treatment compliance. Lifetime prevalence of Bipolar I Disorder is estimated at about 1% of the general population. Prevalence of Bipolar II Disorder, characterized by episodes of hypomania instead of mania, is 0.8%. As with most psychiatric conditions, the prevalence is undoubtedly much lower among designated aviation personnel. The mean age of onset for Bipolar I disorder is 18 years of age, but onset throughout the life cycle is possible, including cases with first diagnosis well into the seventh and eighth decades of life (although in many such cases, thorough exploration of the past history reveals earlier mild, forgotten or undiagnosed episodes of depressed or abnormally elevated mood). Many individuals do well between episodes, but as many as 30% have severe inter-episode occupational impairment; some of this is attributable to persistent cognitive dysfunction, even during periods of normal mood. After an initial manic episode, more than 90% of individuals will have recurrent episodes of mood disturbance, either manic or depressive or both. If the initial episode included psychotic features, subsequent episodes are more likely to include psychosis as well. Onset of manic episodes is typically rapid, i.e. over hours or days. All Bipolar and Related Disorders are disqualifying for aviation duty, and waivers are not granted. The service member should be referred to a Physical Evaluation Board for determination of fitness for general duty/retention.

**DIAGNOSIS/ICD-10 Code:**

| | |
|---|---|
| **F31.11** | **Bipolar I Disorder, mild, most recent episode manic** |
| **F31.12** | **Bipolar I Disorder, moderate, most recent episode manic** |
| **F31.13** | **Bipolar I Disorder, severe, most recent episode manic** |
| **F31.2** | **Bipolar I Disorder, with psychotic features** |
| **F31.31** | **Bipolar I Disorder, mild, most recent episode depressed** |
| **F31.32** | **Bipolar I Disorder, moderate, most recent episode depressed** |
| **F31.4** | **Bipolar I Disorder, severe, most recent episode depressed** |
| **F31.81** | **Bipolar II Disorder** |
| **F31.89** | **Other Specified Bipolar and Related Disorder** |
| **F31.9** | **Unspecified Bipolar and Related Disorder** |
| **F34.0** | **Cyclothymic disorder** |

The above diagnoses are CD for aviation, with no waiver considered. Service members should be referred to a Physical Evaluation Board for determination of fitness for general duty/retention.

**Substance/Medication-Induced Bipolar and Related Disorder:** Substance/Medication-Induced Bipolar and Related Disorder with clear evidence from the history, physical examination, or laboratory findings that the disturbance is etiologically related to substance/medication use is CD and waivers are considered on a case-by-case basis after all symptoms have cleared. In the case of psychiatric syndromes caused by alcohol or illicit drugs, a SARP evaluation should be included in the waiver package to rule out a Substance-Related or Addictive Disorder. A Local Board of Flight Surgeons (LBFS) may issue a temporary up-chit in accordance with Manual of the Medical Department Article 15-80.

**Bipolar and Related Disorder Due To Another Medical Condition (F06.33/34):** NCD when resolved if the precipitating organic factors are identified and considered not likely to recur.

Physical illness or other disorders causing persistent impairment are permanently disqualifying and should be referred to a medical board.

**INFORMATION REQUIRED:**

1. Flight Surgeon (FS)/Aeromedical Physician Assistant (APA) Aeromedical Summary (AMS) documenting all prior symptoms, absence of persistent features, course of the disorder, medication use, and current level of functioning.
2. All mental health notes (e.g., mental health evaluation, treatment summary/termination notes). Please do not simply state, “See GENESIS/JLV records.” Please also include items not in GENESIS/JLV (e.g., civilian medical records, college counseling center records, legal records including treatment summary).
3. A current psychiatric evaluation is required to document complete, sustained remission of all symptoms. Evaluation should be completed by an aeromedically-trained clinical psychiatrist or psychologist whenever possible.
4. Include a copy of all mental health-related Medical Boards which have been written for the member (if applicable).

## 14.7 DEPRESSIVE DISORDERS

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**AEROMEDICAL CONCERNS**: Depressive disorders are associated with decreased concentration, inattention, indecisiveness, fatigue, insomnia, agitation, and sometimes psychosis, all of which are incompatible with aviation duties. Risk of suicide is 15 per cent, the highest of all psychiatric disorders. Thirty per cent of dysthymic patients develop subsequent depression or mania. Fifty to 75 per cent of affected patients have a recurrent episode. There is a strong association with substance abuse. However, it should be noted that acute major depression is treatable in 80 per cent of patients, and waivers for single episodes of depression will be considered.

**DIAGNOSIS/ICD-10 Code:**

| | |
|---|---|
| **F32.0** | **Major Depressive Disorder, Single episode, mild** |
| **F32.1** | **Major Depressive Disorder, Single episode, moderate** |
| **F32.2** | **Major Depressive Disorder, Single episode, severe** |
| **F32.81** | **Premenstrual Dysphoric Disorder*** |
| **F32.89** | **Other Specified Depressive Disorder** |
| **F32.9** | **Unspecified Depressive Disorder** |
| **F33.0** | **Major Depressive Disorder, Recurrent episode, mild*** |
| **F33.1** | **Major Depressive Disorder, Recurrent episode, moderate*** |
| **F33.2** | **Major Depressive Disorder, Recurrent episode, severe*** |
| **F34.1** | **Persistent Depressive Disorder (Dysthymia)*** |

The above diagnoses are disqualifying for aviation. **Waiver may be requested after a single episode when the member has been completely asymptomatic in a "Fit for Full Duty" status for a minimum of six months after completion of all treatment.** Recurrent Disorders are CD, waiver not recommended.*

**Maintenance Pharmacotherapy:** Maintenance pharmacotherapy is sometimes used to mitigate the risk of future recurrence of Depressive Disorders, typically after several discrete episodes. In cases of persistent (chronic) or recurrent Depressive Disorders, maintenance pharmacotherapy may be considered. In such cases, Designated Members are eligible for waiver consideration while on maintenance pharmacotherapy. Waiver consideration may be requested after a suitable *Period of Observation in a Non-flying Status* (PONS) has elapsed, which for Depressive Disorders is six months. The PONS begins once an authorized mental health provider (an aeromedically trained clinical psychologist or psychiatrist whenever possible) has declared, by way of a formal medical record entry, that the service member's condition is in full remission. Applicants will not be considered for a waiver if on maintenance pharmacotherapy. Waivers will not normally be recommended for acute-phase treatment of initial episodes of Depressive Disorders. Please see Section 18.7 of the ARWG for full details.

**INFORMATION REQUIRED:**

1. Flight Surgeon (FS)/Aeromedical Physician Assistant (APA) Aeromedical Summary (AMS) documenting all prior symptoms, absence of persistent features, course of the disorder, medication use, and current level of functioning.
2. All mental health notes including treatment summary (e.g., mental health evaluation, treatment summary/termination notes). Please do not simply state, "See GENESIS/JLV

records." Also include items not in GENESIS/JLV (e.g., civilian medical records, college counseling center records, legal records).

3. A current psychiatric evaluation is required to document complete, sustained remission of all symptoms. Evaluation should be completed by an aeromedically-trained clinical psychiatrist or psychologist whenever possible.
4. Include a copy of all mental health-related Medical Boards which have been written for the member (if applicable).

**Substance/Medication-Induced Depressive Disorder:** Substance/Medication-Induced Depressive Disorder with clear evidence from the history, physical examination, or laboratory findings that the disturbance is etiologically related to substance/medication use is CD and waivers are considered on a case-by-case basis after all symptoms have cleared. In the case of psychiatric syndromes caused by alcohol or illicit drugs, a SARP evaluation should be included in the waiver package to rule out a Substance-Related or Addictive Disorder. A Local Board of Flight Surgeons (LBFS) may issue a temporary up-chit in accordance with Manual of the Medical Department Article 15-80.

**Depressive Disorder Due To Another Medical Condition (F06.31/F06.32/F06.34):** NCD when resolved if the precipitating organic factors are identified and considered not likely to recur. Physical illness or other disorders causing persistent delirium are permanently disqualifying and should be referred to a medical board.

*In some cases, waivers may be considered for recurrent depressive disorders in designated personnel being treated with maintenance pharmacotherapy.

## 14.8 DISRUPTIVE, IMPULSE-CONTROL, AND CONDUCT DISORDERS

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**AEROMEDICAL CONCERNS**: Impulse Control Disorders involve an inability to resist acting on an impulse that is dangerous to the service member or others, and that is characterized by a sense of pleasure or relief when gratified. Such impulsive or stereotyped behavior may jeopardize aviation safety. Differential diagnosis should include substance abuse, temporal lobe epilepsy, head trauma, bipolar disorder, and antisocial personality disorder. The diagnosis is usually not made if the behavior occurs only in the context of another disorder such as schizophrenia, bipolar disorder, or adjustment disorder. Psychotropic medications used to treat these disorders are incompatible with aviation duty.

**WAIVER**: Impulse Control Disorders are CD for aviation. Waiver requests for all disorders in this section are handled on a case-by-case basis, and questions should be referred to NAMI Psychiatry via email, telephone consultation or referral for formal evaluation.

**DIAGNOSIS/ICD-10 Code:**

| | |
|---|---|
| **F63.1** | **Pyromania** |
| **F63.3** | **Kleptomania** |
| **F63.81** | **Intermittent Explosive Disorder** |
| **F91.1/2/9** | **Conduct Disorder** |
| **F91.3** | **Oppositional Defiant Disorder** |
| **F91.8** | **Other Specified Disruptive, Impulse-Control, and Conduct Disorder** |
| **F91.9** | **Unspecified Disruptive, Impulse-Control, and Conduct Disorder** |

**INFORMATION REQUIRED**:

1. Flight Surgeon (FS)/Aeromedical Physician Assistant (APA) Aeromedical Summary (AMS) documenting all prior symptoms, absence of persistent features, course of the disorder, medication use, and current level of functioning.
2. All mental health notes including treatment summary (e.g., mental health evaluation, treatment summary/termination notes). Please do not simply state, “See GENESIS/JLV records.” Also include items not in GENESIS/JLV (e.g., civilian medical records, college counseling records, academic records, legal records).
3. A current mental health evaluation is required to document complete, sustained remission of all symptoms. Evaluation should be completed by an aeromedically-trained clinical psychiatrist or psychologist whenever possible.

## 14.9 FEEDING AND EATING DISORDERS

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**AEROMEDICAL CONCERNS**: Eating disorders can cause potentially life-threatening metabolic alkalosis, hypochloremia, and hypokalemia, which can have drastic implications for aviation safety. Anxiety and depressive symptoms are common, and death by suicide is a risk. Relapse rate is high. Follow-up studies of Anorexia Nervosa have revealed that approximately 30 per cent of individuals recover completely, 30 per cent are partially improved, 30 per cent are chronically ill, and 10 per cent have died. Many of these patients also have persistent mood, anxiety and personality disorders. Anorexia Nervosa is potentially fatal in five to 12 per cent of cases. Bulimia Nervosa is often associated with alcohol abuse. Treatment is very difficult and involves intensive long-term therapy, group therapy, and possibly pharmacotherapy, all of which are incompatible with aviation duty. Maintenance pharmacotherapy, including lisdexamfetamine dimesylate, is not waiverable.

**WAIVER**: Feeding and Eating Disorders are CD for aviation. Waiver may be considered on a case-by-case basis if the service member is off medication, asymptomatic, and out of active treatment for a minimum of one year for mild cases and two years for moderate-severe cases. In general a NAMI Psychiatry evaluation will be required.

**DIAGNOSIS/ICD-10 Code:**

| | |
|---|---|
| **F50.01** | **Anorexia Nervosa restricting type** |
| **F50.02** | **Anorexia Nervosa binge-eating purging type** |
| **F50.2** | **Bulimia Nervosa** |
| **F50.8** | **Pica** |
| **F50.8** | **Avoidant/Restrictive Food Intake Disorder** |
| **F50.8** | **Binge-Eating Disorder** |
| **F50.8** | **Other Specified Feeding or Eating Disorder** |
| **F50.9** | **Unspecified Feeding or Eating Disorder** |
| **F98.21** | **Rumination Disorder** |
| **F98.3** | **Pica (in childhood)** |

**INFORMATION REQUIRED**:

1. Flight Surgeon (FS)/Aeromedical Physician Assistant (APA) Aeromedical Summary (AMS) documenting all prior symptoms, absence of persistent features, course of the disorder, medication use, and current level of functioning.
2. All mental health notes including treatment summary (e.g., mental health evaluation, treatment summary/termination notes). Please do not simply state, “See Genesis/JLV records.” Also include items not in the electronic health record (e.g., civilian medical records, legal records, college counseling center records, etc.).
3. A current mental health evaluation conducted by an aeromedically-trained psychologist or psychiatrist is required to document complete, sustained remission of all symptoms.
4. Include a copy of all mental health-related Medical Boards which have been written for the member (if applicable).
5. Service members must meet the minimum aviation weight standards.

## 14.10 OBSESSIVE-COMPULSIVE DISORDER AND RELATED DISORDERS

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**AEROMEDICAL CONCERNS:** Service members with Obsessive Compulsive Disorder experience obsessional thoughts and/or compulsive behavior. Those with Body Dysmorphic Disorder are preoccupied with perceived defects or flaws in appearance not significantly observable to others. Both are aeromedically disqualifying, as they create substantial distractions in attention, and may be associated with high levels of anxiety and depression. Other less common Obsessive-Compulsive and Related Disorders requiring an approved waiver are also listed below.

**DIAGNOSIS/ICD-10 Code:**

| | |
|---|---|
| **F42.2** | **Obsessive-Compulsive Disorder** |
| **F42.3** | **Hoarding Disorder** |
| **F42.4** | **Excoriation (Skin-Picking) Disorder** |
| **F42.8** | **Other Specified Obsessive-Compulsive and Related Disorder** |
| **F42.9** | **Unspecified Obsessive-Compulsive and Related Disorder** |
| **F45.22** | **Body Dysmorphic Disorder** |
| **F63.3** | **Trichotillomania** |

The above diagnoses are all CD for aviation. **Waiver may be requested when the member has been completely asymptomatic in a "Fit for Full Duty" status for a minimum of 12 months after completion of all treatment.**

**Maintenance Pharmacotherapy:** Maintenance pharmacotherapy is sometimes used to mitigate the risk of future recurrence of Obsessive-Compulsive and Related Disorders, typically after several discrete episodes. In cases of persistent (chronic) or recurrent Obsessive-Compulsive and Related Disorders, maintenance pharmacotherapy may be considered. In such cases, Designated Members are eligible for waiver consideration while on maintenance pharmacotherapy. Waiver consideration may be requested after a suitable *Period of Observation in a Non-flying Status* (PONS) has elapsed, which for Obsessive-Compulsive and Related Disorders is 12 months. The PONS begins once an authorized mental health provider (an aeromedically trained clinical psychologist or psychiatrist whenever possible) has declared, by way of a formal medical record entry, that the service member's condition is in full remission. Applicants will not be considered for a waiver if on maintenance pharmacotherapy. Waivers will not normally be recommended for acute-phase treatment of initial episodes of Obsessive-Compulsive and Related Disorders. Please see Section 18.7 of the ARWG for full details.

**INFORMATION REQUIRED:**

1. Flight Surgeon (FS)/Aeromedical Physician Assistant (APA) Aeromedical Summary (AMS) documenting all prior symptoms, absence of persistent features, course of the disorder, medication use, and current level of functioning.
2. All mental health notes including treatment summary (e.g., mental health evaluation, treatment summary/termination notes). Please do not simply state, "See GENESIS/JLV records." Also include items not in GENESIS/JLV (e.g., civilian medical records, college counseling center records, legal records).
3. A current psychiatric evaluation is required to document complete, sustained remission of all symptoms. Evaluation should be completed by an aeromedically-trained clinical psychiatrist or psychologist whenever possible.

4. Include a copy of all mental health-related Medical Boards which have been written for the member (if applicable).

**Substance/Medication-Induced Obsessive-Compulsive and Related Disorder:**
Substance/Medication-Induced Obsessive-Compulsive and Related Disorder with clear evidence from the history, physical examination, or laboratory findings that the disturbance is etiologically related to substance/medication use is CD and waivers are considered on a case-by-case basis after all symptoms have cleared. In the case of psychiatric syndromes caused by alcohol or illicit drugs, a SARP evaluation should be included in the waiver package to rule out a Substance-Related or Addictive Disorder. A Local Board of Flight Surgeons (LBFS) may issue a temporary up-chit in accordance with Manual of the Medical Department Article 15-80.

**Obsessive-Compulsive and Related Disorder Due To Another Medical Condition (F06.8):**
NCD when resolved if the precipitating organic factors are identified and considered not likely to recur. Physical illness or other disorders causing persistent delirium are permanently disqualifying and should be referred to a medical board.

## 14.11 PERSONALITY DISORDERS, MALADAPTIVE PERSONALITY TRAITS, AND AERONAUTICAL ADAPTABILITY

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**AEROMEDICAL CONCERNS:** Aeronautical Adaptability involves a person's coping mechanisms, personality style, and defense mechanisms. Personality Disorders as well as maladaptive personality traits may lead to flight safety problems. Such traits in an applicant or student may interfere with adaptation to the rigors of aviation training, and in designated aviation personnel may affect flight performance and the ability to tolerate the stress and demands of operational training and deployment, maintain safety in aviation environments, and interact in a harmonious and effective way with other crew members. Certain personality traits may produce thrill seeking behavior, conflicts with authority, emotional lability, indecisiveness, questionable judgment, poor impulse control, or inflexibility, and are incompatible with the safe performance of aviation duty. Treatment of personality disorders and maladaptive personality traits requires long term intensive psychotherapy, which is incompatible with aviation duty.

**WAIVER**: Aviation personnel are considered to be NAA, or Not Aeronautically Adaptable (applicants or students) or Not Aeronautically Adapted (designated) if diagnosed as having a Personality Disorder or are characterized as having prominent maladaptive personality traits affecting safety of flight, mission completion, or crew coordination. Because personality traits are enduring patterns of thinking, feeling and behaving that are relatively stable over time, once an individual is found to be NAA this finding is permanent. Therefore, no waivers are considered for aeronautical adaptability. Questions regarding the aeronautical adaptation of undesignated personnel (applicants, students) should be directed to NAMI, and will generally be followed by an evaluation by a local aeromedically trained clinical psychologist or psychiatrist in order for an aeromedical disposition to be made. Designated aviation personnel should be referred to NAMI Psychiatry and in most cases will require in-person evaluation at NAMI.

**DIAGNOSIS/ICD-10 Code/AERO Code:**

| | |
|---|---|
| **F60.0** | **Paranoid Personality Disorder** |
| **F60.1** | **Schizoid Personality Disorder** |
| **F21** | **Schizotypal Personality Disorder** |
| **F60.2** | **Antisocial Personality Disorder** |
| **F60.3** | **Borderline Personality Disorder** |
| **F60.4** | **Histrionic Personality Disorder** |
| **F60.81** | **Narcissistic Personality Disorder** |
| **F60.6** | **Avoidant Personality Disorder** |
| **F60.7** | **Dependent Personality Disorder** |
| **F60.5** | **Obsessive-Compulsive Personality Disorder** |
| **F60.89** | **Other Specified Personality Disorder** |
| **F60.9** | **Unspecified Personality Disorder** |
| **AA3019N** | **Aeromedically Maladaptive Personality Traits** |

**INFORMATION REQUIRED**:

1. Grounding physical and Flight Surgeon (FS)/Aeromedical Physician Assistant (APA) Aeromedical Summary (AMS) documenting all prior symptoms, persistent features, course of the disorder, medication use (if any), and current level of functioning.
2. All mental health notes including treatment summary (e.g., mental health evaluation, treatment summary/termination notes). Please do not simply state, “See GENESIS/JLV records.” Also include items not in GENESIS/JLV (e.g., civilian medical records, legal

records, any formal boards conducted by the command, e.g. Human Factors Board, FNAEBs, etc.). A current local mental health evaluation is required for all undesignated personnel suspected of being NAA and should be completed by an aeromedically-trained clinical psychologist or psychiatrist.

3. In cases when the presentation of designated aviation personnel suggests that an individual is NAA, in-person NAMI evaluation is needed for diagnostic clarification and to assess the impact of any potentially maladaptive personality traits on interpersonal and occupational functioning, with special emphasis on flight safety, mission completion, and crew coordination.

## 14.12 PSYCHOSIS/SCHIZOPHRENIA SPECTRUM AND OTHER PSYCHOTIC DISORDERS

Last Revised: April 2025 Last Reviewed: April 2025

**AEROMEDICAL CONCERNS:** Symptoms of aeromedical concern include eccentric behavior, illogical thinking, hallucinations, social withdrawal, and the risk of suicide. Recurrence is abrupt, unpredictable, and incapacitating in aviation. Increased vulnerability to stress is considered lifelong in these disorders. Among patients with schizophrenia, one third will lead somewhat normal lives, one third will continue to have significant symptoms, and one third require frequent hospitalization and chronic care. Suicide attempts are made by up to fifty per cent of individuals with schizophrenia with long term suicide rates of ten to thirteen per cent. The majority of patients with these disorders require Physical Evaluation Boards due to their incompatibility with general military duty. Antipsychotic medications and close psychiatric follow-up care are incompatible with aviation duty.

**DIAGNOSIS/ICD-10 Code:**

| | |
|---|---|
| **F20.81** | **Schizophreniform Disorder** |
| **F20.9** | **Schizophrenia** |
| **F22** | **Delusional Disorder** |
| **F23** | **Brief Psychotic Disorder** |
| **F25.0** | **Schizoaffective Disorder, Bipolar Type** |
| **F25.1** | **Schizoaffective Disorder, Depressive Type** |
| **F28** | **Other Specified Schizophrenia Spectrum and Other Psychotic Disorders** |
| **F29** | **Unspecified Schizophrenia Spectrum/Other Psychotic Disorders** |
| **F32.3** | **Major Depressive Disorder, single episode with psychotic features** |
| **F33.0 – F33.2** | **Major Depressive Disorder, recurrent with psychotic features** |
| **F06.1** | **Catatonia Associated with Another Mental Disorder/Catatonic Disorder Due to Another Medical Condition/Unspecified Catatonia** |

The above diagnoses are CD for aviation, with no waiver considered. Service members should be referred to a Physical Evaluation Board for determination of fitness for general duty/retention.

**Substance/Medication-Induced Psychotic Disorder:** Substance/Medication-Induced Psychotic Disorder with clear evidence from the history, physical examination, or laboratory findings that the disturbance is etiologically related to substance/medication use is CD and waivers are considered on a case-by-case basis after all symptoms have cleared. In the case of psychiatric syndromes caused by alcohol or illicit drugs, a SARP evaluation should be included in the waiver package to rule out a Substance-Related or Addictive Disorder. A Local Board of Flight Surgeons (LBFS) may issue a temporary up-chit in accordance with Manual of the Medical Department Article 15-80.

**Psychotic Disorder Due To Another Medical Condition (F06.0/2):** NCD when resolved if the precipitating organic factors are identified and considered not likely to recur. Physical illness or other disorders causing persistent delirium are permanently disqualifying and should be referred to a medical board.

**INFORMATION REQUIRED:**

1. Flight Surgeon (FS)/Aeromedical Physician Assistant (APA) Aeromedical Summary (AMS) documenting all prior symptoms, absence of persistent features, course of the disorder, medication use, and current level of functioning.

2. All mental health notes (e.g., mental health evaluation, treatment summary/termination notes). Please do not simply state, “See GENESIS/JLV records.” Also include items not in GENESIS/JLV (e.g., civilian medical records, legal records, etc.).
3. Include a copy of all mental health-related Medical Boards which have been written for the member (if applicable).

## 14.13 SEXUAL DYSFUNCTIONS AND PARAPHILIAS

Last Revised: April 2025 Last Reviewed: April 2025

**AEROMEDICAL CONCERNS**: Generally, sexual dysfunctions such as sexual desire/arousal/orgasm disorders do not affect aviation performance. The paraphilias, however, such as exhibitionism and fetishism, may impact aviation performance. Individuals with these disorders may exhibit compulsive behavior and poor impulse control, and repeatedly engage in risk-taking behavior, which generally only increases when the individual feels stressed, anxious, or depressed. Certain legal ramifications may cause the person to be inattentive to detail and a safety risk. The legal consequences generally preclude treatment within the military.

**WAIVER**: Sexual Dysfunctions may be NCD if they do not impact aviation performance. The treatment of sexual desire/aversion/arousal/pain/orgasm disorders generally involves behavioral techniques which should not preclude aviation duty. However, use of medication requires a waiver for aviation duty. In contrast, paraphilias are generally CD. Treatment of paraphilias is typically less successful and generally requires intensive long-term interventions. Waiver requests are handled on a case-by-case basis by NAMI Psychiatry after the service member has completed treatment and been asymptomatic for one year. Factors that will be considered in waiver requests include the type of paraphilia, duration and frequency, type of treatment required, and the adequacy of follow-up care. However, many cases are handled by administrative disposition due to the legal implications and impact on good order and discipline. Waivers are not considered for criminal paraphilias.

**SEXUAL DYSFUNCTIONS**

| **DIAGNOSIS/ICD-10 Code:** | |
|---|---|
| **F52.0** | **Male Hypoactive Sexual Desire Disorder** |
| **F52.21** | **Erectile Disorder** |
| **F52.22** | **Female Sexual Interest/Arousal Disorder** |
| **F52.31** | **Female Orgasmic Disorder** |
| **F52.32** | **Delayed Ejaculation** |
| **F52.4** | **Premature (Early) Ejaculation** |
| **F52.6** | **Genito-Pelvic Pain/Penetration Disorder** |
| **F52.8** | **Other Specified Sexual Dysfunction** |
| **F52.9** | **Unspecified Sexual Dysfunction** |

**PARAPHILIC DISORDERS**

| **DIAGNOSIS/ICD-10 Code:** | |
|---|---|
| **F65.0** | **Fetishistic Disorder** |
| **F65.1** | **Transvestic Disorder** |
| **F65.2** | **Exhibitionistic Disorder** |
| **F65.3** | **Voyeuristic Disorder** |
| **F65.4** | **Pedophilic Disorder** |
| **F65.51** | **Sexual Masochism Disorder** |
| **F65.52** | **Sexual Sadism Disorder** |
| **F65.81** | **Frotteuristic Disorder** |
| **F65.89** | **Other Specified Paraphilic Disorder** |
| **F65.9** | **Unspecified Paraphilic Disorder** |

**INFORMATION REQUIRED:**

1. Flight Surgeon (FS)/Aeromedical Physician Assistant (APA) Aeromedical Summary (AMS) documenting all prior symptoms, absence of persistent features, course of the disorder, medication use, and current level of functioning.
2. All mental health notes including treatment summary (e.g., mental health evaluation, treatment summary/termination notes). Please do not simply state, "See GENESIS/JLV records." Also include items not in GENESIS/JLV (e.g., civilian medical records, college counseling center records, legal records).
3. A current mental health evaluation is required to document complete, sustained remission of all symptoms.

## 14.14 SLEEP/WAKE DISORDERS

Last Revised: April 2025 Last Reviewed: April 2025

**AEROMEDICAL CONCERNS:** Sleep/Wake Disorders frequently result in demonstrable deficits in cognitive and psychomotor performance, and thus have a critical effect on aviation safety. Generally, these cases are referred to Neurology, but because there is often an association between disorders of sleep architecture and timing and underlying psychiatric disorder, cognitive disturbance, or other pathology, these conditions may be addressed by aeromedical mental health professionals as well.

**WAIVER:** See Neurology Section of ARWG.

**DIAGNOSIS/ICD-10 Code:**

| | |
|---|---|
| **G47.2** | **Circadian Rhythm Sleep-Wake Disorders** |
| **G47.21** | **Circadian Rhythm Sleep-Wake Disorders, Delayed sleep phase type** |
| **G47.22** | **Circadian Rhythm Sleep-Wake Disorders, Advanced sleep phase type** |
| **G47.23** | **Circadian Rhythm Sleep-Wake Disorders, Irregular sleep-wake type** |
| **G47.24** | **Circadian Rhythm Sleep-Wake Disorders, Non-24-hour sleep-wake type** |
| **G47.26** | **Circadian Rhythm Sleep-Wake Disorders, Shift work type** |
| **G47.20** | **Circadian Rhythm Sleep-Wake Disorders, Unspecified type** |

**Non-Rapid Eye Movement Sleep Arousal Disorders**

| | |
|---|---|
| **F51.3** | **Sleepwalking type** |
| **F51.4** | **Sleep terror type** |
| **F51.5** | **Nightmare Disorder** |
| **G25.81** | **Restless Legs Syndrome** |
| **G47.52** | **Rapid Eye Movement Sleep Behavior Disorder** |
| **G47.4** | **Narcolepsy and Cataplexy** |
| **G47.411** | **Narcolepsy with cataplexy but without hypocretin deficiency** |
| **G47.419** | **Narcolepsy without cataplexy but with hypocretin deficiency** |
| **G47.419** | **Autosomal dominant cerebellar ataxia, deafness, and narcolepsy** |
| **G47.419** | **Autosomal dominant narcolepsy, obesity, and type 2 diabetes** |
| **G47.429** | **Narcolepsy secondary to another medical condition** |
| **F51.01** | **Insomnia Disorder** |
| **F51.11** | **Hypersomnolence Disorder** |

**INFORMATION REQUIRED:** See Neurology Section of ARWG.

## 14.15 SOMATIC SYMPTOM AND RELATED DISORDERS

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**AEROMEDICAL CONCERNS:** These disorders often have a chronic course and service members make repeated visits to physicians due to multiple physical or somatic complaints. The psychotropic medications used in somatoform disorders are incompatible with aviation status. Service members with Factitious Disorders may seriously injure themselves, and are at extreme risk in the aviation environment. These individuals also have a high risk of substance abuse over time. Treatment offers little hope of return to flight status in factitious disorders, as these individuals are rarely motivated for psychotherapy, and generally change physicians when confronted.

**WAIVER**: These disorders are CD, and may be referred to a Medical Board for treatment. Waivers may be considered for those cases that are successfully treated and remain asymptomatic and off medications for a minimum of one year in a full duty status.

**DIAGNOSIS/ICD- 10 Code:**

| | |
|---|---|
| **F44.4** | **Conversion Disorder with weakness or paralysis, with abnormal movement, with swallowing symptoms, with speech symptom** |
| **F44.5** | **Conversion Disorder with attacks or seizures** |
| **F44.6** | **Conversion Disorder with anesthesia or sensory loss or with special sensory symptoms** |
| **F44.7** | **Conversion Disorder with mixed symptoms** |
| **F45.1** | **Somatic Symptom Disorder** |
| **F45.21** | **Illness Anxiety Disorder** |
| **F45.8** | **Other Specified Somatic Symptom and Related Disorder/Unspecified Somatic symptom and Related Disorder** |
| **F54** | **Psychological Factors Affecting Other Medical Conditions** |
| **F68.10** | **Factitious Disorder** |

**INFORMATION REQUIRED:**

1. Flight Surgeon (FS)/Aeromedical Physician Assistant (APA) Aeromedical Summary (AMS) documenting all prior symptoms, absence of persistent features, course of the disorder, medication use, and current level of functioning.
2. All mental health notes including treatment summary (e.g., mental health evaluation, treatment summary/termination notes). Please do not simply state, “See GENESIS/JLV records.” Also include items not in GENESIS/JLV (e.g., civilian medical records, college counseling center records, legal records, etc.).
3. All relevant general medical records (once again, “See GENESIS/JLV” will not suffice).
4. A current mental health evaluation is required to document complete, sustained remission of all symptoms.
5. Include a copy of all mental health-related Medical Boards which have been written for the member (if applicable).

## 14.16 SUICIDAL BEHAVIOR AND NONSUICIDAL SELF HARM

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**AEROMEDICAL CONCERNS**: Suicidal ideation and behavior and non-suicidal self-harm comprise a significant risk for both individual and aviation safety. For the purpose of the ARWG, suicidal behavior is defined as suicidal thoughts, considerations, communications, planning and/or intent, as well as self-destructive actions, and overt suicide attempts. Nonsuicidal self-harm, which is defined separately from suicidal behavior, consists of intentional injury (cutting, burning, etc.) without intent to die. For the purposes of the ARWG and waiver consideration, both suicidal behavior (including ideation) and nonsuicidal self-harm are treated identically.

These behaviors typically reflect a current mental health condition, a decline from previous levels of functioning, and/or inadequate capability to manage current stressors. These behaviors have high rates of recurrence, particularly in the first 6 months, and they are related to future suicide attempt and death by suicide. Recurrence of suicidal behavior and/or nonsuicidal self-harm is incompatible with aviation duties, and therefore waivers will not normally be considered, unless the behavior is remote and there is clear indication of a prolonged period of mental health and adaptive coping strategies.

Suicidal behavior and nonsuicidal self-harm are CD for aviation. It should be noted that suicidal behavior and nonsuicidal self-harm in and of themselves do not reflect DSM-5-TR psychiatric diagnoses. Consequently, waivers are generally predicated on the psychiatric diagnosis of which the behavior is a manifestation. For example, if the behavior occurs in the context of Major Depressive Disorder (MDD), the waiver guideline for MDD would be followed. See below for exceptions.

**Adjustment Disorder (see also Section 14.2)**: When the suicidal thoughts and behavior or nonsuicidal self-harm occurs in the context of an Adjustment Disorder (or Z Code), a minimum 6-month period in a non-flying status (PONS) is required, after symptom remission has occurred. In these cases, given the seriousness of suicidal thinking, planning, and actions, and their high risk for recurrence, immediate return to flying upon initial resolution of symptoms is not considered safe. Additionally, in these cases there must be evidence of psychotherapy or education/training in stress management, coping, and/or resilience, as well as evidence of the development of improved and effective coping strategies.

**Remote history of nonsuicidal self-harm**: When there is a remote, pre-military history of nonsuicidal self-harm in adolescence without evidence of a DSM-5-TR diagnosis, and there is evidence of the development of healthy coping strategies, these histories are routinely waived. When occurring within the context of a diagnosis, the waiver process for that specific diagnosis should be followed.

**INFORMATION REQUIRED:**

1. Flight Surgeon (FS)/Aeromedical Physician Assistant (APA) Aeromedical Summary (AMS) documenting all prior symptoms, absence of persistent features, course of the disorder, treatment, including medication use (if any), and current level of functioning.
2. All mental health notes including treatment summary (e.g., mental health evaluation, treatment summary/termination notes). Please do not simply state, “See Genesis/JLV records.” Also include items not in the electronic health record (e.g., civilian medical records, college counseling center records, etc.).

3. A current psychiatric or psychological evaluation, preferably conducted by an aeromedically-trained psychologist or psychiatrist, is required to document complete, sustained remission of all symptoms and demonstration of improved coping strategies.
4. Follow the appropriate ARWG section for the specific diagnosis of which the suicidal behavior, or the nonsuicidal self-harm, was a manifestation.

## 14.17 TRAUMA AND STRESSOR-RELATED DISORDERS

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**AEROMEDICAL CONCERNS**: Trauma and Stressor-Related Disorders are often associated with decreased concentration, inattention, depression, insomnia, fatigue, indecisiveness, anxiety, and impairment of occupational or social functioning, all of which are incompatible with aviation duties.

**DIAGNOSIS/ICD-10 Code:**

| | |
|---|---|
| **F43.0** | **Acute Stress Disorder** |
| **F43.10** | **Posttraumatic Stress Disorder** |
| **F43.8** | **Prolonged Grief Disorder** |
| **F43.8** | **Other Specified Trauma- and Stressor-Related Disorder** |
| **F43.9** | **Unspecified Trauma- and Stressor-Related Disorder** |
| **F94.1** | **Reactive Attachment Disorder** |
| **F94.2** | **Disinhibited Social Engagement Disorder** |

The above diagnoses are all CD for aviation. **For all Disorders listed above (with exception of Acute Stress Disorder)**, a waiver may be requested when the member has been completely asymptomatic in a "Fit for Full Duty" status for a minimum of 12 months after completion of all treatment.

**For Acute Stress Disorder**, a waiver may be considered if the member has remained asymptomatic in a "Fit for Full Duty" status for a minimum of six months after completion of all treatment.

**Maintenance Pharmacotherapy:** Maintenance pharmacotherapy is sometimes used to mitigate the risk of future recurrence of Trauma- and Stressor-Related Disorders, typically after several discrete episodes. In cases of persistent (chronic) or recurrent Trauma- and Stressor-Related Disorders, maintenance pharmacotherapy may be considered. In such cases, Designated Members are eligible for waiver consideration while on maintenance pharmacotherapy. Waiver consideration may be requested after a suitable *Period of Observation in a Non-flying Status* (PONS) has elapsed, which for Trauma- and Stressor-Related Disorders is 12 months, with the exception of Acute Stress Disorder, for which the PONS is six months. The PONS begins once an authorized mental health provider (an aeromedically trained clinical psychologist or psychiatrist whenever possible) has declared, by way of a formal medical record entry, that the service member's condition is in full remission. Applicants will not be considered for a waiver if on maintenance pharmacotherapy. Waivers will not normally be recommended for acute-phase treatment of initial episodes of Trauma- and Stressor-Related Disorders. Please see Section 18.7 of the ARWG for full details.

Treatment Note: Trauma focused therapy is the gold standard treatment for Trauma and Stressor-Related Disorders. Examples of trauma focused therapy are: Cognitive Processing Therapy (CPT), Eye Movement Desensitization and Reprocessing (EMDR) Therapy and/or Prolonged Exposure (PE) Therapy as detailed in the VA/DOD Clinical Practice Guidelines for Management of PTSD.

**INFORMATION REQUIRED**:

1. Flight Surgeon (FS)/Aeromedical Physician Assistant (APA) Aeromedical Summary (AMS) documenting all prior symptoms, absence of persistent features, course of the disorder, medication use, and current level of functioning.
2. All mental health notes including treatment summary (e.g., mental health evaluation, treatment summary/termination notes). Please do not simply state, "See GENESIS/JLV records." Also include items not in GENESIS/JLV (e.g., civilian medical records, college counseling center records, legal records, etc.).
3. A current psychiatric evaluation is required to document complete, sustained remission of all symptoms. Evaluation should be completed by an aeromedically-trained clinical psychiatrist or psychologist whenever possible.
4. Include a copy of all mental health-related Medical Boards which have been written for the member (if applicable).

# 15.0 RESPIRATORY

Last Reviewed: February 22 Last Revised: February 22

## 15.1 ASTHMA

**AEROMEDICAL CONCERNS:** Asthma symptoms can rapidly progress from minimal to totally disabling. Exposure to dust, smoke or fumes can provoke attacks in susceptible individuals. Positive pressure breathing, breathing cold or dry air, and +Gz exposure can stimulate bronchospasm in individuals with hyperreactive airways.

**WAIVER:** Any history of asthma, to include childhood asthma and exercise-induced asthma, is considered disqualifying (CD) for aviation duties and training, even if the disease is very mild.

**APPLICANTS:** Waivers for applicants with a history of asthma may be *considered* if all of the following criteria are met, with complete documentation submitted to Code NA05:

1. The individual is currently asymptomatic and has been asymptomatic for a minimum of five years without medication use or prescriptions filled.
   a. Depending on the needs of the Navy, asthma that is symptomatic/requires medication use into adulthood (≥18 yo) is generally not considered for waiver in untrained personnel.
2. Baseline pulmonary function testing (PFT) within 1 year of waiver application is normal.
3. Methacholine challenge test within 1 year of waiver application is within normal limits and not suggestive of bronchial hyperresponsiveness.
4. Completed Navy ARWG Asthma worksheet reviewed with patient and signed by submitting FS/AME. (form follows this section)

A history of inhaler use that is clearly not suggestive of asthma is NCD. ***A complete asthma worksheet submitted with the flight physical may be sufficient. Further records, testing, and consultation may be required by NAMI on final review.***

**DESIGNATED PERSONNEL:** Asthma is CD for designated aviation personnel. A history of childhood asthma that was previously waived requires a new waiver should the individual develop recurrent symptoms or require medication. Waivers may be considered based on severity of disease, response to therapy and evidence of adherence to the proper components of care. Moderate and severe asthma not readily controlled with therapy will not be waived. ***A Local Board of Flight Surgeons may NOT be used to provide temporary flight clearance for asthma.***

**INFORMATION REQUIRED**:

1. Aeromedical Summary (AMS) addressing the four components of care (below)
   a. For tobacco users, documentation of smoking cessation is required
2. Family practice (FP), Internal Medicine (IM), or Pulmonology evaluation
3. Results of pulmonary function testing
   a. NOTE: Spirometry must be within normal limits and without obstruction at time of waiver application.
4. Allergy consult and results of allergen testing (e.g. skin testing, RAST testing) for personnel with persistent asthma in whom AIT may be beneficial (e.g. patients with allergic rhinitis, seasonal asthma, difficult to avoid triggers).

**RENEWAL REQUIREMENTS:**

1. AMS addressing the four components and any interval changes
   a. In prior smokers, documented abstinence is required.
2. FP, IM, or Pulmonology evaluation with comments on stability.
3. Annual PFTs when clinically indicated or directed by waiver requirements.

**Four Components of Asthma Care** (AMS should address them all)

1. **Asthma Severity and Control:** The AMS must classify ***severity*** using most current asthma guidelines (i.e. intermittent, mild persistent, moderate persistent, or severe persistent) and comment on ***impairment*** (frequency of attacks, nighttime symptoms, and functional limitations to daily activities). The AMS should also note the level of control (lifetime history of hospitalizations, number of emergency room and clinic visits related to asthma in the past 12 months, frequency of rescue inhaler usage).
2. **Patient Education:** The AMS must contain comments on patient education about both the asthma and the medications used to control it.
3. **Environmental Factors and Comorbid Conditions:** The AMS should comment on any work or home related stimuli affecting the member's asthma.
4. **Medications:** The AMS should include all medications (including those used "as needed") noting frequency of use of each medication. Records should be reviewed to ensure compliance with required therapy. Evidence of non-compliance may warrant grounding. ***All aviation personnel with asthma must carry a rescue inhaler while flying.***

**DISCUSSION:** The diagnosis of asthma is based primarily on history, with the aid of the physical exam and pulmonary function testing (PFT) demonstrating reversible airway obstruction. Regarding methacholine challenge testing (MCCT), it is currently required for all applicants with a known or questionable history of asthma in order to exclude current bronchial hyperresponsiveness. In designated personnel, bronchoprovocation studies (e.g. MCCT) may not be necessary to establish a diagnosis of asthma, particularly those with classic symptoms or documented reversible airway obstruction. MCCT is most useful in symptomatic patients when asthma is suspected, but spirometry is normal or shows borderline obstruction. In borderline cases, a negative MCCT can help to rule out asthma. In asymptomatic patients, a negative MCCT does not rule out a *remote* history of asthma and/or seasonal asthma. When referring patients with remitted childhood asthma for pulmonary testing, avoid testing in the setting of a recent (within two weeks) respiratory infection to minimize confusion and ensure reliable results are obtained.

When diagnosing and treating asthma in aviation personnel, the FS/AME should reference and be familiar with the **Asthma Guidelines from the National Heart, Lung, and Blood Institute**. Links to applicable documents can be found at the NAMI website.

**Waiverable Medications in Designated Personnel**: Any of these medications may be waived within the context of overall severity and control.
-Short-acting beta agonists -e.g. albuterol, levalbuterol
-Inhaled corticosteroids (ICS) e.g. fluticasone, budesonide
-Long-acting beta agonists (when combined with ICS) –e.g. salmeterol, formoterol
-Leukotriene Receptor Antagonists –e.g. montelukast

Personnel requiring immunomodulators (omalizumab), methylxanthines (theophylline) or systemic corticosteroids for control are NPQ with no waiver recommended.

**ICD-9 CODES:**
**493.0 Extrinsic Asthma**
**493.1 Intrinsic Asthma**
**493.9 Asthma, Unspecified (use for Exercise Induced Asthma)**

## 15.2 CHRONIC OBSTRUCTIVE PULMONARY DISEASE

**AEROMEDICAL CONCERNS:** Chronic obstructive pulmonary disease (COPD) results in a reduction in maximum oxygen uptake and exercise tolerance. Cerebral hypoxia can adversely affect psychomotor skills, memory, judgment and cognition. Decrements in judgment and the ability to perform complex tasks are also caused by carbon dioxide retention that can occur in COPD. Sudden incapacitation as a result of pneumothorax can occur if a bulla ruptures.

**WAIVER:** Waivers will not be considered in Applicants. COPD is CD for class I and II. Per MANMED, mild COPD is NCD for class III, whereas moderate to severe COPD requires a waiver. A waiver is highly unlikely for class I and II, but may be considered for designated personnel on a case-by-case basis if there is no cardiovascular decompensation, exercise tolerance is unimpaired, and there are no bullae evident on CT. Aviation personnel meeting these criteria will be restricted from high-performance aircraft.

**INFORMATION REQUIRED:**

1. Internal medicine or pulmonology consultation
2. High-resolution CT of the chest
3. Complete PFT including pre- and post- bronchodilator
4. Resting oxygen saturations/ABGs
5. Echocardiogram
6. Documentation of smoking cessation

**NOTE:** Moderate-Severe COPD should be referred to a medical board

**TREATMENT:** Short-acting bronchodilators and long-acting bronchodilators, anti-muscarinics or beta agonists, either alone or in combination with inhaled corticosteroids, will be considered on a case-by-case basis depending on flying class, symptom control, and disease severity. Vaccination against pneumococcus, annual influenza immunization, and treatment aimed at weight loss (if overweight) are encouraged. ***Smoking cessation is required.***

**DISCUSSION:** The lower limit of oxygenation needed to permit adequate cerebral oxygenation is a $PaO_2$>65 mm Hg at sea level. The corresponding lower limits for successive 1000 ft increments to 8000 ft are 61, 58, 55, 52, 50, 48, 46 and 45 mm Hg. Obesity or tight fitting clothing can reduce lung volumes leading to hypoventilation and ventilation/perfusion imbalance. Patients with COPD are also at increased risk of acute chest infections, further complicating care in the operational setting. Symptoms will be expected when the forced expiratory volume at 1 second (FEV1) reaches 50% of that predicted by sex and age. While the normal FEV1 declines at about 30 ml/year, the reduction in smokers can reach 90 ml/year. Of all patients, up to 50% will have persistent, productive cough, up to 25% will be moderately disabled with recurrent chest infections and increasing absences from work, and up to 25% will be severely disabled within 10 years.

**ICD-9 CODE:**
**496 Chronic Obstructive Pulmonary Disease**

## 15.3 PNEUMOTHORAX

**AEROMEDICAL CONCERNS:** Acute pneumothorax may cause acute chest pain and dyspnea during flight, worsening as ambient pressure falls. Tension pneumothorax is a life threatening condition that, although rare, will cause hypoxia arising from ventilation/perfusion imbalance and cardiovascular compromise.

**WAIVER:**

***Traumatic Pneumothorax:*** Traumatic or surgical pneumothorax during the preceding year is CD. Waivers are considered on a case by case basis during the first year following the injury after complete healing and when the member is determined to be fit for full duty by the pulmonologist or surgeon.

***Spontaneous Pneumothorax:*** Primary spontaneous pneumothorax is CD. A waiver can be considered based upon the guidelines below. A subsequent occurrence of spontaneous pneumothorax is CD. No waiver will be recommended unless surgical or chemical pleurodesis has been performed.

**Applicants**:

- ***Single episode of spontaneous pneumothorax:*** The applicant may be considered for waiver of standards one year after the resolution of the pneumothorax if treated solely with chest tube reinflation. High resolution CT scan must prove no pathology (blebs or underlying parenchymal disease) and pulmonary function tests must be within normal limits. If treated surgically or chemically, a waiver may be considered six months following resolution, provided the required studies are normal. All applicants must first be granted a waiver for commissioning before an aviation waiver can be considered. The commissioning waiver document must be submitted to NAMI with the aviation waiver request. Altitude chamber runs are not required for disposition and/or waiver recommendation.
- ***Recurrent spontaneous pneumothorax:*** Permanently disqualifying. No waivers will be recommended unless chemical or surgical pleurodesis has been performed resulting in a normal high-resolution chest CT scan and normal Pulmonary Function Testing (PFT).

**Designated**:

- ***Single episode of spontaneous pneumothorax:*** A waiver request may be submitted **t**hree months after resolution of the condition. The **s**ubmission must include the required information. For designated personnel who undergo chemical or surgical pleurodesis, a waiver request may be submitted three months after resolution of the condition. An altitude chamber run is not required for disposition and/or waiver recommendation.
- ***Recurrent spontaneous pneumothorax:*** CD, waiver not recommended. Waivers may be considered only after definitive treatment (chemical or surgical pleurodesis) to prevent recurrence. Designated personnel who undergo chemical or surgical pleurodesis may be returned to flying status after three months

**INFORMATION REQUIRED:**

1. Thin cut, high-resolution chest CT scan demonstrating full lung expansion and no pathology that could predispose to recurrence
2. Normal Pulmonary Function Test results
3. Thoracic surgery consultation (in recurrent cases, or in cases with structural abnormalities)

**FOLLOWUP:** None required.

**TREATMENT:** All recognized forms of treatment (chemical or surgical pleurodesis) are acceptable for waiver consideration. Recurrence rate after chemical pleurodesis is higher than after thoracotomy and pleural abrasion.

**DISCUSSION:** Over 90% of patients presenting with spontaneous pneumothorax are under 40 years old, with 75% being younger than 25. In women, there is often a relationship to menstruation. Onset of spontaneous pneumothorax is accompanied by chest pain in 90% of cases and by dyspnea in 89%. Tension pneumothorax develops in 5% and hemopneumothorax in 2.5%. Recurrence rates in patients who have not had definitive treatment have been reported to be from 28% for PSP and 43% for SSP. In one series of patients followed for 10 years without surgery, ipsilateral recurrence followed in 50% of the patients, with 62% happening in the first 2 years. A study published in JAMA 1990 found that most recurrences occur within the first six months. Another study reported a recurrence rate of 30% after a first spontaneous pneumothorax, 50% after a second episode, and 80% after a third. The contralateral risk was reported as 5.2% to 14.6%. Recurrence depends on the procedure used for treatment. Thoracoscopic pleurodesis has recurrence rates less than 7% while chemical pleurodesis has been reported to have a recurrence rate of 9% to 12% depending on the agent used. Thoracotomy with pleural abrasion has rates ranging from 1 to 3.6%. The U.S. Air Force has reviewed patients exposed to chamber flight before return to flying duties. Their analysis revealed that no episodes were eliminated and there was no value in predicting later recurrence. Of note, they required a much longer grounding period before testing, so their data may not be directly comparable to our requirements.

**ICD-9 CODES:**
**512.8 Pneumothorax**
**860 Any Traumatic or Iatrogenic pneumothorax**

## 15.4 SARCOIDOSIS

**AEROMEDICAL CONCERNS:** The protean manifestations of sarcoidosis can involve almost any organ system. Cardiac sarcoidosis, while uncommon, is associated with a restrictive cardiomyopathy and sudden death from arrhythmias. Patients with pulmonary infiltration may have symptoms of restrictive lung disease, which may be distracting in flight. Uveitis can cause permanent visual damage. Nervous system involvement can also occur. Hypercalcemia can predispose the aircrew member to renal stones.

**WAIVER:**

***Applicants:*** CD, waiver not recommended.

***Designated personnel:*** CD, waiver considered on case-by-case basis with depending on stage, clinical presentation, and flying class/platform. Contact NAMI Internal Medicine for guidance.

**INFORMATION REQUIRED (minimum):**

1. Pulmonary or Internal Medicine consult
2. Ophthalmology consult
3. CXR and chest CT with IV Contrast
4. Pulmonary function tests
   a. Spirometry
   b. Lung volume
   c. Diffusion
5. Serum calcium
6. 24hr urine calcium
7. ECG
8. 24 hour holter monitor

**FOLLOW-UP:** Annual submission required with monitoring requirements at a minimum:

1. Chest X-ray
2. PFT's
3. ECG
4. Serum calcium
5. Eye exam

**DISCUSSION:** The incidence is highest in the 20-35 age group. Up to 50% present with abnormal radiographic findings (usually bilateral enlargement of hilar nodes) or nonspecific respiratory symptoms. Between 10 and 50% will have erythema nodosum, which is more commonly seen in females. Uveitis can be seen in 15 to 25% of patients, and superficial node enlargement is seen in about 30% of Europeans with sarcoidosis and up to 80% of African Americans. The spleen is palpable in 10 to 25% of patients, with massive splenomegaly present in 3%. Up to 30% of cases with acute sarcoidosis will have abnormal thallium scans suggesting myocardial involvement. Liver biopsy will show sarcoid granulomas in 70% of cases without evidence of altered liver function. Nervous system involvement is demonstrable in 10% but may be subclinical in a greater percentage. Osteolytic or osteosclerotic bone lesions are also present in 10% of cases. Most cases (80%) with hilar adenopathy resolve spontaneously

within 2 years, but there is a 5-10% chance of developing progressive pulmonary fibrosis and a 6-7% eventual mortality in those with radiologically evident pulmonary sarcoidosis. The presence of ocular involvement or chronic tonsillitis has been reported to be associated with a poorer prognosis. High levels of serum interferon-gamma (IFNg) before treatment are associated with a more favorable prognosis. Healed myocardial granulomas may lead to arrhythmias, and patients in remission who have had myocardial involvement remain at risk for sudden death. MRI scan may eventually prove to be the method of choice for identifying cardiac sarcoid granulomas.

**ICD-9 CODE:**
**135 Sarcoidosis**

## 15.5 COVID-19 (SARS-CoV 2)

Last Revised: Feb 23 Last Reviewed: Feb 23

**AEROMEDICAL CONCERNS:** Personnel on flight duty work in an occupational environment that requires optimal respiratory function and maximum physiological margin to safety operate aircraft and support the Naval Aviation Enterprise mission. **Aerospace Medicine Providers shall evaluate service members who are in a flight duty status to return them to an "Up" flight status after testing positive for COVID-19.**

The guidelines in this section provide a basic framework for evaluation of aviation personnel who have tested positive for COVID-19 but should not substitute for sound clinical judgment. Additional work-up, testing, and specialty consultation may be required on a case-by-case basis to return aircrew safely to an "Up" flight status. Providers should have a low threshold for testing and specialty consultation.

Per National Institutes of Health (NIH) COVID-19 Treatment Guidelines, in general, patients with COVID-19 can be grouped into the following illness categories:

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- ***Asymptomatic or Pre-symptomatic Infection:*** Individuals who test positive for COVID-19 (SARS-CoV-2) using a virologic test (i.e., a nucleic acid amplification test [NAAT] or an antigen test) but who have no symptoms that are consistent with COVID-19.
- ***Mild Illness:*** Individuals who have any of the various signs and symptoms of COVID-19 (e.g., fever, cough, sore throat, malaise, headache, muscle pain, nausea, vomiting, diarrhea, loss of taste and smell) but who do not have shortness of breath, dyspnea, or abnormal chest imaging.
- ***Moderate Illness:*** Individuals who show evidence of lower respiratory disease during clinical assessment or imaging and who have an oxygen saturation measured by pulse oximetry ($SpO_2$) ≥94% on room air at sea level.
- ***Severe Illness:*** Individuals who have $SpO_2$ <94% on room air at sea level, a ratio of arterial partial pressure of oxygen to fraction of inspired oxygen ($PaO_2/FiO_2$) <300 mm Hg, a respiratory rate >30 breaths per minute, or lung infiltrates >50%.
- ***Critical Illness:*** Individuals who have respiratory failure, septic shock, and/or multiple organ dysfunction.

Table (1) provides the revised **COVID-19 Return to Flight Duty Status Guideline** for aviation personnel based on NIH illness categories. DoD personnel who test positive for COVID-19 are required to follow current DoD and/or CDC guidelines for isolation. (Refer to the current DoD Force Health Protection Guidance for details on isolation requirements and management of close contacts. See footnote (1) below). Upon completion of the required isolation period, an in-person clinical evaluation is recommended to screen for any persistent cardiac or respiratory symptoms, exercise intolerance, or other functional limitations. Normal vital signs should be confirmed, including normal pulse oximetry, and a physical examination should be conducted for all symptomatic cases prior to recommending return to an "Up" flight status. Recommendations for additional testing depend on the individual's NIH illness category, flight classification, and current aircraft platform.

## COVID-19 RETURN TO FLIGHT DUTY STATUS GUIDELINE

| CATEGORY | CLASS I AND II TACAIR (includes all oxygen mask use-required aircraft) | CLASS I AND II NON-TACAIR (includes all helicopter and fixed wing, non-TACAIR aircraft) | CLASS III AND IV AND ALL AVIATION PERSONNEL NOT ON DIFOPS ORDERS |
|---|---|---|---|
| ***All Categories*** | Refer to DoD/CDC guidelines for duration of isolation and management of close contacts[1,2] | Refer to DoD/CDC guidelines for duration of isolation and management of close contacts[1,2] | Refer to DoD/CDC guidelines for duration of isolation and management of close contacts[1,2] |
| **Asymptomatic** | CLINICAL EVALUATION:<br>• No cardiac or respiratory symptoms or limitations[3] | CLINICAL EVALUATION:<br>• No cardiac or respiratory symptoms or limitations[3] | CLINICAL EVALUATION:<br>• No cardiac or respiratory symptoms or limitations[3] |
| **Mild Illness** | CLINICAL EVALUATION:<br>• No cardiac or respiratory symptoms or limitations[3]<br>• Normal vitals (afebrile, normal HR and BP, and $SpO_2$≥94%)<br>• Normal cardiac, respiratory, neurologic, and ENT exam<br>• Cognitive screen if neuro signs or symptoms[4] | CLINICAL EVALUATION:<br>• No cardiac or respiratory symptoms or limitations[3]<br>• Normal vitals (afebrile, normal HR and BP, and $SpO_2$≥94%)<br>• Normal cardiac, respiratory, neurologic, and ENT exam<br>• Cognitive screen if neuro signs or symptoms[4] | CLINICAL EVALUATION:<br>• No cardiac or respiratory symptoms or limitations[3]<br>• Normal vitals (afebrile, normal HR and BP, and $SpO_2$≥94%)<br>• Normal cardiac, respiratory, neurologic, and ENT exam<br>• Cognitive screen if neuro signs or symptoms[4] |
| **Moderate to Severe Illness** | CLINICAL EVALUATION:<br>• No cardiac or respiratory symptoms or limitations[3]<br>• Normal vitals (afebrile, normal HR and BP, and $SpO_2$≥94%)<br>• Normal cardiac, respiratory, neurologic, and ENT exam<br>• Cognitive screen if neuro signs or symptoms[4]<br><br>ADDITION WORK-UP:<br>• Normal exertional pulse oximetry[5] or exercise treadmill test<br>• Normal ECG[6], troponin[7], and echocardiogram or cardiac MRI[8]<br>• Normal pulmonary function tests w/DLCO[9]<br>• Assess for other complications[10] | CLINICAL EVALUATION:<br>• No cardiac or respiratory symptoms or limitations[3]<br>• Normal vitals (afebrile, normal HR and BP, and $SpO_2$≥94%)<br>• Normal cardiac, respiratory, neurologic, and ENT exam<br>• Cognitive screen if neuro signs or symptoms[4]<br><br>ADDITION WORK-UP:<br>• Normal exertional pulse oximetry[5] or exercise treadmill test<br>• Normal ECG[6] and troponin[7]<br>• Assess for other complications[10] | CLINICAL EVALUATION:<br>• No cardiac or respiratory symptoms or limitations[3]<br>• Normal vitals (afebrile, normal HR and BP, and $SpO_2$≥94%)<br>• Normal cardiac, respiratory, neurologic, and ENT exam<br>• Cognitive screen if neuro signs or symptoms[4]<br><br>ADDITION WORK-UP:<br>• Normal exertional pulse oximetry[5] or exercise treadmill test<br>• Assess for other complications[10] |

Table (1)

1. Consolidated Department of Defense Coronavirus Disease 2019 Force Health Protection Guidance – Revision 3, pp 36-39. Current as of August 29, 2022. Latest DoD Guidance can be found at: https://www.defense.gov/Spotlights/Coronavirus-DOD-Response/Latest-DOD-Guidance/

2. https://www.cdc.gov/coronavirus/2019-ncov/php/contact-tracing/contact-tracing-plan/contact-tracing.html

3. Screen for any new-onset chest pain, palpitations, dyspnea, or exercise intolerance. Recommend review for other non-cardiac/non-respiratory COVID-19 symptoms of aeromedical significance to include anosmia, fatigue, anorexia, headaches, weakness, and myalgia. Evaluate further as clinically indicated.

4. Persistent neurologic or psychiatric symptoms should be evaluated with cognitive function screening (Montreal Cognitive Assessment, Mini-Mental State Exam, or equivalent) and a neurologic exam. Any abnormal or concerning findings should prompt specialty evaluation.

5. Exertional pulse oximetry is recommended to evaluate for persistent pulmonary dysfunction following resolution of SARS-CoV-2 infection. Multiple exertional tests are utilized in community practice to monitor exercise capacity (e.g., 1-min sit-to-stand test, 6-minute walk test, 40-step test, etc.) in chronic lung disease. These tests have been utilized to assess for the presence of pulmonary dysfunction in individuals with SARS-CoV-2 infection even if clinical symptoms are absent. Abnormal exertional pulse oximetry (i.e. fall of 3% of more in pulse oximetry reading on exercise) should prompt further evaluation to exclude underlying pulmonary dysfunction that may be disqualifying.

6. ECG is indicated to screen for cardiac abnormalities, which have been documented clinically in up to 20% of all cases and objectively (via cardiac MRI) in up to 80% of symptomatic COVID-19 cases. ECG should be considered for any history of palpitations or resting tachycardia. Abnormal ECG should prompt further evaluation with troponin and echocardiogram or cardiac MRI. Additional work-up may be warranted for specific abnormalities identified on ECG.

7. Cardiac troponin serves as the primary marker of myocardial injury and is a key discriminator for myocarditis in an appropriate clinical context. It should be noted that elevations in cardiac troponin are not specific for myocarditis as the differential diagnosis for myocardial injury in COVID-19 is broad, an upper limit of normal is poorly defined in young athletes, and elevations of uncertain significance have been noted in numerous clinical syndromes including high intensity exercise. In the limited context of a symptomatic patient with suspected post-vaccination or viral myocarditis, a normal 4$^{th}$ generation cardiac troponin or (preferably) 5$^{th}$-generation/high sensitivity cardiac troponin offers an acceptable negative predictive value, thus lowering the pre-test probability of myocarditis.

8. SARS-CoV-2 infection is associated with direct and indirect cardiotoxicity. Transthoracic echocardiogram (TTE) and/or cardiac MRI are used to evaluate the degree of cardiac involvement in severely ill or hospitalized individuals and to further evaluate individuals with an abnormal ECG and/or troponin elevation.

9. Pulmonary dysfunction has been documented beyond resolution of COVID-19 symptoms. Individuals with moderate to severe illness are at higher risk for more significant lung damage, predisposing to hypoxia at altitude. Restriction and/or low DLCO on PFTs may indicate the presence of parenchymal lung damage and should prompt further evaluation.

10. Significant complications of COVID-19 such as myocarditis, deep venous thromboembolism, stroke, and myocardial infarction are independently disqualifying and require aeromedical waiver prior to return to flight duty status.

**WAIVER:** Unless there are significant complications, COVID-19 (SARS-CoV 2) infection is **not considered disqualifying (NCD)**. Temporary grounding due to development of symptoms or a positive COVID-19 test result is appropriate pending clinical evaluation as recommended in this guideline.

Critical illness (as defined by the NIH illness categories listed above) or any significant complications that develop following COVID-19 infection, such as myocarditis, deep venous thromboembolism, stroke, or myocardial infarction, would be **considered disqualifying (CD)** and would require waiver submission per the relevant section of the Aeromedical Reference and Waiver Guide.

**INFORMATION REQUIRED:** N/A. Submission of COVID-19 cases to NAMI is not required except as stated above.

**ICD-10 Codes:**
**U07.1 COVID-19**

# COVID-19 Return to Flight Duty Status Guideline for Aerospace Medicine

**Navy Medicine**

**–**

**1 February 2022**

# Aerospace Medicine Sub-Community Contributors

The following individuals are subject matter experts from across the Navy Medicine Enterprise that contributed to the development of the return to flight duty status protocols. These individuals represent a variety of clinical backgrounds and military experiences relevant to the delivery of Aerospace Medicine.

## Contributors – BUMED Return to Flight Duty Status Protocols

| | | |
|---|---|---|
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The **Operational Medicine Clinical Community** (OpMed CC) mission is to foster collaboration and knowledge sharing across Naval Medicine to implement leading practices that improve medical readiness, while also supporting operational clinicians and staff in delivering the highest quality care to all Active Duty Sailors and Marines.

The **Aerospace Medicine Sub-Community** (SC), under the Navy's OpMed CC, has the goal of "supporting aerospace medicine [and safety] clinicians and staff through the promotion of best practices" and an objective to "decrease variation and increase standardization in the delivery of patient care in operational environments." The Aerospace Medicine SC responded to the COVID-19 pandemic by generating the protocols contained in this document. **These protocols reflect official Department of the Navy policy (ALNAV 096/20)** in this format and are the best recommendations at this time from BUMED for returning service members to Flight Duty Status.

# Return to Flight Duty Status Protocols

Aerospace Medicine Providers shall evaluate service members (SMs) who are in a flight duty status to return them to an "Up" flight status after close contact or contracting **Coronavirus Disease 2019 (**COVID-19). The following protocols are adaptable to clinical and operational settings and developed in support of aviation safety.

**Readiness Tenet:** Personnel in a special duty flight status work in an occupational environment that requires optimal respiratory function and maximum physiological margin to safely operate aircraft and support the Naval Aviation Enterprise mission.

- These protocols were developed in response to Navy and Marine Corps Aerospace Medicine COVID-19 cases and are promulgated to synchronize the community's approach to medical evaluation when returning aircrew to flight duty status. Protocols are reviewed biweekly to incorporate updated national guidelines and current published research.
- The return to flight duty status or "Up" flight status protocols apply to **Class I&II** flight duty status service members (SMs). Class I&II SMs are those who are aircrew in Navy and Marine Corps aircraft.[1] Protocols vary by, close contact, testing, duration, and hospitalized.
- **Class III&IV** SMs may return to an "Up" flight status when they meet standard Naval criteria for return to work found in the most current NAVADMIN or MARADMIN on COVID-19 Standardized Operational Guidance.[2]
- In cases where a SM was hospitalized for administrative or other non-clinically indicated reasons, providers should follow the non-hospitalized variation of the protocols.

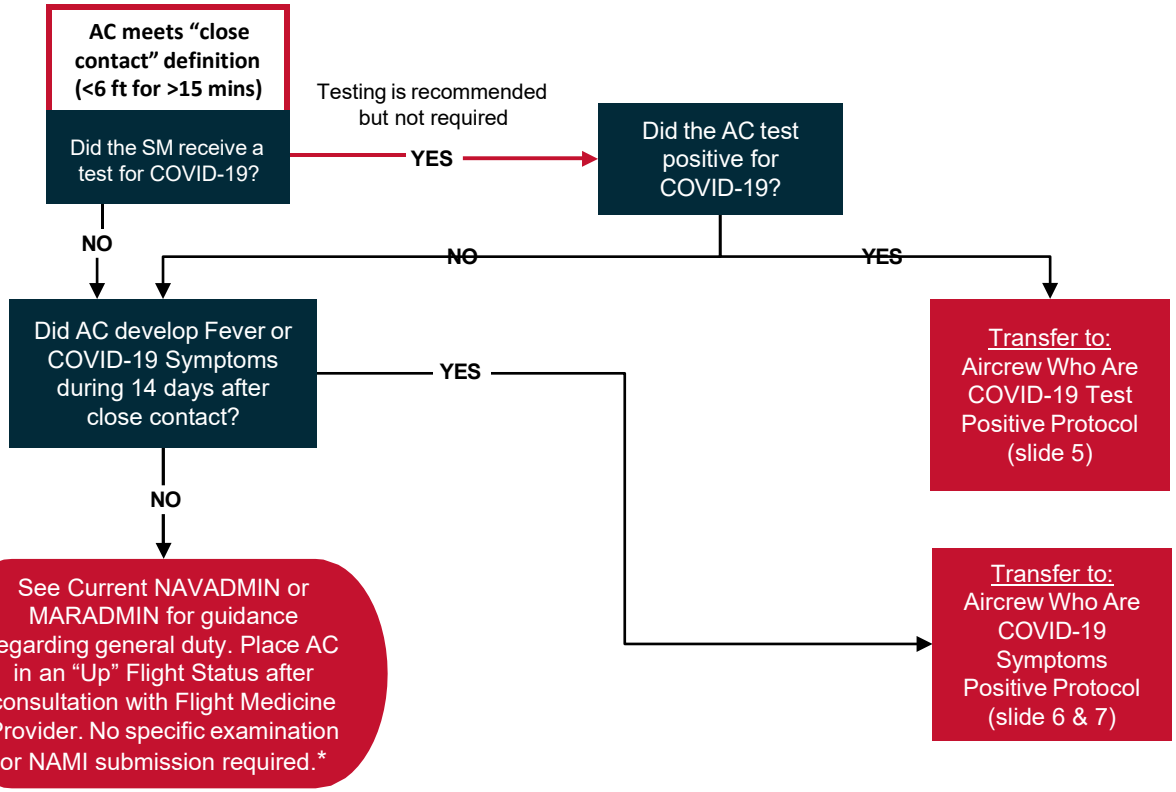
**NOTE TO FLIGHT MEDICINE PROVIDERS: The following protocols provide a basic framework and should not substitute for sound clinical judgement.** Additional work-up, testing and specialty consult may be required on a case-by-case basis to return aircrew safely to an "Up" flight status. Providers should have a low threshold for testing and specialty consultation.

[1] Manual of the Medical Department, NAVMED P-117, Chapter 15, Article 15-63.

[2] https://www.public.navy.mil/bupers-npc/reference/messages/NAVADMINS/Pages/NAVADMIN2020.aspx or https://www.marines.mil/News/Messages/MARADMINS.aspx

# Aircrew Who Are COVID-19 Close Contacts

Aircrew (AC) who meet the definition of a **close contact**[1,2] to a confirmed or probable case of COVID-19 should see their Aerospace Medicine Provider and be evaluated and dispositioned based on the following protocol. AC are **exempt** (quarantine and repeat testing is not recommended) from being a "close contact" for 90 days from symptom onset and have recovered from COVID-19.[3,4]




***NOTE TO FLIGHT MEDICINE PROVIDERS:**

Aircrew considered a "Close Contact" must meet all requirements of the most current NAVADMIN or MARADMIN to return to general duty. AC may then return to work in a "Down" status for non-flying duties until seen by a Flight Medicine Provider to verify they remained asymptomatic after being determined a close contact.[1,2]

[1] Centers for Disease Control and Prevention, Public Health Guidance for Community-Related Exposure, 01 March 2021: https://www.cdc.gov/coronavirus/2019-ncov/php/public-health-recommendations.html

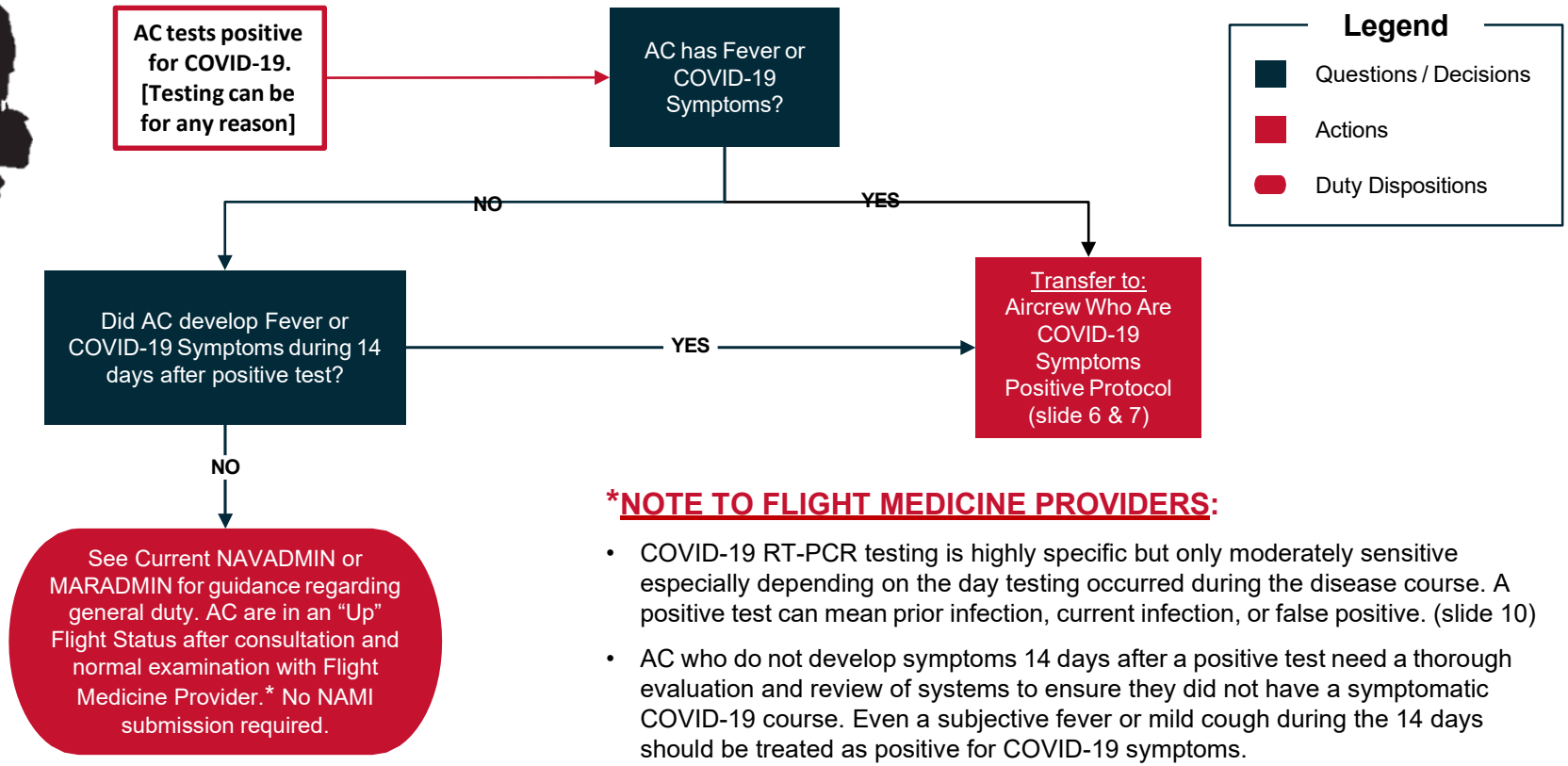
[2] https://www.public.navy.mil/bupers-npc/reference/messages/NAVADMINS/Pages/NAVADMIN2020.aspx or https://www.marines.mil/News/Messages/MARADMINS.aspx

[3] Centers for Disease Control and Prevention, Duration of Isolation and Precautions for Adults with COVID-19, 13 February 2021: https://www.cdc.gov/coronavirus/2019-ncov/hcp/duration-isolation.html

[4] Centers for Disease Control and Prevention, When You Can be Around Others After You Had or Likely Had COVID-19, 29 July 2021: https://www.cdc.gov/coronavirus/2019-ncov/if-you-are-sick/end-home-isolation.html

# Aircrew Who Are COVID-19 Test Positive

Aircrew (AC) tested for COVID-19 for any reason and resulted in a positive test should see their Flight Medicine provider and be evaluated and dispositioned based on the following protocol. See reference slide 9 for clinical criteria for diagnosis and slide 10 for confirmatory laboratory evidence. AC are exempt from required testing protocols for 90 days from symptom onset and have recovered from COVID-19.[1,2]




## *NOTE TO FLIGHT MEDICINE PROVIDERS:

- COVID-19 RT-PCR testing is highly specific but only moderately sensitive especially depending on the day testing occurred during the disease course. A positive test can mean prior infection, current infection, or false positive. (slide 10)
- AC who do not develop symptoms 14 days after a positive test need a thorough evaluation and review of systems to ensure they did not have a symptomatic COVID-19 course. Even a subjective fever or mild cough during the 14 days should be treated as positive for COVID-19 symptoms.
- If Flight Medicine Provider is not available, another physician may administer.

[1] Centers for Disease Control and Prevention, Duration of Isolation and Precautions for Adults with COVID-19, 13 February 2021 : https://www.cdc.gov/coronavirus/2019-ncov/hcp/duration-isolation.html

[2] https://www.public.navy.mil/bupers-npc/reference/messages/NAVADMINS/Pages/NAVADMIN2020.aspx or https://www.marines.mil/News/Messages/MARADMINS.aspx

# Aircrew Who Are COVID-19 Symptoms Positive

This protocol is for all **Fixed Wing (non-TACAIR)** and **Helicopter** Aircrew (AC) who develop symptoms consistent with COVID-19. AC are in a "Down" flight status and shall see a Flight Medicine Provider post recovery for evaluation based on the following protocol. **Recovery** is at 14 days from fever or symptom onset and there has been significant symptom improvement with at least 24 hours since fever resolution. *

**AC develops Fever (subjective or >100.4 F) or other COVID-19 Symptoms**

→ Was the AC's test result positive for COVID-19?

NO → Repeat test no sooner than 24 hours. Ideal test day is day three of symptoms.

Test Positive?

NO → Follow Clinical Criteria for COVID-19 diagnosis per CDC guidelines.* If AC meets Clinical Criteria (CC), follow this protocol as if their test was positive. If they do not meet CC, return to "Up" status based on diagnosis and current NAMI Waiver Guide.

YES

**AC Recovered?**
>14 days (21 days if hospitalized) since Fever or Symptom onset. Significant Symptom improvement and > 24hr since Fever Resolution off medication?

YES

Did AC require hospitalization?

YES → When >21 days since symptom onset, obtain ECG, SpO2, and discharge summary to address labs, radiologic imaging, and complications. Inpatient use of supplemental oxygen requires Pulmonary Consult with PFT.α Contact NAMI Code NA05 to inquire about additional evaluation.

NO → Obtain ECG and SpO2

Normal ECG and SpO2 ≥96%?

YES

Normal ECG, SpO2 ≥96%, and PFT DLCO value 80-120% of predicted? NAMI required evaluation normal?

YES → Complete an Exercise Tolerance Test (ETT) β

Normal Exercise Tolerance Test?

NO → ψ

YES

See Current NAVADMIN or MARADMIN for operational duty guidance. AC require evaluation and review of systems with Flight Surgeon.** COVID-19 is NCD unless condition of prior granted waiver changed.

**Legend**

- Questions / Decisions
- Actions
- Duty Dispositions

**NOTE TO FLIGHT MEDICINE PROVIDERS:**

**ψ Abnormal ECG, SpO2 or ETT require a consult with pulmonary or cardiology**

α Pulmonary Function Tests (PFT) with DLCO is the "gold standard" to evaluate AC for COVID-19 complications. If PFT is not available for operational reasons or remote location, spirometry is acceptable with a Forced Vital Capacity (FVC) greater than 80% of predicted. (slide 12)
If spirometry is not available, then Peak Flow Meter average >90% of predicted is a tertiary option. (slides 13 & 14)

β Completing one of the two Exercise Tolerance Tests will evaluate AC for a return to their physical fitness level. (slides 15 & 16)

*Reference slides 9 thru 20 for medical provider protocol information.

**All evaluations are required to be submitted to NAMI. Only hospitalized patients require NAMI approval prior to issuing an Up-chit (DD 2992). Reference slides 18 and 19 for NAMI submission guidance.

# Aircrew Who Are COVID-19 Symptoms Positive

This protocol is for all **TACAIR** and **Oxygen Mask use Required** Aircrew (AC) who develop symptoms consistent with COVID-19. AC are in a "Down" flight status and shall see a Flight Medicine Provider post recovery for evaluation based on the following protocol. **Recovery** is at 14 days from fever or symptom onset and there has been significant symptom improvement with at least 24 hours since fever resolution. *

**AC develops Fever (subjective or >100.4 F) or other COVID-19 Symptoms**

→ Was the AC's test result positive for COVID-19?

NO → Repeat test no sooner than 24 hours. Ideal test day is day three of symptoms.

Test Positive?

NO → Follow Clinical Criteria for COVID-19 diagnosis per CDC guidelines.* If AC meets Clinical Criteria (CC), follow this protocol as if their test was positive. If they do not meet CC, return to "Up" status based on diagnosis and current NAMI Waiver Guide.

YES → Did AC Fever resolve and Significant Symptom improvement in less than 7 Days from initial Fever or Symptoms?

YES → After **Recovery**, obtain ECG and SpO2

Normal ECG and SpO2 ≥96%?

YES → Complete an Exercise Tolerance Test (ETT) β

ψ ← NO

Normal Exercise

YES → Normal ECG, SpO2 ≥96%, and PFT DLCO value 80-120% of predicted? NAMI required evaluation normal?

YES → After **Recovery** and >21 days since symptom onset, obtain ECG, SpO2, and discharge summary and address labs, radiologic imaging, and complications. Inpatient use of supplemental oxygen requires Pulmonary Consult with PFT.α Contact NAMI Code NA05 to inquire about additional evaluation.

NO → Did AC require hospitalization?

NO → After **Recovery**, Obtain ECG, SpO2, and PFT^α

Normal ECG, SpO2 ≥96%, and PFT DLCO value 80-120% of predicted?

YES → Follow Clinical Criteria for COVID-19 diagnosis per CDC guidelines.* If AC meets Clinical Criteria (CC), follow this protocol as if their test was positive. If they do not meet CC, return to "Up" status based on diagnosis and current NAMI Waiver Guide.

**Legend**

- Questions / Decisions
- Actions
- Duty Dispositions

*Reference slides 9 thru 20 for medical provider protocol information.

**All evaluations are required to be submitted to NAMI. Only hospitalized patients require NAMI approval prior to issuing an Up-chit (DD 2992). Reference slides 18 and 19 for NAMI submission guidance.

**NOTE TO FLIGHT MEDICINE PROVIDERS:**

ψ **Abnormal ECG, SpO2 or ETT require a consult with pulmonary or cardiology**

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Capacity (FVC) greater than 80% of predicted. (

slide 12) If spirometry is not available, then Peak Flow Meter average >90% of predicted is a tertiary option. (slides 13 & 14)

- β Completing one of the two Exercise Tolerance Tests will evaluate AC for a return to their physical fitness level. (slides 15 & 16)

# ___ Aviation Medicine Provider ___ Reference Information

# Reference: Clinical Criteria for Case Definition

"A surveillance case definition is a set of uniform criteria used to define a disease for public health surveillance. Surveillance case definitions enable public health officials to classify and count cases consistently across reporting jurisdictions. Surveillance case definitions are not intended to be used by healthcare providers for making a clinical diagnosis or determining how to meet an individual patient's health needs."[1]

**Use the Clinical Criteria for guidance, not as an alternative to clinical judgement**

**Clinical Criteria:**[1, 2]

At least **two** of the following symptoms: fever (**measured or subjective**), chills, rigors, myalgia, headache, sore throat, nausea or vomiting, diarrhea, fatigue, congestion or runny nose.

**OR**

At least **one** of the following symptoms: cough, shortness of breath, difficulty breathing, **new** olfactory disorder, or **new** taste disorder.

**OR**

Severe respiratory illness with at least one of the following:

- Clinical or radiographic evidence of pneumonia.

  **OR**

- Acute respiratory distress syndrome (ARDS).

Note: Anosmia, hyposmia, and dysgeusia are common SARS-CoV-2 symptoms and infection should be strongly considered in patients without other respiratory disease, even without other symptoms.[1,3]

**If initial symptoms occurred during a flight or experienced in the flight environment, follow the Physiological Episodes CPG but consider COVID-19 in differential diagnosis**

[1] THE COUNCIL OF STATE AND TERRITORIAL EPIDEMIOLOGIST(CSTE) CRITERIA FOR A PROBABLE COVID-19 CASE: https://wwwn.cdc.gov/nndss/conditions/coronavirus-disease-2019-covid-19/case-definition/2020/08/05/

[2] Infectious Diseases Society of America Guidelines on the Diagnosis of COVID-19 https://www.idsociety.org/practice-guideline/covid-19-guideline-diagnostics/

[3] American Academy of Otolaryngology – Head and Neck Surgery. Coronavirus Disease 2019: Resources, Anosmia, Hyposmia, and Dysgeusia Symptoms of Coronavirus Disease. Mar 2020.

# Reference: Laboratory Criteria

Laboratory evidence should be obtained by using a method approved or authorized by the U.S. Food and Drug Administration or designated authority.[1] Available test types will vary location to location and therefore so will the sensitivity and specificity.

**Confirmatory Laboratory Evidence**:
Detection of severe acute respiratory syndrome coronavirus 2 ribonucleic acid (SARS-CoV-2 RNA) in a clinical specimen using a molecular amplification detection test.

Common test type available is the real-time Reverse Transcription Polymerase Chain Reaction (RT-PCR) and specimens are obtained either by nasopharyngeal or oropharyngeal swab.
**Nasopharyngeal is preferred as it is more sensitive [2]**

**Negative tests cannot rule out COVID-19 with clinical suspicion:** Meta-analysis of testing false negative rate shows decreases from 100% on day 1 post-exposure to low of 20% on day 8 (on average symptom day 3) followed by an increase to 66% on day 21. The best day to obtain the lowest chance of a false negative test is day three of fever/symptoms or alternatively day eight in close contact cases. Therefore, RT-PCR testing has limited ability to rule out COVID-19 on the basis of a single point-in-time upper respiratory tract sample.[2] Overall false negative rate for COVID testing is thought to be around 30%. This may vary from lab to lab, and depends on technique with nasopharyngeal swabs. High pre-test probability patients based on clinical presentation should be in isolation and have repeat testing even if testing is initially negative.[3]
**Positive test result after conclusion of disease course:** If a SM tests positive by PCR test within 90 days after having concluded their disease course, it is **not** indicative of infectivity and a reset or new 14 day restriction of movement is not required or advantageous.

Testing for Fleet screening or host country protocol will be determined by those agents

[1] THE COUNCIL OF STATE AND TERRITORIAL EPIDEMIOLOGIST(CSTE) CRITERIA FOR A PROBABLE COVID-19 CASE: https://www.cdc.gov/nndss/conditions/coronavirus-disease-2019-covid-19/case-definition/2020/
[2] American College of Physicians: COVID-19: An ACP Physician's Guide + Resources. 8 June 2020.
[3] Evergreen Health Lessons Learned: COVID-19 https://www.evergreenhealth.com/covid-19-lessons

# Reference: Medical Evaluation and ECG

COVID-19 test or symptoms positive Aircrew can return to squadron spaces based on the most current NAVADMIN or MARADMIN general duty return to work guidance but will remain in a "Down" status until Flight Medicine Provider clearance. A comprehensive medical evaluation and review of systems is required and should be documented in the medical record and the Aeromedical Electronic Resource Office (AERO).

**Medical Evaluation:**

Complete medical evaluation to include at a minimum, assessment of fatigue, anorexia, headaches, anosmia, and cardiac, ENT, neurologic, and respiratory exams.[1] Address all medications and prior waivers granted. ECG changes or any cardiac symptoms (arrhythmia, angina, prolonged QT interval, limited exercise tolerance) will require cardiology consult. PFT changes or any respiratory symptoms ($SpO_2$ ≤95%, shortness of breath, limited exercise tolerance, etc.) will require pulmonology consult. Severity of course is marked by symptoms not improving in less than 7 days as this marks the usual onset of dyspnea and cytokine storm.[2]

Evaluations must be done face-to-face and may not be done via telehealth

**Electrocardiogram (ECG):**

ECGs to be performed based on recommendations from the American College of Cardiology in physically active populations with symptomatic COVID-19. ECG findings that may indicate myocardial injury include pathological Q waves, ST segment depressions, (new) diffuse ST segment elevation, and T wave inversions that are outside of the normal parameters.[3] If treatment included hydroxychloroquine, a **manually** calculated QT interval is required. Automated QT intervals are based on the Bazett formula and can overestimate the QT interval, especially at elevated heart rates.[4,5] Recommend using Hodges formula for manual calculation.[5] On-line calculator is located here: https://www.mdcalc.com/corrected-qt-interval-qtc

[1] American College of Physicians: COVID-19: An ACP Physician's Guide + Resources. 20 May 2020.
[2] UpToDate, Coronavirus disease 2019 (COVID-19): Clinical features: https://www.uptodate.com/contents/coronavirus-disease-2019-covid-19-clinical-features
[3] A Game Plan for the Resumption of Sport and Exercise After COVID-19 Infection. https://jamanetwork.com/journals/jamacardiology/fullarticle/2766124
[4] QT Interval Measurement: Evaluation of Automatic QTc Measurement and New Simple Method to Calculate and Interpret Corrected QT Interval Anesthesiology. 2006;104(2):255-260.
[5] Patel PJ, Borovskiy Y, Killian A, et al. Optimal QT interval correction formula in sinus tachycardia for identifying cardiovascular and mortality risk: Findings from the Penn Atrial Fibrillation Free study. *Heart Rhythm*. 2016;13(2):527-535. doi:10.1016/j.hrthm.2015.11.008

# Reference: Pulmonary Function Tests

Hospitalized and TACAIR Aircrew that are COVID-19 symptoms positive require functional evaluation of ventilation and pulmonary physiological margin to support safe return to the flight environment. Further specialist evaluation will be required on a case-by-case basis.

**Pulmonary Function Tests (PFT):**

Optimum respiratory system function is essential in aviation. COVID-19 patients can show diffuse alveolar damage on postmortem histopathology in patients with radiographic bilateral ground-glass opacities.[1] PFT is the gold standard in evaluating alveolar injury compared to spirometry because spirometry can be normal with early or mild disease while PFT will still show **low** DLCO.[2] A normal PFT DLCO value is 80-120% of predicted.[2]

On large deck ships (CVN/LHD/LHA), in remote locations, or for operational expediency, physicians may use spirometry when PFT is not available in conjunction with an **exercise tolerance test**. Spirometry FVC will be considered abnormal below 80% of predicted instead of 70% considering this is the normal cut off for 18 years of age and Naval Aviators require optimal pulmonary performance.[2] If spirometry FVC is below 80% of predicted, pulmonary consult is required to evaluate sequela from COVID-19.

**Normal and Restrictive Pattern PFT with Low DLCO Differential Diagnosis:**

**Low DLCO with Restriction:** Asbestosis, berylliosis, hypersensitivity pneumonitis, idiopathic pulmonary fibrosis, Langerhans cell histiocytosis, lymphangitic spread of tumor, miliary tuberculosis, sarcoidosis, silicosis (late).

**Low DLCO with Normal PFT:** pulmonary emboli, congestive heart failure, connective tissue disease with pulmonary involvement, dermatomyositis/polymyositis, inflammatory bowel disease, interstitial lung disease (early), primary pulmonary hypertension, rheumatoid arthritis, systemic lupus erythematosus, systemic sclerosis, Wegener granulomatosis.[2]

[1] American College of Physicians: COVID-19: An ACP Physician's Guide + Resources. 20 May 2020.

[2] Johnson JD, Theurer WM. A stepwise approach to the interpretation of pulmonary function tests. *Am Fam Physician*. 2014;89(5):359-3

# Reference: Peak Flow Meter Screening

A Peak Flow Meter measures how well your lungs are able to expel air in liters per minute (L/min). This is also known as the peak expiratory flow rate (PEFR) during forced expiration.[1] Use Peak Flow Meter Screening as a tertiary option for pulmonary screening when PFT and spirometry are not available or as an adjunct to your clinical evaluation. For a Predicted Average Peak Flow Table see slide 14.

**Peak Expiratory Flow Rate Screening Protocol:** Three forced exhalations are measured and then an average is calculated. The average PEFR is compared against a predicted PEFR based on age, height, and gender.[2] Online calculator to determine the predicted PEFR can be found here: https://www.thecalculator.co/health/Peak-Flow-Calculator-617.html. If the average PEFR is less than 90% of the predicted value then the test is positive for abnormal pulmonary function and a PFT or spirometry is indicated based on availability. Repeating the PEFR screening in a week is also an option. If the average PEFR is greater than 90% of the predicted value then the test is normal and the service member is able to proceed with the exercise tolerance test.

[1] Wright B M. A miniature Wright peak-flow meter. Br Med J 1978; 2 :1627.
[2] Nunn AJ, Gregg I. New regression equations for predicting peak expiratory flow in adults. BMJ. 1989;298(6680):1068-1070. 8 **and see slide 14**

# Reference: Predicted Average Peak Flow Table

The table below provides predicted Peak Flow rates (L/min) by age and height for both males and females. Use this value when comparing average measured peak expiratory flow rate (PEFR) during forced expiration.

| AGE | 55” | 60” | 65” | 70” | 75” | 80” |
|---|---|---|---|---|---|---|
| 20 | 390 | 423/554 | 460/602 | 496/649 | 529/693 | 740 |
| 25 | 385 | 418/543 | 454/590 | 490/636 | 523/679 | 725 |
| 30 | 380 | 413/532 | 448/577 | 483/622 | 516/664 | 710 |
| 35 | 375 | 408/521 | 442/565 | 476/609 | 509/651 | 695 |
| 40 | 370 | 402/509 | 436/552 | 470/596 | 502/636 | 680 |
| 45 | 365 | 397/498 | 430/540 | 464/583 | 495/622 | 665 |
| 50 | 360 | 391/486 | 424/527 | 457/569 | 488/607 | 649 |
| 55 | 355 | 386/475 | 418/515 | 451/556 | 482/593 | 634 |
| 60 | 350 | 380/463 | 412/502 | 445/542 | 475/578 | 618 |

**Red Font Color = Female**
**Blue Font Color = Male**

Leiner GC, Abramowitz S, Small MJ, Stenby VB, Lewis WA. Expiratory Peak Flow Rate. Standard Values For Normal Subjects. Use As A Clinical Test Of Ventilatory Function. Am Rev Respir Dis. 1963 Nov;88:644–651.

# Reference: Exercise Tolerance Tests

Aircrew (AC) require physical fitness that ensures optimum physiological margin in the flight environment. After a COVID-19 course of any duration, exercise tolerance can be reduced. Completing an exercise tolerance test will evaluate AC for a return to their physical fitness level. This test requires a treadmill that will incline to at least a 14% grade.

**Treadmill Exercise Tolerance Test (ETT) with Monitored $SpO_2$ and Heart Rate:**

Test is performed to evaluate if AC have returned to a normal level of exercise tolerance after recovery from COVID-19. Normal tolerance is determined by having AC complete three minute stages at different volume oxygen consumption levels per minute to >10 METs (1 MET equivalent to 3.5 mL $O_2$/kg/min of body weight) on Bruce Protocol (table). Test resting $SpO_2$ before starting test. If less than or equal to 95%, then do not proceed, evaluate patient for pulmonary pathology/abnormalities. $SpO_2$ monitored while AC are performing each stage will screen for normal oxygenation. $SpO_2$ is expected to stay >95% and steady during testing.[1] Before completing stage three, AC should also have reached greater than 85% of predicted heart rate ((220 – age) x 0.85). Completing >10 METS on Bruce Protocol is associated with a low risk of death.[2,3]

| Stage | Miles per Hour | Grade % | Metabolic Equivalents |
|---|---|---|---|
| 1 | 1.7 | 10 | 4.5 |
| 2 | 2.5 | 12 | 7 |
| 3 | 3.4 | 14 | 10 |
| 4 | 4.2 | 16 | 13 |

[4]

**Monitoring with ECG is optimal but not required if not available at local NMRTC**

[1] Bruce, Robert A., et al. "Normal respiratory and circulatory pathways of adaptation in exercise." The Journal of clinical investigation 28.6 (1949): 1423-1430.
[2] Fine (2013) Mayo Clin Proc 88(12): 1408-19 [PubMed]
[3] Myers (2002) N Engl J Med 346(11): 793-801 [PubMed]
[4] UpToDate, Exercise ECG Testing: Performing the test and interpreting the ECG results, Types of Exercise, Bruce protocol; https://www.uptodate.com/contents/exercise-ecg-testing-performing-the-test-and-interpreting-the-ecg-results

# Reference: Exercise Tolerance Tests

Aircrew (AC) require physical fitness that ensures optimum physiological margin in the flight environment. After a COVID-19 disease course of any duration, exercise tolerance can be reduced. Completing an exercise tolerance test will evaluate AC for a return to their physical fitness level. If no treadmill is available or available treadmill does not incline to required grade (14%) then a variation of the Exercise Tolerance Test while monitoring $SpO_2$ and heart rate is a option.

**Modified Exercise Tolerance Test (ETT) with Monitored $SpO_2$ and Heart Rate:**
Test is performed to evaluate if AC have returned to a normal level of exercise tolerance after recovery from COVID-19. Normal tolerance is determined by having AC exercise by a variety of options at a moderate level for at least 10 minutes. $SpO_2$ alone is unable to measure ventilation but is a noninvasive method of assessing oxygenation. $SpO_2$ and heart rate monitored while AC are moderately exercising for 10 minutes will screen for functional decline in respiratory function.

**Modified Exercise Tolerance Test Protocol**

1. Initially screen $SpO_2$ and heart rate (HR) at rest (sitting for five minutes). If resting $SpO_2$ less than or equal to 95%, then do not proceed, evaluate patient for pulmonary pathology/abnormalities. Consult Pulmonary for evaluation.

2. Have AC start exercise on a track/treadmill/elliptical/exercise bike. Once at a moderate exercise heart rate (HR 120-130), monitor $SpO_2$ and HR continuously (in 4 increments if on a track) for a total of 10 minutes of moderate exercise. An exertional $SpO_2$ decrease of 5% or more from resting baseline is a positive test needing Pulmonary or Cardiology evaluation.

# Reference: Modified Exercise Tolerance Test Steps

Aircrew (AC) require physical fitness that ensures optimum physiological margin in the flight environment. After a COVID-19 disease course of any duration, exercise tolerance can be reduced. Completing an exercise tolerance test (ETT) will evaluate AC for a return to their physical fitness level. If no treadmill is available or available treadmill does not incline to required grade (14%) then a variation of the Exercise Tolerance Test while monitoring $SpO_2$ and heart rate is a option. Optional modalities include: treadmill, elliptical, exercise bike, or running track.

## Modified Exercise Tolerance Test Instruction

1. Allow AC to sit and rest for five minutes. During this time, fasten a fingertip pulse oximeter to the patient for continuous monitoring. Use a nitrile glove or tape if necessary. If this is not practical, then intermittent monitoring as 4 increments during the test is an option.
2. Before starting ETT, screen AC for resting HR and resting $SpO_2$. Document both.
   - If resting HR ≥ 100 or resting $SpO_2$ ≤ 95%, DO NOT CONTINUE TEST.
3. Have AC gradually increase exercise intensity on the modality of their choice until HR is 120-130 (moderate intensity exercise).
   - Ensure that increase in exercise intensity is slow and gradual. Remember that AC were recently ill and that residual symptoms of COVID-19 may be indolent.
   - Note that moderate intensity exercise is a somewhat hard perceived level of exertion (e.g., moderate level of hiking, walking while carrying a light load).
4. Monitor HR and $SpO_2$ for 10 minutes, continuously if possible, but preferably at two minute intervals.
   - Have AC increase/decrease exercise intensity to attempt to maintain a HR of 120-130.
   - If $SpO_2$ decreases ≥ 5% from the resting baseline during the test, STOP THE TEST, record the findings, and evaluate the AC pulmonary and cardiac function.
5. Once test is complete, document results in AERO in the following format: **"Modified ETT completed for 10 minutes. Resting $SpO_2$ xx%. Exertional $SpO_2$ xx%. Max HR xxx."**

# Reference: NAMI Submission

AC recovered from a COVID-19 symptoms positive course may return to "Up" flight status by their local Flight Medicine Provider unless they were hospitalized for significant symptoms or complications. AC hospitalized require Naval Aerospace Medical Institute (NAMI) review of their post-COVID-19 evaluation prior to being issued an "Up" chit (DD 2992). Hospitalization only to obtain a COVID-19 test or other non-clinical indication does not constitute a hospitalized disease course. The next two slides guide through submission procedures to NAMI in the Aeromedical Electronic Resource Office (AERO)[1].

**COVID-19 Evaluation Submission in AERO:**
Recovery from a COVID-19 symptoms positive course can vary from immediate return of full physical capability or take weeks of gradual rehabilitation. Some physiological deficits can remain asymptomatic until the specific body system is stressed in flight. Evaluation by an Aerospace Medicine Provider is required to safely return AC back to "Up" flight status.

**Submission of the Medical Evaluation in AERO to NAMI requires the following:**

- For all **Symptomatic Cases** a NAVMED 6410/10 "short form" flight physical is submitted to include exam focused on patient's specific disease course and a complete Review of Systems with emphasis on the pulmonary, cardiac, vascular, neurologic, and renal systems.
- In **Additional Flight Surgeon Comments** block, document ECG with comparison to last "5 year" Flight Physical ECG, SpO2 value, Treadmill ETT result (completed >10 METS with SpO2 >95% and reaching >85% of predicted heart rate) or Modified ETT result (completed 10 minutes with SpO2 >95% and heart rate 120-130) and PFT or Spirometry results if required. If other tests or evaluations used document those as well. See example on slide 16.
- For **Hospitalized Cases** an Aeromedical Summary (AMS) documenting the COVID-19 course to include fever or symptoms start date, hospitalization dates, symptoms and duration, any remaining physical limitations or symptoms, and date of fever/symptoms resolution.
- **Document Uploads** include ECG, last prior ECG, any consults or labs obtained, and hospital discharge summary and PFT or Spirometry report as applicable.

[1] Aeromedical Electronic Resource Office https://www.med.navy.mil/sites/nmotc/nami/arwg/pages/aeromedicalelectronicresourceoffice(aero).aspx

# Reference: NAMI Submission

Contact NAMI when submitting a post-COVID-19 evaluation to fast track review and disposition.
NAMI Physical Expedite Request Email: usn.pensacola.navmedotcnamefl.list.nami-physqualtech@mail.mil
Hospitalized AC submissions are priority review status at NAMI to ensure the quickest return to "Up" flight status. Non-hospitalized AC submissions are supportive and review local Flight Surgeon duty dispositions.

The diagnosis of COVID-19 is Not Considered Disqualifying (NCD). AC with persistent symptoms require NAMI review[1]. COVID protocols do not need to be included in yearly flight physical if previously submitted, or it has been >90 days since COVID-19 symptoms resolved.

**COVID-19 Evaluation Specific Submission:**

To identify and code the flight physical and AMS submission as a COVID-19 evaluation, perform the following on the NAVMED 6410/10 and AMS.

- **NAVMED 6410/10:** In "Additional Flight Surgeon Comments" document disease course type as one of the following: COVID Outpatient Short Course, COVID Outpatient Long Course, or COVID Hospitalized. In ICD code column use **U07.1**. (See example below)

**Additional Flight Surgeon Comments**

| Comment | CD/ NCD | ICD code |
|---|---|---|
| COVID Outpatient Short Course or COVID Outpatient Long Course or COVID Hospitalized<br><br>ECG: NSR at HR 62<br>SpO2: 98%<br>Treadmill ETT: Completed >10 METS with SpO2 >95% and reached >85% of predicted heart rate.<br><br>If required<br>PFT: DLCO 80-120% of predicted | NCD | U07.1 |

- **AMS:** In "Disqualifying Conditions" list "COVID-19" as the number "1" diagnosis and use ICD-10 code "**U07.1**"
  - List all other diagnoses that require a waiver submission and prior granted waivers
  - Fill in complete evaluation findings and results of PFT, ECG comparison, and $SpO_2$
  - Blocks in the AMS marked as "see AHLTA or Flight Physical" will not be accepted.

[1] Manual of the Medical Department, NAVMED P-117, Chapter 15.

# Reference: Protocol Application Criteria Caveats

The following application criteria will answer how to apply this guideline and its protocols in cases where the AC have already recovered from COVID-19 but have **not** been evaluated prior to returning to the cockpit. The goal is to ensure the quickest return to "Up" flight status while still emphasizing AC safety. If AC are symptomatic or still limited in physical activity they shall see their FS as soon possible for medical evaluation. This criteria applies only to AC who fall into the below dates and categories. After the guideline policy implementation date, all AC must have an evaluation prior to returning to an "Up" flight status.

- **Aircrew (AC) COVID-19 cases before 18 AUG 2020:** Continue flying in an **Up status** unless symptomatic. If symptomatic still, then must have Flight Surgeon evaluation.
- **Non-TACAIR AC COVID-19 cases between 18 AUG – 17 NOV 2020:**
  - Flown **1** flight since COVID-19 course: AC consultation with FS to review flight, disease course and determine if they need to follow protocols.
  - Flown **≥ 2** flights: AC continue flying in an **Up status** and consultation with FS as soon as **practical** for COVID-19 course review.
- **TACAIR/Mask AC COVID-19 cases between 18 AUG – 17 NOV 2020 :**
  - Flown **1** dynamic flight since COVID-19 course: AC consultation with FS to review flight. If no symptoms or physical limitation, continue flying in an **Up status**.
  - Flown **≥ 2** dynamic flights: continue flying in an **Up status**.
- **All Navy and Marine Corps Class 1 & 2 AC COVID-19 cases after 17 NOV 2020:** When recovered from COVID-19, they are in a **down status** until protocol completed per guideline.
- **AC hospitalized for COVID-19 clinical indications:** Regardless of date, if not evaluated prior, must be evaluated per appropriate protocol regardless of when they recovered.
- **Note to Providers:** Any symptoms during a flight shall be treated as a Physiologic Episode per Naval Safety Center instructions. Consider COVID-19 protocols during FS evaluation.

# 16.0 UROLOGY

## 16.1 CONGENITAL ABNORMALITIES OF THE KIDNEYS

Revised: August 18 Reviewed: August 18

This section is meant to address congenital abnormalities commonly encountered in aerospace medicine, however, it is not meant to be an all-inclusive list. Waivers for conditions not specifically listed will be considered on case-by-case basis in designated personnel only.
Significant changes: 1). Deleted requirement for 24 hour urine collection for creatinine clearance

| | Applicant | Class I | | | Class II | Class III | Class IV |
|---|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | | |
| CD | X | X | X | X | X | X | X |
| NCD | | | | | | | |
| WR | case-by-case [1] | case-by-case [2] | case-by-case [2] | case-by-case [2] | case-by-case [2] | case-by-case [2] | case-by-case [2] |
| WNR | | | | | | | |
| LBFS | No | No | No | No | No | No | No |
| EXCEPTIONS | | | | | | | |
| LIMDU/PEB | Not required. | | | | | | |

1. Waiver considered only on a case-by-case basis.
2. Waivers can be recommended if asymptomatic, normal renal function, and not requiring medical/surgical therapy.

**AEROMEDICAL CONCERNS:** The condition or its sequelae can adversely affect the flight performance, mission, or safety. Current or history of this condition is disqualifying. Polycystic kidney disease may be associated with hypertension, berry aneurysms of the cerebral arteries, renal stones, infection, or hematuria. Simple retention cysts in the renal cortex may be susceptible to trauma. Medullary sponge kidneys can be associated with hematuria and formation of calculi. Large polycystic kidneys are not compatible with high performance flying because G forces cause the kidney to pull on the pedicle that may result in bleeding. Pain that may be associated with many of the above can be suddenly incapacitating during flight.

**ICD-10 CODES:**

**Q60.0 Renal agenesis, unilateral (absence of kidney, atrophic kidney)**
**Q61.3 Polycystic kidney, unspecified**
**Q61.5 Medullary sponge kidney**
**Q63.1 Lobulated, fused and horseshoe kidney**
**N28.89 Other specified disorders of kidney and ureter**

**SERVICE MEMBER MUST COMPLETE PRIOR TO INITIATING WAIVER**

- Released from *Nephrology and Urology* care with recommendation of return to flight status and no restrictions **documented** on last clinical note (electronic or paper).
- If *Nephrology and Urology* recommends restrictions, then documentation of physical and/or mental limitations and expected duration (permanent vs temporary).
- *Nephrology and Urology* recommendation for follow on care **documented** on last clinical note (electronic or paper).
- Surgery/Procedure Note (if applicable, electronic or paper).
- Copies of prior PEB if related to diagnosis.
- Email or provide administrative information to include command UIC, command address,

personal address, phone number, designator, flight hours (total and last 6 months), primary aircraft flown, and years of service.

| **AEROMEDICAL SUMMARY REQUIRED DOCUMENTATION BY AEROMEDICAL OFFICER** |
|---|

All associated documentation.

| **FOLLOW UP REQUIREMENTS** | **Annual Submission** |
|---|---|

Specialist Evaluation: Urology or nephrology follow-up
Labs: As recommended by specialist
Imaging: As recommended by specialist
Flight Surgeon Comment: With respect to symptoms, need for any therapy including medications, adverse effects of therapy

| **APPENDICIES** |
|---|

**References:**

Davis, J. R., Johnson, R., Stepanek, J., & Fogarty, J. A. (Eds.). (2008). Fundamentals of Aerospace Medicine. Philadelphia: Lippincott Williams & Wilkins.

National Kidney Foundation. (2002). *KDOQI Clinical Practice Guidelines for Chronic Kidney Disease: Evaluation, Classification, and Stratification*. Retrieved from http://www2.kidney.org/professionals/KDOQI/guidelines_ckd/toc.htm

## 16.2 HEMATURIA

Revised: August 18 Reviewed: August 18

| | Applicant | Class I | | | Class II | Class III | Class IV |
|---|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | | |
| CD | X | X | X | X | X | X | X |
| NCD | | | | | | | |
| WR | | case by case [1] | case by case [1] | case by case [1] | case by case [1] | case by case [1] | case-by-case [2] |
| WNR | X | | | | | | |
| LBFS | No | No | No | No | No | No | No |
| EXCEPTIONS | | | | | | | |
| LIMDU/PEB | Not required. | | | | | | |

1. Waiver considered on case by case basis after work-up complete and etiology discovered.

**AEROMEDICAL CONCERNS:** The condition or associated underlying condition(s) can adversely affect the flight performance, mission, or safety. Current hematuria, pyuria, or other indicators of urinary tract disease are disqualifying. Hematuria may be a sign of significant underlying renal and/or urinary system disease.

**ICD-10 CODES:**

**R31 Hematuria**

**R31.2 Other microscopic hematuria**

**SERVICE MEMBER MUST COMPLETE PRIOR TO INITIATING WAIVER**

To determine if the blood in urine is CD or NCD:

1. Screen with dipstick.
2. If positive, ensure no exercise for 48 hours and member is well-hydrated, then repeat.
3. If there are 3 or more RBCs on microscopy, screen for benign causes: infection, menstruation, vigorous exercise, viral illness, trauma, or recent urological procedures, and repeat screen after benign cause removed; if none, hematuria is CD and requires urology consultation and waiver.
   a. Obtain urine culture, CMP, and CT of the abdomen/pelvis with and without contrast (r/o GU mass) and send these results with member for urologic consultation.
      (1) If there is contraindication to CT such as CKD, contrast allergy, or pregnancy, a magnetic resonance urography with and without contrast is an acceptable alternative.
   b. If an etiology for hematuria is discovered, a waiver for that condition will also be required.

If the blood in urine is found to be CD, the following must also be true prior to waiver submission:

- Released from *urology* care with recommendation of return to flight status and no restrictions **documented** on last clinical note (electronic or paper).

- If *urology* recommends restrictions, then documentation of physical and/or mental limitations and expected duration (permanent vs temporary).
- *Urology* recommendation for follow on care is **documented** on last clinical note (electronic or paper).
- Surgery/Procedure Note (if applicable, electronic or paper).
- Copies of prior PEB if related to diagnosis.
- Email or provide administrative information to include command UIC, command address, personal address, phone number, designator, flight hours (total and last 6 months), primary aircraft flown, and years of service.

| **AEROMEDICAL SUMMARY REQUIRED DOCUMENTATION BY AEROMEDICAL OFFICER** |
|---|

All associated documentation.

| **FOLLOW UP REQUIREMENTS** | **Annual Submission** |
|---|---|

Specialist Evaluation: Urology follow-up
Labs: as indicated by specialist
Imaging: as indicated by specialist
Flight Surgeon Comment: with respect to symptoms, need for any therapy including medications, adverse effects of therapy

| **APPENDICIES** |
|---|

**References:**

Davis, J. R., Johnson, R., Stepanek, J., & Fogarty, J. A. (Eds.). (2008). Fundamentals of Aerospace Medicine. Philadelphia: Lippincott Williams & Wilkins.

American Urological Association. (2012). *Diagnosis, Evaluation and Follow-up pf Asymptomatic Microhematuria (AMH) in Adults: AUA Guideline*. Retrieved from http://www.auanet.org/education/guidelines/asymptomatic-microhematuria.cfm

## 16.3 PROSTATITIS

Revised: August 18 Reviewed: August 18

| | Applicant | Class I | | | Class II | Class III | Class IV |
|---|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | | |
| CD | X | X | X | X | X | X | X |
| NCD | | | | | | | |
| WR | | case by case [1] | case by case [1] | case by case [1] | case by case [1] | case by case [1] | case-by-case [2] |
| WNR | X | | | | | | |
| LBFS | No | No | No | No | No | No | No |
| EXCEPTIONS | | | | | | | |
| LIMDU/PEB | Not required. | | | | | | |

1. Waiver can be recommended if asymptomatic and normal renal function

**AEROMEDICAL CONCERNS:** The condition or its treatment can adversely affect the flight performance, mission, or safety. Current acute prostatitis or chronic prostatitis is considered disqualifying. Prostatitis may be acute or chronic and may involve symptoms such as severe perineal discomfort, backache, urgency and frequency of micturition which can be extremely distracting in the cockpit. The side effects of some medications are not compatible with flying.

**ICD-10 CODES:**
**N41.0 Acute prostatitis**
**N41.1 Chronic prostatitis**

**SERVICE MEMBER MUST COMPLETE PRIOR TO INITIATING WAIVER**

- Released from *IM or urology* care with recommendation of return to flight status and no restrictions **documented** on last clinical note (electronic or paper).
- If *IM or urology* recommends restrictions, then documentation of physical and/or mental limitations and expected duration (permanent vs temporary).
- *IM or urology* recommendation for follow on care **documented** on last clinical note (electronic or paper).
- Surgery/Procedure Note (if applicable, electronic or paper).
- Copies of prior PEB if related to diagnosis.
- Email or provide administrative information to include command UIC, command address, personal address, phone number, designator, flight hours (total and last 6 months), primary aircraft flown, and years of service.

**AEROMEDICAL SUMMARY REQUIRED DOCUMENTATION BY AEROMEDICAL OFFICER**

All associated documentation.

| FOLLOW UP REQUIREMENTS | Annual Submission |
|---|---|

Specialist Evaluation: IM or urology follow-up
Labs: As indicated by specialist
Imaging: As indicated by specialist
Flight Surgeon Comment: With respect to symptoms, need for any therapy including medications, adverse effects of therapy

## APPENDICIES

**References:**

Meyrier, A., & Fekete, T. (2015). Chronic bacterial prostatitis. In S. Calderwood, and A. Bloom (Eds.), *UpToDate*. Retrieved from http://www.uptodate.com/contents/chronic-bacterial-prostatitis?source=search_result&search=prostatitis&selectedTitle=2%7E95

## 16.4 BENIGN PROSTATIC HYPERTROPHY

Revised: August 18 Reviewed: August 18

Significant changes: 1). Added AUA-SI score sheet and incorporated into CD/NCD differentiation. 2). Changed consultation requirement to IM or urology

| | Applicant | Class I | | | Class II | Class III | Class IV |
|---|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | | |
| CD | X[1] | X[1] | X[1] | X[1] | X[1] | X[1] | X[1] |
| NCD | | | | | | | |
| WR | case by case [2] | case by case [3] | case by case [3] | case by case [3] | case by case [3] | case by case [3] | case by case [3] |
| WNR | | | | | | | |
| LBFS | No | No | No | No | No | No | No |
| EXCEPTIONS | | | | | | | |
| LIMDU/PEB | Not required. | | | | | | |

1. The condition is considered disqualifying based on the clinical/treatment criteria detailed below.
2. Waivers are considered on a case-by-case basis if AUA-SI <8 and not requiring medications.
3. Waiver s are recommended if symptoms are controlled on acceptable therapy as detailed below.

**AEROMEDICAL CONCERNS:** The condition or its treatment can adversely affect the flight performance, mission, or safety. The conditions associated with significant BPH, include symptoms, sequelae, and treatments that are considered disqualifying. Current significant BPH and its treatments are considered disqualifying. BPH is a universal condition in men as they age and is initially characterized by a decrease in the force of the urine stream beginning as men reach their 40's or 50's. In the older aviator, BPH may result in urethral obstruction to the extent that they experience bladder emptying difficulty and urinary frequency, have increased risks of prostatitis with a longer and more complicated recovery, and interrupted sleep cycles from nocturia that can contribute to fatigue. The two primary classes of medications used in the non-surgical management of BPH have varying side effects; postural hypotension, reduced G-tolerance and visual changes are among the most significant aeromedical concerns. Many of the non-selective alpha-1 adrenergic antagonists act on vascular receptors resulting in postural hypotension, dizziness and visual changes which are incompatible with aviation duty. Urologic subtype selective alpha-1 adrenergic antagonists, which act on subtype alpha-1 adrenergic receptors specific to the prostate smooth muscle, provide symptomatic relief while minimizing other adrenergic side effects. Medications such as decongestants may exacerbate bladder emptying difficulties due to increased urethral constriction. Other medications can compete with hepatic cytochrome P450 elimination of BPH medications resulting in delayed clearances and increased side effects.

**ICD-10 CODES:**

**N40.0 Benign prostatic hyperplasia**

**SERVICE MEMBER MUST COMPLETE PRIOR TO INITIATING WAIVER**

To determine if BPH is CD or NCD:

1. BPH is NCD if:
   a. AUA-SI score is <8 AND
   b. DRE is not concerning AND
   c. PSA is within reference range AND

d. Watchful waiting (per AUA guidelines) is the chosen treatment

2. BPH is CD if:
   a. AUA-SI is ≥8 OR DRE is concerning OR PSA is above reference range

If BPH is CD as above, the following will also apply to designated personnel:

1. IM or Urology consultation required
2. After surgical treatment, including open prostatectomy, transurethral (such as TURP/TUMT/TUVP), and transrectal procedures by urologic surgeons and specialists, full post procedure recovery with symptom resolution is achieved and member is found fit for full duty and cleared to return to normal activities by the surgeon. Operative reports must be submitted in support of waiver request.
3. After non-surgical management of BPH with approved medications as listed below, symptom resolution is achieved on stable dose of medication without adverse effects for a minimum of 30 days before applying for a waiver.
   a. Non-selective alpha-1 adrenergic antagonists: doxazosin (Cardura®), prazosin (Minipress®), terazosin (Hytrin®) are CD, no waiver recommended.
   b. Selective alpha-1 adrenergic antagonists: alfuzosin (UroXatral®), tamsulosin (Flomax®), silodosin (RAPAFLO®) are CD, waiver not considered for Service Group 1 or 2, or tactical NFO personnel. Senior officers (LCDR and above) may be waived to Service Group 3 or Class II flying duties in non-tactical aircraft. Designated Naval aircrew will be considered for waiver. Aviation personnel on these medications – alfuzosin, tamsulosin, silodosin - should not pull more than 2.5 Gs, so requests for waivers should state "transport/maritime/helo aircraft only." Air traffic controllers will usually be waived if they meet requirements. Patients are required to be on a final stable dose for 30 days without adverse side effects prior to waiver request/submission.
   c. 5-alpha reductase inhibitors: dutasteride (Avodart®), finasteride (Proscar®) are CD: waivers are possible after 30 days on a final stable dose, without adverse side effects.
4. Any interruption in medication treatment will require a non-flying status until 30 days after the member is back on a stable therapeutic dose.

In addition to above, the following must also be true prior to waiver submission:

- Released from *IM or Urology* care with recommendation of return to flight status and no restrictions **documented** on last clinical note (electronic or paper).
- If *IM or Urology* recommends restrictions, then documentation of physical and/or mental limitations and expected duration (permanent vs temporary).
- *IM or Urology* recommendation for follow on care **documented** on last clinical note (electronic or paper).
- Surgery/Procedure Note (if applicable, electronic or paper).
- Copies of prior PEB if related to diagnosis.
- Email or provide administrative information to include command UIC, command address, personal address, phone number, designator, flight hours (total and last 6 months), primary aircraft flown, and years of service.

**AEROMEDICAL SUMMARY REQUIRED DOCUMENTATION BY AEROMEDICAL OFFICER**

All associated documentation.
Include the American Urological Association – Symptom Index (AUA-SI) – uploaded to AERO.

| FOLLOW UP REQUIREMENTS | Annual Submission |
|---|---|

Specialist Evaluation: IM or urology follow-up
Labs: As indicated by specialist
Imaging: As indicated by specialist
Flight Surgeon Comment: With respect to symptoms, need for any therapy including medications, effectiveness of therapy, adverse effects of therapy, AUA-SI score sheet

**APPENDICIES**

**References:**

American Urological Association. (2014). *American Urological Association Guideline: Management of Benign Prostatic Hyperplasia (BPH)*. Retrieved from https://www.auanet.org/education/guidelines/benign-prostatic-hyperplasia.cfm

## 16.5 REITER'S DISEASE

Revised: September 15 Reviewed: September 15

Significant change: please see section titled Reactive Arthritis in Miscellaneous Section

## 16.6 RENAL STONES (NEPHROLITHIASIS)

Revised: April 2026 Reviewed: April 2026

| | Applicant | Class I | | | Class II | Class III | Class IV | Class V |
|---|---|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | | | |
| CD | X | X | X | X | X | X | X | X |
| NCD | | | | | | | | |
| WR | Case by case | Case by case | Case by case | Case by case | Case by case | Case by case | Case by case | Case by case |
| WNR | | | | | | | | |
| LBFS | No | No | No | No | No | No | No | No |
| LIMDU/PEB | Not required. | | | | | | | |

1. Waivers are considered on a case-by-case basis; waivers are generally not recommended for:
    a. Recurrent stones <60 months apart
    b. Cysteine stones
    c. Hypercalciuria (absorptive, type one and type three)
    d. Retained stones within the collecting system
2. Waivers are generally recommended if asymptomatic, incidental and stone is/was:
    a. Calcium oxalate, calcium phosphate, uric acid, or struvite stone
    b. Recurrence greater than 12 months
3. Waivers are considered, but generally not recommended for:
    a. Cysteine stones
    b. Hypercalciuria (absorptive, type one and type three)
    c. Retained stones (collecting system)
4. Symptomatic stones are CD WNR in all populations until definitive treatment is met. Grounding should be pursued if treatment or recovery is longer than 60-90 days.

**AEROMEDICAL CONCERNS**: The condition is known to produce unpredictable symptoms that can adversely affect the flight performance, mission, or safety. Even so, there have been no mishaps directly related to kidney stone symptoms, with no HAZREPS associated with significant issues. Current or history of a urinary tract stone formation is considered disqualifying.

In-flight incapacitation secondary to the pain of renal colic is the major concern, especially in single seated aircraft. Renal colic has been associated with USAF, IATA, and US airline pilot distraction/incapacitation; however, a number of these are first time stone formers. The majority of renal stones are associated with dehydration and occur as single episodes. Retained, asymptomatic stones are a concern because approximately 35% of those could become symptomatic in the future.

**ICD-10 CODES:**
**N20.0 Calculus of kidney**

**N20.1 Calculus of the ureter**
**N20.9 Urinary Calculus, unspecified**
**N23 Unspecified renal colic**

**SERVICE MEMBER MUST COMPLETE PRIOR TO INITIATING WAIVER**

Applicant:

1. Stone free for **365 days** prior to waiver application date.
2. Urinalysis including microscopic studies. (See Metabolic Workup Worksheet)
3. Blood chemistries. (See Metabolic Workup Worksheet)
4. 24 hour urine metabolic workup. (See Metabolic Workup Worksheet)
5. Stone analysis (if stone recovered).
6. IM or Urology consult indicating fitness for duty and probability of recurrence.
7. Non-contrast (stone protocol) CT of abdomen and pelvis.
8. KUB is required at the time of application to an aviation training program.

Designated:

1. Urinalysis including microscopic studies. (See Metabolic Workup Worksheet)
2. Blood chemistries. (See Metabolic Workup Worksheet)
3. Non-contrast (stone protocol) CT of the abdomen and pelvis.
4. 24 hour urine metabolic workup. (See Metabolic Workup Worksheet)
5. Stone analysis (if stone recovered)
6. IM or Urology consult indicating fitness for duty and probability of recurrence.
7. An episode **may be considered NCD** only IF…
    a. This is FIRST stone AND
    b. The stone is SINGLE AND
    c. There is NO retention of stone, not including Randall's plaques (confirmed by imaging) AND
    d. All labs on Metabolic Workup Worksheet are NORMAL (as the ranges are defined on the worksheet) WITH
    e. Spontaneous passage of stone
    f. THEN this episode of stone is NCD for designated personnel.
8. Medication(s) to aid in passage.
    a. CD, must be grounded while actively on medication(s): Tamsulosin in stones 4-5mm, often used to facilitate passage. May only attempt medication passage for 2-3 weeks.
    b. If longer term usage is required, such as for ureteral stent symptoms, see below guidance.
        i. Selective alpha-1 adrenergic antagonists: alfuzosin (UroXatral®), tamsulosin (Flomax®), silodosin (RAPAFLO®) are CD, waiver not considered for Service Group 1 or 2, or tactical NFO personnel. Senior officers (LCDR and above) may be waived to Service Group 3 or Class II flying duties in non-tactical aircraft.
        ii. Designated Naval aircrew will be considered for waiver. Aviation personnel on these medications – alfuzosin, tamsulosin, silodosin - should not pull more than 2.5 Gs, so requests for waivers should state "transport/maritime/helo aircraft only."

iii. Air traffic controllers will usually be waived if they meet requirements.
iv. Patients are required to be on a final stable dose for 30 days without adverse side effects prior to waiver request/submission.
v. If treatment is expected to take longer than 60 days, a grounding is indicated.

9. Member must be grounded for:
    a. 2 weeks following spontaneous passage or medication assisted passage.
    b. 4 weeks following stone manipulation/ureteroscopy/lithotripsy.
    c. 12 weeks following open surgery and must be found fit for full duty by urology (GROUNDING PHYSICAL REQUIRED SINCE MINIMUM IS GREATER THAN 60 DAYS). Cannot be returned to flight until waiver granted by PERS / CMC.
        i. If expected >60-90d, also consider WNR vs WNRATT depending on training pipeline in students.

Unless stone is NCD, in designated, as above, the following must also be true prior to waiver submission:

- Released from **IM or Urology** care with recommendation of return to flight status and no restrictions documented on last clinical note (electronic or paper).
- If **IM or Urology** recommend restrictions, then documentation of physical and/or mental limitations and expected duration (permanent vs temporary).
- **IM or Urology** recommendation for follow on care documented on last clinical note (electronic or paper).
- Surgery/Procedure Note (if applicable, electronic or paper).
- Copies of prior PEB if related to diagnosis.
- Email or provide administrative information to include command UIC, command address, personal address, phone number, designator, flight hours (total and last 6 months), primary aircraft flown, and years of service.

## AEROMEDICAL SUMMARY REQUIRED DOCUMENTATION BY AEROMEDICAL OFFICER

All associated documentation.
Include the Renal Stone Metabolic Worksheet (WS-RENAL) – uploaded to AERO.
Detailed description including prior notes associated with historic kidney stone(s), including symptoms, surgical notes and treatment if any. Current symptoms or their lack of should also be addressed to denote current concerns, if any.

## FOLLOW UP REQUIREMENTS

— Annual Submission: Appropriate for *recurrent* or first time stones. All applicants begin here.

1. Brief summary of previous stone history, work-up and prevention steps.
2. Flight Surgeon or Aeromedical Examiner comment with respect to symptoms, interval history of additional kidney stone(s), detailed account of additional episode(s), and treatment and prevention steps
3. Review of U.S. Navy Aeromedical Reference and Waiver Guide Urology – 09
4. Taken for additional episodes (Urology consult included). Nephrology consultation if not obtained previously and there has been a recurrence of stone.

5. Radiologic evidence demonstrating no new stones and no growth or movement of retained parenchymal stones, if present. A KUB is recommended for routine follow-up in the absence of symptoms during the waiver period. A non-contrast (stone protocol) CT may be necessary if the patient has a history of radiolucent stones (such as uric acid stones) or if the patient has experienced symptoms.
6. Surgical notes including preoperative and postoperative reporting if applicable.
7. If member is on prevention medication or the initial 24-hour urine stone risk analysis was abnormal, then an annual 24-hour urine to monitor impact of intervention is required.

*All service members who have a history of this condition are encouraged to take measures to potentially help prevention. These include increasing fluid intake to ~2 liters urine output daily, limiting dietary sodium intake, increasing fruit and vegetable consumption as well as weight loss where appropriate.*

*Calcium oxalate stones are the most common and should also include maintaining adequate calcium intake not from supplements, reducing nondairy animal protein intake, and limiting high oxalate food consumption. It is recommended to look up high oxalate foods to see which may apply to your specific diet.*

*Low citrate can have good treatment with lemon juice in water or lemonade, especially if <300 on Renal WS.*

*General guidelines: Hydrate and hydrate well (>60-80oz water daily), watch sodium intake (processed food reduction), animal protein (a carnivore diet may be increased risk but otherwise essentially no effect).*

Annual growth of CaOx stones is 1-2mm/yr, with higher rates seen in uric acid stones. There is an expected <5% recurrence rate per year for average risk patients with normal metabolic WS.

## APPENDICES

References:


- American Urological Association. (2014). Medical Management of Kidney Stones: AUA Guideline. Retrieved from https://www.auanet.org/guidelines-and-quality/guidelines/kidney-stones-medical-mangement-guideline
- Davis, J. R., Johnson, R., Stepanek, J., & Fogarty, J. A. (Eds.). (2008). Fundamentals of Aerospace Medicine. Philadelphia: Lippincott Williams & Wilkins.
- Pugliese JM, Baker KC. Epidemiology of nephrolithiasis in personnel returning from Operation Iraqi Freedom. Urology. 2009 Jul;74(1):56-60. doi: 10.1016/j.urology.2008.10.079. Epub 2009 Apr 23. PMID: 19395003.
- Hari SB, Morrow MS. Rethinking nephrolithiasis in military aviation. Aviat Space Environ Med. 2012 Apr;83(4):445-8. doi: 10.3357/asem.3164.2012. PMID: 22462375.
- Masterson JH, Phillips CJ, Crum-Cianflone NF, Krause RJ, Sur RL, L'Esperance JO. A 10-Year Retrospective Review of Nephrolithiasis in the Navy and Navy Pilots. J Urol. 2017 Aug;198(2):394-400. doi: 10.1016/j.juro.2017.02.074. Epub 2017 Feb 21. PMID: 28235550.
- Masterson, J. H. , Phillips, C. J. , Crum-Cianflone, N. F. , Krause, R. J. , Sur, R. L. & L'Esperance, J. O. (2017). *The Journal of Urology, 198* (2), 394-399. doi: 10.1016/j.juro.2017.02.074.

## 16.7 PROTEINURIA

Revised: August 18 Reviewed: August 18

| | Applicant | Class I | | | Class II | Class III | Class IV |
|---|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | | |
| CD | X | X | X | X | X | X | X |
| NCD | | | | | | | |
| WR | case by case [1,3] | case by case [2,3] | case by case [2,3] | case by case [2,3] | case by case [2,3] | case by case [2,3] | case by case [2,3] |
| WNR | | | | | | | |
| LBFS | No | No | No | No | No | No | No |
| EXCEPTIONS | | | | | | | |
| LIMDU/PEB | Per nephrology recommendation. | | | | | | |

1. Waiver considered on a case-by-case basis if: Protein excretion < 1 gram/day
   Kidney function is normal
   No systemic disease (including hypertension)
2. Waiver considered on a case-by-case basis if: Hypertension is well controlled
   Kidney function is normal
   Protein excretion is < 2 grams/day
3. Waiver will not be recommended for daily protein excretion > 2 grams/day

**AEROMEDICAL CONCERNS:** The condition, its sequelae, or its treatment can adversely affect the flight performance, mission, or safety. Current or history of proteinuria (greater than 200 mg/24 hours, or a protein to creatinine ration greater than 0.2 in a random urine sample) is disqualifying. The underlying processes that cause proteinuria can lead to renal insufficiency or failure presenting with signs and symptoms that may include fatigue, susceptibility to infection, edema, and electrolyte disturbances. The underlying processes that cause proteinuria may render the member unfit for military aviation duties.

**ICD-10 CODES:**
**R80.0 Proteinuria**

**SERVICE MEMBER MUST COMPLETE PRIOR TO INITIATING WAIVER**

To determine if protein in urine is CD or NCD:

1. Screen with a urine dipstick or available laboratory testing.
2. If screen is positive (1+ on dipstick or greater than 20 mg/dL), ensure no exercise for 24 hours and the member is well-hydrated, then repeat.
3. If the repeat testing is positive, then obtain a microscopic analysis to rule out false-positive conditions such as infection or stones that can increase numbers of red or white blood cells in urine.
4. If these conditions above are ruled out, then obtain two random urine protein/creatinine ratios temporally separated by 1-2 weeks.
   a. A first morning urine sample is preferred, but not required (patient collects at home then drops off at laboratory)
   b. If the ratio of either is ≥ 0.2, then the condition is CD; the member should be grounded and referred to Nephrology for further evaluation
   c. If the ratio of BOTH are < 0.2 mg, condition is NCD

If protein in urine is found to be CD, then the following must also be true prior to waiver submission:

- Released from *nephrology* care with recommendation of return to flight status and no restrictions **documented** on last clinical note (electronic or paper).
- If *nephrology* recommends restrictions, then documentation of physical and/or mental limitations and expected duration (permanent vs temporary).
- *Nephrology* recommendation for follow on care **documented** on last clinical note (electronic or paper).
- Surgery/Procedure Note (if applicable, electronic or paper).
- Copies of prior PEB if related to diagnosis.
- Email or provide administrative information to include command UIC, command address, personal address, phone number, designator, flight hours (total and last 6 months), primary aircraft flown, and years of service.

| **AEROMEDICAL SUMMARY REQUIRED DOCUMENTATION BY AEROMEDICAL OFFICER** |
|---|

All associated documentation.

| **FOLLOW UP REQUIREMENTS** | **Annual Submission** |
|---|---|

1. Brief summary of previous proteinuria history, work-up, and prevention steps.
2. Flight surgeon comment with respect to symptoms, current therapy including medication and prevention steps to halt progression, and stability of proteinuria.
3. Nephrology follow-up consultation report.
4. Reports of imaging and lab tests recommended by Nephrology.

| **APPENDICIES** |
|---|

**References:**

Davis, J. R., Johnson, R., Stepanek, J., & Fogarty, J. A. (Eds.). (2008). Fundamentals of Aerospace Medicine. Philadelphia: Lippincott Williams & Wilkins.

National Kidney Foundation. (2002). *KDOQI Clinical Practice Guidelines for Chronic Kidney Disease: Evaluation, Classification, and Stratification*. Retrieved from http://www2.kidney.org/professionals/KDOQI/guidelines_ckd/p5_lab_g5.htm

# 17.0 MISCELLANEOUS CONDITIONS

Last Revised: March 2016 Last Reviewed: March 2016

## 17.1 ALLERGIC REACTIONS TO INSECTS

| | Applicant | Class I | | | Class II | Class III | Class IV |
|---|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | | |
| CD | X | X | X | X | X | X | X |
| NCD | | | | | | | |
| WR | case-by-case [1] | case-by-case [2] | case-by-case [2] | case-by-case [2] | case-by-case [2] | case-by-case [2] | case-by-case [2] |
| WNR | | | | | | | |
| LBFS | No | No | No | No | No | No | No |
| EXCEPTIONS | | | | | | | |
| LIMDU/PEB | Not required. | | | | | | |

1. Applicants with a history of cutaneous or mild systemic reactions must have received VIT and be on a stable maintenance dose prior to submitting an application for a waiver. Applicants with severe allergic reactions will not be considered for waiver until they have completed a minimum of three years of VIT and have demonstrated a documented negative repeat skin test.
2. The decision for waiver will be made on a case-by-case basis after review of all the available documentation.

**AEROMEDICAL CONCERNS:** Any history of systemic or anaphylactic reaction to insect venom, foods, or food additives is considered CD for all DIF. Systemic or significant local reactions to insect bites or stings may lead to incapacitation in as little as three to five minutes. This type of rapid incapacitation is incompatible with aviation duty without successful diagnosis and treatment. Desensitization with Allergy or Venom-Specific Immunotherapy requires specialty-specific care, more aggressive initial therapy, and then regular dosing over years. The initial treatment and maintenance dosing must be done at a qualified facility with the ability to handle severe reactions. These medications have specific storage and transport requirements. These requirements may prevent operational duties in some areas/locations and must be considered.

**DISCUSSION:** Venom-Specific Immunotherapy (VIT) is required for all adult individuals experiencing systemic or anaphylactic reactions. Cutaneous systemic reactions prior to the age of 16 do not require treatment with VIT and do not require a waiver. These individuals have a minimal risk of systemic reaction as an adult (approximately 10%). However, anaphylactic reactions in individuals less than 16 years of age require allergy/immunology consult and skin testing. If positive, VIT is required for a career in aviation. Carrying an emergency anaphylactic kit (Epi Pen) does not preclude a member from consideration for a waiver. In some instances, it may be required to carry Epi Pen in the performance of aviation duty. The requirement to carry an emergency anaphylactic kit will be based on the severity of the reaction and the recommendation of the Allergy/Immunology specialist.

A generalized reaction to 100 wasps is a normal response, which does not fulfill the criteria of the generalized reaction described above. Anaphylaxis from a single sting is different matter.

**Diagnosis/ICD-9 CODE:**
**989.5 Toxic effect of venom**
**V15.6 Personal history of poisoning presenting hazards to health**
**V07.1 Need for desensitization to allergens**

| **SERVICE MEMBER MUST COMPLETE PRIOR TO INITIATING WAIVER** |
|---|

- Released from A*llergy/Immunology* care with recommendation of return to flight status and no restrictions **documented** on last clinical note (electronic or paper).
- If *Allergy/Immunology* recommends restrictions, then documentation of physical and/or mental limitations and expected duration (permanent vs temporary).
- *Allergy/Immunology* recommendation for follow on care **documented** on last clinical note (electronic or paper).
- Copies of any prior PEB.
- Member must be up-to-date with VIT.
- Email or provide administrative information to include command UIC, command address, personal address, phone number, designator, flight hours (total and last 6 months), primary aircraft flown, and years of service.

| **AEROMEDICAL SUMMARY REQUIRED DOCUMENTATION BY AEROMEDICAL OFFICER** |
|---|

All associated documentation.

| **FOLLOW UP REQUIREMENTS** | **Annual Submission** |
|---|---|

Flight Surgeon comment regarding interval history.
Specialist Evaluation: Allergy/Immunology, unless otherwise specified by Code NA05.

## 17.2 BREAST IMPLANTS AND SURGERY

Last Revised: September 15 Last Reviewed: September 15

| | Applicant | Class I | | | Class II | Class III | Class IV |
|---|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | | |
| CD | X[1] | X[1] | X[1] | X[1] | X[1] | X[1] | X[1] |
| NCD | | | | | | | |
| WR | X[2] | X[2] | X[2] | X[2] | X[2] | X[1] | X[1] |
| WNR | | | | | | | |
| LBFS | No | Yes | Yes | Yes | Yes | Yes | Yes |
| EXCEPTIONS | | | | | | | |
| LIMDU/PEB | Not required. | | | | | | |

1. Any history of chest wall (including breasts) surgery during the preceding **6 months** is considered disqualifying. After 6 months, the condition is not considered disqualifying if there have been no complications and the member remains asymptomatic. Beyond the 6 months, the retained breast implants are NCD, if stable, uncomplicated, and asymptomatic.
2. Waivers may be considered only after **6 weeks** following surgery provided full recovery without complication.

**AEROMEDICAL CONCERNS:** The condition or its sequelae can adversely affect the flight performance, mission, or safety. Complications from breast surgery include infection, abscess, wound separation, and pneumothorax. Long-term effects include chronic pain from scarring, chest muscle function, repeat surgery, or breast dysfunction after implant. Waivers may be considered after full recovery from surgery (at least 6 weeks). For implants, it is possible shifting of implants may occur during high G flight and may compromise the surgical result early after surgery, or later cause distraction and/or pain during flight.

**Waiver Comments:**

1. The history of breast surgery and retained implants are NCD, if it has been more than **6 months** since the surgery and the member is asymptomatic with no complications and no physical limitations.
2. Waivers are considered after completing **6 weeks** postoperative.
   a. Fully recovered, no limitations, cleared by surgeon for full duty.
3. Waivers are considered for designated aviators.

**Diagnosis/ICD-9 CODE:**

**85.31 Unilateral reduction mammoplasty**
**85.32 Bilateral reduction mammoplasty**
**85.4 Mastectomy**
**85.41 Unilateral simple mastectomy**
**85.42 Bilateral simple mastectomy**
**85.50 Augmentation mammoplasty, NOS**
**85.53 Unilateral breast implant**
**85.54 Bilateral breast implant**

**SERVICE MEMBER MUST COMPLETE PRIOR TO INITIATING WAIVER**

- Released from *Surgical Specialist's* care with recommendation of return to flight status and no restrictions **documented** on last clinical note (electronic or paper).
- If the *Surgical Specialist* recommends restrictions, then documentation of physical and/or mental limitations and expected duration (permanent vs temporary).

- *Surgical Specialist's* recommendation for follow on care **documented** on last clinical note (electronic or paper).
- Surgery/Procedure Note (if applicable, electronic or paper).
- Copies of any prior PEB
- Email or provide administrative information to include command UIC, command address, personal address, phone number, designator, flight hours (total and last 6 months), primary aircraft flown, and years of service.

| **AEROMEDICAL SUMMARY REQUIRED DOCUMENTATION BY AEROMEDICAL OFFICER** |
|---|

All associated documentation: Surgical report and postoperative care notes included release to full duty.

| **FOLLOW UP REQUIREMENTS** | **Annual Submission** |
|---|---|

Specialist Evaluation: Surgical specialist initially then as required, Women's Health Specialist thereafter.
Labs: As recommended by specialist
Imaging: As recommended by specialist
Flight Surgeon Comment: With respect to symptoms, any limitation, or any need for additional surgery or therapy including medications.

| **APPENDICIES** |
|---|

Breast cancer and its surgical/medical treatment are covered in the Malignancy section of the ARWG.

## 17.3 HEAT EXHAUSTION/STROKE

Last Revised: September 15 Last Reviewed: September 15

| | Applicant | Class I | | | Class II | Class III | Class IV |
|---|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | | |
| CD | X | X | X | X | X | X | X |
| NCD | | | | | | | |
| WR | X[1] | X[1] | X[1] | X[1] | X[1] | X[1] | X[1] |
| WNR | | | | | | | |
| LBFS | No | No | No | No | No | No | No |
| EXCEPTIONS | | | | | | | |
| LIMDU/PEB | History of heat stroke or history of recurrent heat exhaustion (3x/24 months) should be referred to the PEB for disposition (SECNAVINST 1850.4 series, encl (8)). | | | | | | |

1. See waiver comments 1, 2, and 3 below.

**AEROMEDICAL CONCERNS:** The condition or its sequelae can adversely affect the flight performance, mission, or safety. Heat injuries alter performance and/or can result in serious medical complications. The recurrence of heat exhaustion/heat stroke while in the aviation/operational environment is possible with a history of heat injury. The sequelae of some heat injuries can limit operational capability.

**WAIVER COMMENTS:**

1. Heat Cramps, single or multiple episodes: NCD
2. Heat Exhaustion: NCD, unless severe or recurrent. Any history of 3 or more episodes is CD.
3. Heat Stroke: any history is CD. Waivers are considered on a **case-by-case** basis. Waiver disposition may be favorable if the following conditions are met:
   a. No evidence of a congenital predisposing condition (i.e., anhidrosis).
   b. An identifiable situational stressor led to the episode, such as dehydration, coexisting infectious disease, medication effect, fatigue, sleep deprivation, or lack of acclimatization.
   c. No residual injury exists.
   d. A minimum of three months have passed since the episode of heat stroke.
   e. Evidence of normal heat tolerance after recovery from the heat stroke episode.
   f. Individuals who fail to meet these criteria will remain NPQ with no waiver recommended. Recurrent episodes of heat stroke are CD, with waiver unlikely.

**INFORMATION REQUIRED:**

1. Severe or recurrent heat exhaustion or one episode of heat stroke will require evaluation by NAMI Internal Medicine

**DISCUSSION:** Heat stress and heat injury continue to be significant environmental hazards in military aviation. Exertional heat stroke (EH) is a state of extreme hyperthermia that occurs when excess heat generated by muscular exercise exceeds the body's ability to dissipate it. Loss or significant alteration of consciousness in the circumstances of physical exertion in hot weather should be considered heat stroke unless another cause is obvious.

Studies show that exertional heat stroke in a young, healthy (military) individual result from situational factors; an intrinsic predisposition to heat intolerance is extremely rare. Dehydration, febrile or infectious illness, skin disorders, poor physical fitness and obesity are well-accepted

factors predisposing to heat intolerance. Some of these factors may result in only temporary heat susceptibility while others can lead to permanent heat intolerance.

**Diagnosis/ICD-9 CODES:**
**992.0 Heat stroke**
**992.2 Heat cramps**
**992.5 Heat exhaustion unspecified**

| **SERVICE MEMBER MUST COMPLETE PRIOR TO INITIATING WAIVER** |
|---|

- Released from *internal medicine or neurology* care with recommendation of return to flight status and no restrictions **documented** on last clinical note (electronic or paper).
- If *internal medicine or neurology* recommends restrictions, then documentation of physical and/or mental limitations and expected duration (permanent vs temporary).
- *Internal medicine or neurology* recommendation for follow on care **documented** on last clinical note (electronic or paper).
- Copies of any prior PEB
- Email or provide administrative information to include command UIC, command address, personal address, phone number, designator, flight hours (total and last 6 months), primary aircraft flown, and years of service.

| **AEROMEDICAL SUMMARY REQUIRED DOCUMENTATION BY AEROMEDICAL OFFICER** |
|---|

All associated documentation.

| **FOLLOW UP REQUIREMENTS** | **Annual Submission** |
|---|---|

Flight Surgeon comment regarding interval history.

## 17.3A RHABDOMYOLYSIS

Last Revised: September 15 Last Reviewed: September 15

| | Applicant | Class I | | | Class II | Class III | Class IV |
|---|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | | |
| CD | X | X | X | X | X | X | X |
| NCD | | | | | | | |
| WR | case-by-case [1] | case-by-case [1] | case-by-case [1] | case-by-case [1] | case-by-case [1] | case-by-case [1] | case-by-case [1] |
| WNR | | | | | | | |
| LBFS | No | No | No | No | No | No | No |
| EXCEPTIONS | | | | | | | |
| LIMDU/PEB | PEB may be required for exertional rhabdomyolysis when associated with heat stroke (SECNAVINST 1850.4 series, encl (8)) | | | | | | |

1. See waiver comments below.

**AEROMEDICAL CONCERNS:** The condition or its sequelae can adversely affect the flight performance, mission, or safety. Any history of this condition is disqualifying. The physiologic changes that occur in rhabdomyolysis may be precipitated by and severely compounded in the aviation environment and related duties involving flight. Symptoms may include muscular pain, muscular weakness, and fatigue. Decreased situational awareness and cockpit distraction are of major concern. Additionally, unrecognized rhabdomyolysis may progress to renal failure, shock, cardiac arrhythmias, and death.

**WAIVER COMMENTS:** The history of a single episode of uncomplicated rhabdomyolysis is CD for all aviation classes, including applicants; if the condition fully resolves within three months without sequelae, waivers are recommended on a case-by-case basis.

Any history of rhabdomyolysis is CD. Waivers are considered under the following conditions:

1. No evidence of a congenital predisposing condition (e.g., myophosphorylase deficiency, sickle cell trait).
2. An identifiable situational stressor led to the occurrence, such as extreme physical exertion, trauma or muscle compression, dehydration, electrolyte abnormality, coexisting infectious disease, toxin exposure, medication effect, or fatigue.
3. No residual organ injury or damage is present.
4. A minimum of three months has passed since the episode of rhabdomyolysis.

**DISCUSSION:** Rhabdomyolysis is a syndrome characterized by muscle necrosis and release of intracellular muscle constituents into the circulation. The disease process can range from mild, asymptomatic enzyme elevations to life-threatening cases involving cardiac arrhythmias, disseminated intravascular coagulation, acute renal failure, and death. The classic presentation of rhabdomyolysis includes myalgias, myoglobinuria causing reddish to brown urine, and elevated serum muscle enzymes. Diagnosis is based upon fractionated serum skeletal muscle creatine kinase levels, which may exceed 100,000 IU/L, and appropriate clinically correlated history. While no specific cutoff for creatine kinase level is used to diagnose rhabdomyolysis, a serum level 5 times greater than baseline is the generally accepted level. Additional predisposing conditions and causal factors include prolonged unconsciousness resulting in extended dorsal muscle compression, struggling against restraints, episodes of near drowning,

burns, sepsis, torture victims, high-voltage electrical injuries, compartment syndrome, hyperthermia, hypothermia, prolonged tourniquet application, seizures, sporadic extreme physical exertion (i.e., ultra-marathoners), dehydration, inappropriate nutritional supplement use, and pre-existing electrolyte abnormalities.

**Diagnosis/ICD-9 CODES:**
**728.88 Rhabdomyolysis**
**791.3 Myoglobinuria**

| **SERVICE MEMBER MUST COMPLETE PRIOR TO INITIATING WAIVER** |
|---|

- Released from *Internal Medicine* care with recommendation of return to flight status and no restrictions **documented** on last clinical note (electronic or paper).
- If *Internal Medicine* recommends restrictions, then documentation of physical and/or mental limitations and expected duration (permanent vs temporary).
- *Internal Medicine* recommendation for follow on care **documented** on last clinical note (electronic or paper).
- Copies of any prior PEB
- Email or provide administrative information to include command UIC, command address, personal address, phone number, designator, flight hours (total and last 6 months), primary aircraft flown, and years of service.

| **AEROMEDICAL SUMMARY REQUIRED DOCUMENTATION BY AEROMEDICAL OFFICER** |
|---|

All associated documentation.

| **FOLLOW UP REQUIREMENTS** | **Routine Submission** |
|---|---|

Flight Surgeon comment regarding interval history.

# 17.4 HUMAN IMMUNODEFICIENCY VIRUS (HIV) INFECTION

Last Revised: March 2016 Last Reviewed: March 2016

Significant changes: 1) HIV waivers considered on case-by-case basis for designated personnel in Class II, III, IV

| | Applicant | Class I | | | Class II | Class III | Class IV |
|---|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | | |
| CD | X | X | X | X | X | X | X |
| NCD | | | | | | | |
| WR | | | | | Case-by-case | Case-by-case | Case-by-case |
| WNR | X | X | X | X | | | |
| LBFS | | No | No | No | No | No | No |
| EXCEPTIONS | | | | | | | |
| LIMDU/PEB | PEB is not required for uncomplicated HIV seropositivity. Complicated cases may require PEB IAW SECNAVINST 1850.4 series, encl (8). | | | | | | |

**AEROMEDICAL CONCERNS:** Previously recommended management of HIV infection included monitoring CD4 cell decline and starting antiretroviral therapy when a specific threshold was reached. Today, the U.S. Department of Health and Human Services now recommends starting treatment as soon as infection is diagnosed. Mostly due to earlier treatment, aeromedically concerning manifestations of HIV infection such as encephalopathy, opportunistic infections, and opportunistic malignancies rarely develop in those whose infection is identified and treated early. As such, uncomplicated cases of HIV seropositivity may be considered for waivers with appropriate monitoring. Since 2013, the U.S. Navy allows those infected with HIV without complications, the opportunity to deploy and PCS overseas and serve aboard large platform ships to a limited number of specific locations.

**MEDICAL THERAPY:** All personnel requesting a waiver as well as those previously granted a waiver must be free of any side effects related to their treatment including, but not limited to medication changes or dosage adjustments. Any complications of treatment shall be brought to the immediate attention of NAMI Internal Medicine.

***A GROUNDING PHYSICAL AND AMS SHALL BE SUBMITTED UPON CONFIRMATION OF MEMBER WITH HIV SERO-POSITIVE LABORATORY TESTING***

**Diagnosis/ICD-10 CODE:**
Z21 Asymptomatic HIV infection status

**SERVICE MEMBER MUST COMPLETE PRIOR TO INITIATING WAIVER**

- Complete initial evaluation required by SECNAVINST 5300.30 series and released from *infectious diseases* care with recommendation of return to full duty and no restrictions **documented** on last clinical note (electronic or paper).
- If *infectious diseases* recommends restrictions, then documentation of physical and/or mental limitations and expected duration (permanent vs temporary).
- *Infectious diseases* recommendation for follow on care **documented** on last clinical note (electronic or paper).
- CogScreen-AE completed (full neuropsychological battery testing might also be required as indicated by CogScreen-AE results).
- Navy HIV Evaluation and Treatment Unit (HETU) comprehensive psychosocial evaluation.
- Achieve an undetectable blood viral load using FDA-approved agents recommended by U.S. Department of Health and Human Services, excluding efavirenz.
- Copies of any prior PEB.

- Email or provide administrative information to include command UIC, command address, personal address, phone number, designator, flight hours (total and last 6 months), primary aircraft flown, and years of service.

| **AEROMEDICAL SUMMARY REQUIRED DOCUMENTATION BY AEROMEDICAL OFFICER** |
|---|

All associated documentation.
AMS must include: "No aeromedically significant adverse effects due to antiretroviral therapy."
Flight Surgeon Comment: Safer sex counseling completed and documented in AMS

| **FOLLOW UP REQUIREMENTS** | **Annual Submission** |
|---|---|

Specialist Evaluation: --Infectious diseases follow-up visits every 6 months, submitted annually
--Navy HETU psychosocial evaluation
Labs: As recommended by specialist
CogScreen-AE
Flight Surgeon Comment: Safer sex counseling completed and documented in AMS

***Prior to screening for deployment, OCONUS or SeaDuty assignments, members must submit a request to update their waiver provisions to consider the requirements for the specific duty location requested.***

| **APPENDICIES** |
|---|

**References:**


1. MILPERSMAN 1300-1300. (2013). Assignment of personnel with bloodborne pathogens (BBP). Retrieved from http://www.med.navy.mil/sites/nmcphc/Documents/nbimc/MILPERSMAN-1300-1300.pdf
2. DoDI 6485.01 – HIV in Military Service Members
3. SECNAVINST 5300.30E - Management of Human Immunodeficiency Virus, Hepatitis B Virus and Hepatitis C Virus Infection In The Navy And Marine Corps
4. BUMEDINST 1300.2A – Suitability Screening
5. U.S. Department of Health and Human Services. (2015). Clinical guidelines portal. Retrieved from https://aidsinfo.nih.gov/guidelines

## 17.4.1 HIV PRE-EXPOSURE PROPHYLAXIS (PREP)

Last Revised: Apr 25 Last Reviewed: Apr 25

| | Applicant | Class I | | | Class II | Class III | Class IV |
|---|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | | |
| CD | | | | | | | |
| NCD | | | | | | | |
| WR | X | X | X | X | X | X | X |
| WNR | | | | | | | |
| LBFS | | | | | | | |
| EXCEPTIONS | Truvada and Descovy are the only approved medications. AMS required to be submitted documenting PrEP use. | | | | | | |
| LIMDU/PEB | Not required. | | | | | | |

**AEROMEDICAL CONCERNS:** Truvada® (tenofovir disoproxil fumarate-emtricitabine) and Descovy® (tenofovir alafenamide-emtricitabine) are FDA-approved to be used by HIV-negative persons to prevent HIV infection. These medications are associated with aeromedically significant adverse effects, termed “start-up syndrome” including headache, nausea, and abdominal discomfort in 2-7% of individuals. Symptoms are clinically apparent within 14 days of medication initiation; most presentations are self-limited and resolve within 30 days. Extended symptomology warrants discontinuation of the medication.

Anti-retroviral pharmaceuticals are associated with long-term health effects, notably decreased bone mineral density and reduced kidney function, adequate monitoring by prescribing physicians is key and requires continued discussion with patients on the risks and benefits of medication use. However, there is minimal risk of subtle or sudden incapacitation from these medications. Specific laboratory follow-up and educational resources are discussed extensively, and regularly updated in Clinical Practice Guidelines published by the Centers for Disease Control and Prevention. The Defense Health Agency has published resources advising on individual medical readiness, deployability, and accession and retention standards. These can be found in the DHA-PI 6025.29 or more current publication.

Apretude® (cabotegravir) injectable medication is utilized every 2 months for long-acting pre-exposure prophylaxis. However, this medication is associated with multiple aeromedically significant adverse effects that can occur at each injection. These include local skin reactions, allergic reactions, headache, gastrointestinal symptoms, weakness, dizziness, fatigue, drowsiness, and insomnia. These effects are noted in 2-12% of patients. As such, the risks of this medication pose a significant potential impact to the safe operation of Naval aircraft on a recurring basis. Apretude is not authorized for use in Naval Aviation personnel.

While the concern of subtle or sudden incapacitation in flight with use of Truvada® or Descovy® is exceedingly low, there are numerous acute and long-term concerns for aviator health. It is paramount that Aeromedical Officers are familiar with standard clinical practice guidelines and adherent to CDC recommendations for biochemical monitoring of renal and liver function as well as STI screening as appropriate.

**Diagnosis/ICD-9 CODE:**
**Z79899 Long term use of medications**
**MDB80**

| SERVICE MEMBER MUST COMPLETE PRIOR TO AEROMEDICAL SUMMARY SUBMISSION BY AEROMEDICAL OFFICER |
|---|

- Documented HIV negative status – 4th generation HIV Ag/Ab test or as directed by DHA-PI 6025.29
- Baseline renal function testing (serum creatinine)
- Email or provide administrative information to include command UIC, command address, personal address, phone number, designator, flight hours (total and last 6 months), primary aircraft flown, and years of service.

| AEROMEDICAL SUMMARY REQUIRED DOCUMENTATION BY AEROMEDICAL OFFICER |
|---|

AMS must include: "No significant adverse effects due to (Truvada / Descovy) during a 14-day grounding period."

| FOLLOW UP REQUIREMENTS | Annual Submission |
|---|---|

Specialist Evaluation: Qualified HIV PrEP Provider as defined by DHA-PI 6025.29
Labs: As indicated by most recent CDC Clinical Practice Guideline (PREEXPOSURE PROPHYLAXIS FOR THE PREVENTION OF HIV INFECTION IN THE UNITED STATES).
-HIV testing every 3 months, renal function, and STI screening every 6 months.
Flight Surgeon Comment: No significant adverse effects noted. Statement of continued use or discontinuation with comment on reason (deployment, etc.).
**NOTE**: Member may stop or start medication based on clinical risk factors without submission to NAMI provided lab testing is current and 14-day grounding after each medication initiation period (annual submission only with above comment).

| APPENDICIES |
|---|

**References:**


*Apretude (cabotegravir) [prescribing information]*. (2023). ViiV Healthcare. Durham, NC

Defense Health Agency. (2019, December 20). *DHA-PI 6025.29*. https://www.health.mil/Reference-Center/DHA-Publications/2019/12/20/DHA-PI-6025-29

*Descovy (emtricitabine and tenofovir alafenamide) [prescribing information]*. (2022). Gilead Sciences Inc. Foster City, CA

Landovitz, R. J., Donnell, D., Clement, M. E., Hanscom, B., Cottle, L., Coelho, L., Cabello, R., Chariyalertsak, S., Dunne, E. F., Frank, I., Gallardo-Cartagena, J. A., Gaur, A. H., Gonzales, P., Tran, H. V., Hinojosa, J. C., Kallas, E. G., Kelley, C. F., Losso, M. H., Madruga, J. V., … HPTN 083 Study Team. (2021). Cabotegravir for HIV Prevention in Cisgender Men and Transgender Women. *The New England Journal of Medicine*, *385*(7), 595–608. https://doi.org/10.1056/NEJMoa2101016

*Truvada (emtricitabine/tenofovir disoproxil fumarate) [prescribing information]*. (2023). Gilead Sciences Inc. Foster City, CA

*US Public Health Service: PREEXPOSURE PROPHYLAXIS FOR THE PREVENTION OF HIV INFECTION IN THE UNITED STATES – 2021 UPDATE, A CLINICAL PRACTICE GUIDELINE*. (2021).

## 17.5 LYME DISEASE

Last Revised: September 15 Last Reviewed: September 15

| | Applicant | Class I | | | Class II | Class III | Class IV |
|---|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | | |
| CD | X | X | X | X | X | X | X |
| NCD | | | | | | | |
| WR | case-by-case [1] | case-by-case [1] | case-by-case [1] | case-by-case [1] | case-by-case [1] | case-by-case [1] | case-by-case [1] |
| WNR | | | | | | | |
| LBFS | No | No | No | No | No | No | No |
| EXCEPTIONS | | | | | | | |
| LIMDU/PEB | Not Required. | | | | | | |

1. Waiver considered on a case-by-case basis.

**AEROMEDICAL CONCERNS:** The condition or its sequelae can adversely affect the flight performance, mission, or safety. This condition is disqualifying for aviation. Early infection with *Borrelia burgdorferi* generally results in the characteristic cutaneous rash known as erythema migrans. Later in the course of the disease, chronic meningitis, polyneuropathy or Bell's palsy can develop. Months to years later, arthritis can be the predominant feature. Note that all these conditions can appear in any order and at any time during the course of the infection. *B. burgdorferi* can also cause a myo/pericarditis, conjunctivitis, and retinal hemorrhage or detachment.

**Diagnosis/ICD-9 CODE:**
**088.81 Lyme disease**

**SERVICE MEMBER MUST COMPLETE PRIOR TO INITIATING WAIVER**

- *Infectious Diseases Specialist* evaluation **documented** on last clinical note (electronic or paper).
- *Infectious Diseases Specialist* evaluation with recommendation of return to flight status, no restrictions, and world-wide deployability **documented** on last clinical note (electronic or paper).
- If *Infectious Diseases Specialist* recommends restrictions, then documentation of physical limitations and expected duration (permanent vs temporary).
- *Infectious Disease Specialist* recommendation for follow on care **documented** on last clinical note (electronic or paper).
- Copies of any prior PEB
- Email or provide administrative information to include command UIC, command address, personal address, phone number, designator, flight hours (total and last 6 months), primary aircraft flown, and years of service.

**AEROMEDICAL SUMMARY REQUIRED DOCUMENTATION BY AEROMEDICAL OFFICER**

All associated documentation.

| FOLLOW UP REQUIREMENTS | Routine Submission |
|---|---|

Flight Surgeon comment regarding interval history.
Specialist Evaluation: Infectious diseases or internal medicine, unless otherwise specified by Code NA05.

## APPENDICIES

**References:**

Centers for Disease Control & Prevention. *Lyme disease*. Retrieved from http://www.cdc.gov/lyme/

## 17.6 MOTION SICKNESS/AIR SICKNESS

Last Revised: September 15 Last Reviewed: September 15

| | Applicant | Class I | | | Class II | Class III | Class IV |
|---|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | | |
| CD | X | X [1] | X [1] | X [1] | X [1] | X [1] | X |
| NCD | | | | | | | |
| WR | case-by-case [2] | case-by-case [2] | case-by-case [2] | case-by-case [2] | case-by-case [2] | case-by-case [2] | case-by-case [2] |
| WNR | | | | | | | |
| LBFS | No | No | No | No | No | No | No |
| EXCEPTIONS | SNA, SNFO (CNATRA Instruction 6410.2 series) [3] | | | | | | |
| LIMDU/PEB | Not Required. | | | | | | |

1. Recurrent, incapacitating, or persistently requiring premedication is disqualifying.
2. Waivers for the recurrent/persistent condition are unlikely. Some waivers are considered on a case-by-case basis.
3. Many student aviators (SNA, SNFO) experience transient motion sickness that will desensitize and resolve with continued flying and/or interventions according to CNATRA Instruction 6410.2 series. This transient condition is NCD, if fully resolved. It is CD when the condition is intractable/ persisting despite interventions.

**AEROMEDICAL CONCERNS:** The condition or its sequelae can adversely affect the flight performance, mission, or safety. A history of motion sickness resulting in recurrent incapacitating symptoms or symptoms of such severity to require pre-medication, in the previous 3 years, is disqualifying. Symptoms can include sweating, nausea, drowsiness, lethargy, apathy, headache, and vomiting. This spectrum can range from distraction to prostration while flying. Motion sickness's systemic symptoms and cognitive degradation can occur with or without vomiting. The condition can be associated with a prolonged (hours) recovery of normal function following the discontinuation of the inciting conditions. The condition is difficult to treat. Most anti-nausea medications induce somnolence and are used only in accordance to Navy Instruction. Non-medicinal treatments include relaxation, cool air, diet, biofeedback methods, and exposure desensitization. Exposure desensitization takes a variable amount of time (days or weeks) for each individual and some never desensitize. Underlying neurological, vestibular, or psychological conditions should be considered in persistent cases of motion sickness.

SNAs and SNFOs (CNATRA personnel): The condition is common among students in training and some experienced aviation personnel returning to flight after a prolonged period of no flying. Many student aviators will experience varying degrees of transient motion sickness in the naval flight training environment. Most of these students will desensitize after several flights with/without minor intervention. Others will require additional treatment or desensitization training. The condition is NCD for student aviators when it is transient, resolving spontaneously or when addressed according to the CNATRA Instruction 6410.2 series. The condition is CD when intractable, persisting despite intervention.

**Diagnosis/ICD-9 CODE:**
**994.6 Motion sickness**

**SERVICE MEMBER MUST COMPLETE PRIOR TO INITIATING WAIVER**

- *Squadron Flight Surgeon evaluation IAW CNATRA Instruction 6410.2 series* evaluation **documented** on last clinical note (electronic or paper).
- *Squadron Flight Surgeon evaluation IAW CNATRA Instruction 6410.2 series* recommendation for follow on care **documented** on last clinical note (electronic or paper).
- Copies of any prior PEB
- Email or provide administrative information to include command UIC, command address, personal address, phone number, designator, flight hours (total and last 6 months), primary aircraft flown, and years of service.

**AEROMEDICAL SUMMARY REQUIRED DOCUMENTATION BY AEROMEDICAL OFFICER**

All associated documentation.
Include the Motion Sickness Worksheet (QS-MS) – uploaded to AERO.

| **FOLLOW UP REQUIREMENTS** | **Annual Submission** |
|---|---|

Flight Surgeon comment regarding interval history.

**APPENDICIES**

**References:**

Chief of Naval Air Training. *Airsickness handout*. Retrieved from http://www.cnatra.navy.mil/tw4/flightmedicine/docs/airsickness_recommendations.pdf

Chief of Naval Air Training. *CNATRA instruction 6410.2 series*. Retrieved from http://www.cnatra.navy.mil/pubs/folder2/6410.2A.pdf

# 17.7 BONE MARROW DONATION

Last Revised: September 15 Last Reviewed: September 15

| | Applicant | Class I | | | Class II | Class III | Class IV |
|---|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | | |
| CD | X | X | X | X | X | X | X |
| NCD | | | | | | | |
| WR | X[1] | X[1] | X[1] | X[1] | X[1] | X[1] | X[1] |
| WNR | | | | | | | |
| LBFS | No | No | No | No | No | No | No |
| EXCEPTIONS | | | | | | | |
| LIMDU/PEB | Not Required. | | | | | | |

1. A minimum of 30 days grounding is required after donation (no waiver). See waiver comments below.

**AEROMEDICAL CONCERNS:** Bone marrow donation is certainly one of the most altruistic forms of giving to another individual. However, there are significant donor concerns. Bone marrow donation will ground the aviator for at least 30 days and has the potential for complications that could restrict deployment or even end a flying career. Depending on how well the human leukocyte antigens (HLA) are matched, up to 5% of the recipients will require a second donation that will further restrict the deployability of the aviator donor. If an aviator is contemplating a donation, the Flight Surgeon needs to counsel the donor regarding the risks involved and the Commanding Officer needs to be aware of the 30 day minimum grounding with the potential for longer grounding. CO approval for donation is required.

**WAIVER COMMENTS**: Not considered disqualifying and waiver not required, provided:

1. Minimum of 30 days has elapsed since the bone marrow donation
2. Post-donation symptoms have resolved
3. Hematocrit is greater than or equal to 38% for males, 35% for females
4. The remaining Complete Blood Count (CBC) with differential is within normal limits.

Post-donation CBC may take up to six months to return to normal. A waiver for designated members is required if post-donation symptoms persist or if CBC results do not return to normal after six months. Waivers will not be considered for applicants.

**SERVICE MEMBER MUST COMPLETE PRIOR TO INITIATING WAIVER**

- *Hematology/Oncology or Internal Medicine* evaluation with recommendation of return to flight status, no restrictions **documented** on last clinical note (electronic or paper).
- *Hematology/Oncology or Internal Medicine* recommendation for follow on care **documented** on last clinical note (electronic or paper).
- If H*ematology/Oncology or Internal Medicine* recommends restrictions, then documentation of physical limitations and expected duration (permanent vs temporary).
- Copies of any prior PEB
- Email or provide administrative information to include command UIC, command address, personal address, phone number, designator, flight hours (total and last 6 months), primary aircraft flown, and years of service.

**AEROMEDICAL SUMMARY REQUIRED DOCUMENTATION BY AEROMEDICAL OFFICER**

All associated documentation.

| FOLLOW UP | Routine Submission |
|---|---|

| REQUIREMENTS | |
|---|---|

Flight Surgeon comment regarding interval history.

## 17.8 MALARIA

Last Revised: September 15 Last Reviewed: September 15

| | Applicant | Class I | | | Class II | Class III | Class IV |
|---|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | | |
| CD | X | X | X | X | X | X | X |
| NCD | | | | | | | |
| WR | case-by-case [1] | case-by-case [1] | case-by-case [1] | case-by-case [1] | case-by-case [1] | case-by-case [1] | case-by-case [1] |
| WNR | | | | | | | |
| LBFS | No | No | No | No | No | No | No |
| EXCEPTIONS | | | | | | | |
| LIMDU/PEB | Not Required. | | | | | | |

1. Waiver considered on a case-by-case basis.

**AEROMEDICAL CONCERNS:** The condition, its treatment, or its sequelae can adversely affect the flight performance, mission, or safety. Active disease is considered disqualifying until resolved. Prophylactic medications have restrictions and require an initial grounding period. Malaria is an important parasitic disease in humans and is endemic in over 100 countries. Over 3 billion people are at risk of developing malaria and 1-2 million die each year. This translates to about 150 to 300 deaths each and every hour. Although it is rare in the United States, it is of particular concern for military members who are traveling to endemic regions of the world. Additionally, the military accounts for 90% of the malaria cases imported into the United States.

The primary concern for the military member and aviator is prevention of the disease. In addition to vector control and personal protective measures, chemoprophylaxis is indicated for areas with endemic malaria. The primary drugs used in the prophylaxis of malaria are chloroquine, doxycycline, and atovaquone/proguanil (Malarone). Chloroquine and doxycycline require an 48 hour initial grounding period to assess tolerance and idiosyncratic reaction, while Malarone requires a 24 hour initial grounding period for the same reason.

Primaquine is only be used in special circumstances where chloroquine, doxycycline, or Malarone are clearly contraindicated and requires a 48 hour initial grounding period. Mefloquine is uncommonly used due to potential neuropsychiatric side effects. As such, Mefloquine requires grounding for the entire time the member is taking this medication.

The following guidance applies only to aeromedical disposition. Treatment of malaria should be accomplished under close supervision of infectious diseases or other appropriate specialists as circumstances dictate. Proper chemoprophylaxis is determined by the appropriate Fleet, Force, or Unit Medical Officer. If flight surgeons have questions regarding proper chemoprophylaxis they are encouraged to call the Navy Environmental and Preventive Medicine Unit (NEPMU) in their region or the Centers for Disease Control (CDC) and to check with the appropriate Combatant/Component Command regarding the preferred drugs for chemoprophylaxis for their region.

**Diagnosis/ICD-9 CODE:**
**V07.39 Need for other prophylactic chemotherapy**

**SERVICE MEMBER MUST COMPLETE PRIOR TO INITIATING WAIVER**

- *Infectious Diseases or Internal Medicine* evaluation with recommendation of return to flight status, no restrictions **documented** on last clinical note (electronic or paper).

- *Infectious Diseases or Internal Medicine* recommendation for follow on care **documented** on last clinical note (electronic or paper).
- *Infectious Diseases or Internal Medicine* recommends restrictions, then documentation of physical limitations and expected duration (permanent vs temporary).
- Copies of any prior PEB
- Email or provide administrative information to include command UIC, command address, personal address, phone number, designator, flight hours (total and last 6 months), primary aircraft flown, and years of service.

| **AEROMEDICAL SUMMARY REQUIRED DOCUMENTATION BY AEROMEDICAL OFFICER** |
|---|

All associated documentation.

| **FOLLOW UP REQUIREMENTS** | **Routine Submission** |
|---|---|

Flight Surgeon comment regarding interval history.

| **APPENDICIES** |
|---|

**References:**

Centers for Disease Control and Prevention. *Malaria*. Retrieved from http://www.cdc.gov/malaria/

Navy and Marine Corps Public Health Center. *Pocket Guide to Malaria Prevention and Control*. Retrieved from http://www.med.navy.mil/sites/nmcphc/Documents/Forms/DispForm.aspx?ID=4100

## 17.9 URTICARIA, ANGIOEDEMA & ANAPHYLASIS

Last Revised: September 15 Last Reviewed: September 15

| | Applicant | Class I | | | Class II | Class III | Class IV |
|---|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | | |
| CD | X | X | X | X | X | X | X |
| NCD | | | | | | | |
| WR | X[1] | X[2] | X[3] | X[3] | X[3] | X[3] | X[3] |
| WNR | | | | | | | |
| LBFS | No | No | No | No | No | No | No |
| EXCEPTIONS | | | | | | | |
| LIMDU/PEB | May be required when the condition is severe, unresponsive to therapy, and interferes with the satisfactory performance of duty. (SECNAVINST 1850.4 series, encl (8)). | | | | | | |

1. Waiver can be recommended, if the reaction trigger is identified and avoidable, not associated with anaphylaxis, limited to skin manifestation, and currently asymptomatic without need for therapy.
2. Waiver can be recommended, if not associated with anaphylaxis and limited to skin manifestation, either asymptomatic or controlled with ARWG-approved medications, and condition and therapy do not interfere with wearing of oxygen mask.
3. **Waiver can be recommended, if the condition is limited to skin manifestation, is either asymptomatic or controlled with ARWG-approved medications, and both the condition and therapy do not interfere with wearing of oxygen mask.**

**AEROMEDICAL CONCERNS:** These conditions or their sequelae can adversely affect the flight performance, mission, or safety. Any history of anaphylaxis, including but not limited to idiopathic and exercise induced, anaphylaxis to venom including stinging insects, food or food additives, or to natural rubber latex, is disqualifying. Any history of angioedema including hereditary angioedema is disqualifying. Any current or history of chronic/recurrent urticaria is disqualifying. Urticaria and angioedema can both be caused by mast cells and basophils in tissue which release mediators causing the reaction. The reaction may include circumscribed, raised, erythematous plaques (also called hives, welts, or wheals), pruritus, swelling of lips or other oral structures. Urticaria is typically more superficial than angioedema; the latter caused by mast cells and basophils deeper in skin structures. Urticaria may be acute or chronic; acute suggests condition has been present for less than 6 weeks. Potential triggers of urticarial and angioedema include infections, IgE-mediated allergic reactions, drugs, stinging insects, latex, food or food additives. Angioedema may also be caused by bradykinin and reaction may take days to weeks to manifest such as in the case of angiotensin-converting enzyme inhibitor-induced angioedema. Masks have been known to cause urticara (see references) and the primary aeromedical concerns are: impairment in wearing the oxygen mask, distracting pruritus, and compromise of airway in case of involvement of oral structures.

**Diagnosis/ICD-9 CODE:**
**V13.3 Personal History of Disease of Skin and Subcutaneous Tissue**
**708.0 Allergic Urticaria**
**708.1 Idiopathic Urticaria**
**708.8 Other Specified Urticaria**
**708.9 Unspecified Urticaria**

**SERVICE MEMBER MUST COMPLETE PRIOR TO INITIATING WAIVER**

- Released from *allergy/immunology* care with recommendation of return to flight status and no restrictions **documented** on last clinical note (electronic or paper).

- If *allergy/immunology* recommends restrictions, then documentation of physical and/or mental limitations and expected duration (permanent vs temporary).
- *Allergy/immunology* recommendation for follow on care **documented** on last clinical note (electronic or paper).
- Copies of any prior PEB
- Email or provide administrative information to include command UIC, command address, personal address, phone number, designator, flight hours (total and last 6 months), primary aircraft flown, and years of service.

**AEROMEDICAL SUMMARY REQUIRED DOCUMENTATION BY AEROMEDICAL OFFICER**

All associated documentation.

| **FOLLOW UP REQUIREMENTS** | |
|---|---|

If chronic urticaria, annual submission with AMO comment addressing symptoms and any need for therapy. If history of and resolved, routine submission with AMO comment addressing symptoms and any need for therapy.

**APPENDICIES**

**References:**


Bingham, C.O. (2014). New onset urticaria. In S. Saini & J. Callen (Eds.), *UpToDate*. Retrieved from http://www.uptodate.com/home

Carter, D., Grossman, A., Pokroy, R., Azaria, B., & Goldstein, L. (2006). Evaluation of systemic allergy in a jet aviator. *Allergy and Asthma Proceedings, 5*, 429-430.

Gan, W., Koh, C., & Low, R. (2010). Contact urticaria from an oxygen mask in a military pilot. *Aviation, Space, and Environmental Medicine, 81*, 785-788.

Zuraw, B., & Bingham, C.O. (2014). An overview of angioedema: Clinical features, diagnosis, and management. In S. Saini (Ed.), *UpToDate*. Retrieved from http://www.uptodate.com/home

## 17.10 REACTIVE ARTHRITIS, CONJUNCTIVITIS, URETHRITIS

Last Revised: September 15 Last Reviewed: September 15

| | Applicant | Class I | | | Class II | Class III | Class IV |
|---|---|---|---|---|---|---|---|
| | | SG 1 | SG 2 | SG 3 | | | |
| CD | X | X | X | X | X | X | X |
| NCD | | | | | | | |
| WR | | case-by-case [1] | case-by-case [1] | case-by-case [1] | case-by-case [1] | case-by-case [1] | case-by-case [1] |
| WNR | X | | | | | | |
| LBFS | | No | No | No | No | No | No |
| EXCEPTIONS | | | | | | | |
| LIMDU/PEB | May be required when the condition is severe, unresponsive to therapy, and interferes with the satisfactory performance of duty. (SECNAVINST 1850.4 series, encl (8)). | | | | | | |

1. Waiver are considered on a case-by-case basis for designated personnel

**AEROMEDICAL CONCERNS:** The condition or its treatment can adversely affect the flight performance, mission, or safety. Current or history of this condition is considered disqualifying. The arthritis and conjunctivitis can be distracting in flight. Further, the condition can be difficult to manage and may require medical therapy that is not approved for aviation or that requires special aeromedical considerations.

**Diagnosis/ICD-9 CODE:**
**99.3 Reactive Arthritis, Conjunctivitis, Urethritis**

**SERVICE MEMBER MUST COMPLETE PRIOR TO INITIATING WAIVER**

- Released from *IM or Rheumatology* care with recommendation of return to flight status and no restrictions **documented** on last clinical note (electronic or paper).
- If *IM or Rheumatology* recommends restrictions, then documentation of physical and/or mental limitations and expected duration (permanent vs temporary).
- *IM or Rheumatology* recommendation for follow on care **documented** on last clinical note (electronic or paper).
- Copies of any prior PEB
- Surgery/Procedure Note (if applicable, electronic or paper).
- Email or provide administrative information to include command UIC, command address, personal address, phone number, designator, flight hours (total and last 6 months), primary aircraft flown, and years of service.

**AEROMEDICAL SUMMARY REQUIRED DOCUMENTATION BY AEROMEDICAL OFFICER**

All associated documentation.

| FOLLOW UP REQUIREMENTS | Annual Submission |
|---|---|

Specialist Evaluation: IM or rheumatology follow-up
Labs: As recommended by specialist
Imaging: As recommended by specialist
Flight Surgeon Comment: With respect to symptoms, need for any therapy including medications, effectiveness of therapy, adverse effects of therapy

## APPENDICIES

**References:**

Yu, D. T. (2015). Reactive arthritis. In J. Sieper, and P. Romain (Eds.), *UpToDate*. Retrieved from http://www.uptodate.com/contents/reactive-arthritis?source=search_result&search=reactive+arthritis&selectedTitle=1%7E105

# 18.0 MEDICATIONS

Last Reviewed: March 2025 Last Revised: March 2025

**Note: Any medication not listed in this section is not approved for aviation. Contact NAMI Code NA05 if further guidance is needed.**

## 18.1 NATOPS ON MEDICATIONS

General NATOPS (OPNAVINST 3710.7 series, chapter 8) includes the following statements on medications (Drugs):

Taking drugs prescribed by competent medical authority shall be considered sufficient cause for recommendation of grounding unless their use is specifically approved by a Flight Surgeon (or Aeromedical Examiner or Aeromedical Physician Assistant), or a waiver for specific drug use has been granted by CHNAVPERS or the Commandant of the Marine Corps. Consideration shall be given to the removal of ground support personnel from critical duties, for the duration of the drug effects, if appropriate. Medications such as antihistamines, antibiotics, tranquilizers, sleeping pills, etc., shall be discarded if all are not used during the period of medication.

Because of the possibility of adverse side effects and unpredictable reactions, the use of over-the-counter drugs by flight personnel is prohibited unless specifically approved by a Flight Surgeon (or Aeromedical Examiner or Aeromedical Physician Assistant). Ground support personnel shall be briefed on the hazards of self-medication and should be discouraged from using such drugs.

In general, all medications require temporary grounding unless specifically described here as NCD for flight duties.

## 18.2 ANTIMICROBIAL

Last Reviewed: Apr 25 Last Revised: Apr 25

All antibiotics *other than the following very specific exceptions* require grounding (CD). The listed exceptions do not forgive you from doing something obviously inadvisable such as allowing a sick person to fly.

Aviation personnel on the following approved antibiotics may be considered for an up chit prior to the completion of the course of therapy as long as the condition being treated has resolved in all significant aspects with no adverse reaction that might compromise safety of flight or mission completion.

**ANTI-BACTERIAL MEDICATIONS:**

**ANTI-MALARIALS:**

Refer to Aeromedical Reference and Waiver Guide (ARWG) section 17 on Malaria.

**ANTI-TUBURCULOSIS**:

ISONIAZID: No waiver needed when used for TB prophylaxis as long as the member remains under close evaluation by flight surgeon. This medication causes occasional liver damage, especially above age 35. All personnel are to be monitored in accordance with current preventive and occupational medicine guidelines.

**FLUOROQUINOLONES:**

**CIPROFLOXACIN:** CD. Cipro is not authorized for routine use. May be used as biowarfare prophylaxis with a 48-hour grounding period if authorized by squadron commander or higher. Other fluoroquinolones require grounding during and 48 hours following treatment completion.

**MACROLIDE:**

**ERYTHROMYCIN:** NCD- including long-term, low-dose use for acne.

**NITROFURANTOIN**: CD. Waiver considered if under close observation of flight surgeon. Adverse effects include pneumonitis or peripheral neuropathy.

**PENICILLINS:**

**AMPICILLIN**, **AMOXICILLIN**, **PENICILLIN VK**, **AUGMENTIN**, **DICLOXACILLIN:** NCD.

**SULFONAMIDES:**

**BACTRIM/SEPTRA:** CD. Waivers will be considered for long term use.

**TETRACYCLINES:**

**TETRACYCLINE, DOXYCYCLINE:** NCD. (Including long-term use for acne).

**MINOCYCLINE:** CD. Prohibited due to possible vestibular side effects.

**ANTI- FUNGAL MEDICATIONS:**

**GRISEOFULVIN:** CD. Waivers are considered if under close observation by local flight surgeon. Watch for bone marrow suppression.

**ITRACONAZOLE (SPORANOX):** NCD. While not approved for chronic use, Itraconazole has a safer profile than ketoconazole, and need not be used on a chronic basis to be effective. Recommended use in aviation personnel is to administer in week-long pulses each month for four to six cycles. Aviators should be grounded for the first 48 hours of each cycle.

Since it is not administered chronically, ex. griseofulvin, a waiver is not required. The recommended initial treatment is over a weekend to allow return to flight duties the following Monday, thus minimizing flight schedule loss.

**TERBINAFINE (LAMISIL):** N**CD. Requires a 72-hour grounding period.** Terbinafine has a safer profile than ketoconazole and has a lower relapse rate than itraconazole. The recommended use in aviation personnel is to administer daily for twelve weeks. Aviators should be grounded for the first 72 hours and a waiver is not required when no side-effects exist and appropriate monitoring is performed. The recommended initial treatment is over a weekend to allow return to flight duties the following Monday, thus minimizing flight schedule loss.

**ANTI-VIRAL MEDICATIONS:**

**ACYCLOVIR, VALACYCLOVIR:** NCD for intermittent and continuous/suppressive therapy. The patient should be grounded and monitored for side effects for a minimum of 3 days during the initial treatment or upon initiation or re-initiation of suppressive therapy. If these medications are being used to treat an active outbreak of herpes simplex or herpes zoster, the flight surgeon should give consideration to the impact of active lesions on safety of flight, especially the impact on safe of use of life support equipment (mask, harness, etc.). Should there be concern for safety of flight, a grounding period is warranted, even though the disease itself does not require a waiver. The need for suppressive therapy should be reassessed on an annual basis. Topical acyclovir is also NCD. If a member is currently on a waiver for use, only submit for waiver to be vacated at next required routine submission with an AERO Generated AMS.

**OSELTAMIVIR (TAMIFLU), ZANAMIVIR (RELENZA)- NCD, Requires a 72-hour grounding period.** These medications are indicated for prophylaxis and treatment of influenza A and B viruses. They can decrease the severity, duration and complications of influenza illnesses. These medications require a 72-hour grounding period following initiation of treatment to assess for adverse side effects. In the absence of flu symptoms and adverse side effects from the medications, flight duties may resume following the 72 hour grounding period. Reducing the initial grounding period to 48 hours may be considered for operational requirements with NAMI consultation.

**TRUVADA® (EMTRICITABINE + TENOFOVIR)/DESCOVY® HIV PRE-EXPOSURE PROPHYLAXIS:**

**CD, waivers considered for specific use on a case-by-case basis. See entry in Miscellaneous Conditions section 17.4.1 for details.**

## 18.3 ANTI-HYPERLIPIDEMICS

**EZETIMIBE (ZETIA):** NCD. A waiver is not required. An initial grounding period for 72 hours is required to assess for idiosyncratic reactions. If used in combination with HMG-CoA reductase inhibitors, refer to the waiver guide section on Hyperlipidemia for additional guidance.

**FIBRIC ACIDS:**

**FENOFIBRATE (TRICOR); GEMFIBROZIL (LOPID):** CD. Fenofibrate (Tricor) and gemfibrozil (Lopid) are both considered disqualifying. A waiver may be considered after a 14-day ground trial of the medication without side-effects. Fenofibrate is preferred over gemfibrozil due to fewer side effects. Prior to initiating treatment, baseline lab studies must be obtained to include: lipid panel, liver function testing (ALT/AST/ALK PHOS), CBC, FBS, and CPK. These tests are to be repeated at three months, six months and then annually if the values remain stable. Evaluate for muscle aches (myalgias) at follow-up exams and measure CPK levels if clinically indicated. If fibric acid is used in combination with an HMG-CoA reductase inhibitor, refer to the waiver guide section on Hyperlipidemia for further guidance.

**NIACIN:** CD. No waiver.

**RESINS:**

**CHOLESTYRAMINE:** NCD if tolerated without side effects.

**STATINS:**

**PRAVASTATIN, SIMVASTATIN, LOVASTATIN, ATORVASTATIN:** NCD. HMG Co-A reductase inhibitors (pravastatin, simvastatin, lovastatin, atorvastatin, etc.) are all NCD and a waiver is not required. Refer to ARWG section on hypercholesterolemia for additional guidance. Lipid panel, liver function tests (ALT/AST/ALK PHOS), CBC, and CPK are recommended at baseline, 3, and 6 months, then annually. Liver enzyme elevations above three times normal are disqualifying.

## 18.4 ANTI-HYPERTENSIVES

Last Reviewed: April 2025 Last Revised: April 2025

**ACE INHIBITORS (ACE-I):**

CD. The entire family (captopril, enalapril, lisinopril, etc.) is CD, but waiverable. The member must be grounded upon initiation of treatment. Waiver will be considered after 30 days of treatment if member's hypertension is controlled on a stable dosage of medication without evidence of side effects. If local pharmacy policy requires changing from one ACE-I to another, advise Code NA05 of the change. Refer to ARWG section on hypertension for additional guidance.

**ANGIOTENSIN RECEPTOR BLOCKERS (ARB):**

CD. These agents be used as **first line** agents for treatment of HTN in aviation personnel. ACE inhibitors or ARBs are preferred as they have a low incidence of aeromedically significant side effects and are generally well tolerated. The same guidelines used for ACE-I apply.

**ANTIADRENERGIC AGENTS:**

**DOXAZOSIN, PRAZOSIN,** others in class**:** CD. No Waiver. Call NAMI Code NA05 for further guidance.

**BETA BLOCKERS (for hypertension only):**

CD. Beta blockers are not compatible with waivers for Class I Medical Service Groups 1 or 2. Aviators may be waived to SG 3 or Class II flying duties in non-high performance aircraft. SG 3 and Class II and IV are granted waivers on a case-by-case basis. All SG 1/SG 2 aviators or tactical NFOs on beta blockers are NPQ, no waiver. Beta blockers are incompatible with physiologic compensation required in response to G-forces so requests should state "transport/maritime/helo aircraft only." If beta blockers are used, the use of the cardio selective agents such as Atenolol is preferred.

**CALCIUM CHANNEL BLOCKERS:**

AMLODIPINE (NORVASC): CD. A second generation calcium channel blocker, AMLODIPINE may be considered as a **second line** therapy either alone or in combination with ACE inhibitors, ARBs or HCTZ. All **second line therapy waivers** are restricted to **SG 3 and Class II in non-high-performance aircraft, and all Class III and IV.** These cases must be reviewed individually by NAMI prior to issuance of an Aeromedical Clearance notice. Local Board is not authorized to issue a clearance notice for AMLODIPINE use.

**NIFEDIPINE (PROCARDIA):** CD. No Waiver.

**COMBINATION AGENTS:**

CD. Combination agents may be used if the individual agents themselves are recommended for waiver. Follow the restrictions and guidelines outlined for each individual agent.

**THIAZIDE DIURETICS:**

**HYDROCHLOROTHIAZIDE (for Hypertension)**: CD. HYDROCHLOROTHIAZIDE (HCTZ), with or without triamterene or potassium replacement, can be used as a first line agent for treatment of hypertension in designated personnel. ACE inhibitors are preferred as they have a low incidence of aeromedically significant side effects and are generally well tolerated. See hypertension section of ARWG for waiver criteria and further guidance.

**POTASSIUM-SPARING DIURETICS**

SPIRONOLACTONE For conditions except HTN, CD WR for non-high performance/ejection seat platform Class I, Class II, and Class III-IV aircrew. A 28-day grounding period, normotensive BP measurements, and normal potassium level at 4 weeks post medication initiation are prerequisites for waiver submission (Class I and II).

For **Hypertension**. CD WNR.

## 18.5 IMMUNIZATIONS

Last Reviewed: August 2021 Last Revised: August 2021

### GROUNDING FOR VACCINATIONS:

OPNAVINST 3710.7 series requires a 12 hour grounding period following immunizations unless otherwise specified in this document. The specific guidelines and grounding periods for each vaccination are described below. As per MANMED Article 15-77, the administration of routine immunizations that require a temporary grounding, do not require issuance of an Aeromedical Grounding Notice. This is a "self-limited" grounding period allowed in the absence of adverse side effects.

### VACCINE ADVERSE EVENT REPORTING SYSTEM (VAERS)

The Vaccine Adverse Event Reporting System (VAERS) is used to report adverse events or reactions to all vaccines. VAERS, the primary U.S. vaccine safety monitoring system, encourages reporting of any unexpected or serious event occurring after any vaccination as well as adverse events occurring in persons following close contact with a vaccine recipient. An adverse event is any clinically significant medical event that occurs following administration of a vaccine. A VAERS report should be submitted even if it is not certain that the event was caused by the vaccine. Web reporting is available at http://vaers.hhs.gov/.

### ANTHRAX

**BACKGROUND:** Human anthrax vaccine was developed in England and the U.S. in the 1950s and early 1960s. The vaccine is U.S. Food and Drug Administration (FDA)-licensed and has been routinely given in the U.S. since 1970.

The vaccine has an excellent safety record. The most common side effects reported are mild discomfort (localized swelling and redness at the site of injection), joint aches, and in a few cases, nausea, loss of appetite, and headaches. There is no evidence from records at the Michigan Biologic Products Institute (which is the only U.S. producer of the vaccine) that the vaccine is associated with permanent local or systemic effects.

**DOSAGE AND ADMINISTRATION:** The current dose schedule for the U.S. vaccine consists of 6 shots given over an 18 month schedule and an annual booster thereafter.

Contraindications for use are sensitivity to vaccine components (formalin, aluminum hydroxide, benzethonium chloride) and/or history of clinical anthrax. Pregnant women should not receive this vaccine until after delivery. The vaccine should be stored at refrigerator temperature (not frozen).

A 12 hour grounding period is recommended for the anthrax vaccination.

### CHOLERA

Sale of the only licensed cholera vaccine in the United States has been discontinued, and the CDC does not currently recommend the vaccine for travelers because of the brief and incomplete immunity it offers. In lieu of vaccination, proper hygiene and food and water precautions should be carefully emphasized.

## DIPHTHERIA TETANUS (DT) AND TETANUS TOXOID

This vaccine is used to prevent bacterial elaboration of toxins resulting in muscular spasm/lockjaw, which is usually found in the setting of a contaminated wound. These vaccines are toxoids and are both known to be 95% efficacious. They are given every 10 years, however if a suspicious wound is encountered, the standard is to revaccinate if more than 5 years has elapsed since the last vaccination. The dose is 0.5 cc IM. Adverse events include frequent local reactions. Hypotonic, hyporesponsive episodes, seizures, and acute encephalopathy have been reported on rare occasions. A 12 hour grounding period is recommended for this vaccination.

## HEPATITIS A

This is an inactivated virus vaccine which is given as a 1.0 cc dose IM, with a booster dose 6 to 12 months later. Protective levels of antibodies are detectable in 80 to 98% of recipients 15 days after the first dose, and in 96% after one month. Protection is expected to last 20 years. No significant adverse events have been reported, although some recipients experience local injection site soreness. Transient systemic symptoms are uncommon. In the USA, the presence of anti-HAV antibodies indicating past infection and probable immunity increases from about 10% in young children to about 75% in adults more than 50 years old. A 12 hour grounding period is recommended for this vaccination.

## HEPATITIS B

This is an inactivated virus vaccine which is given as a 1.0 cc IM dose, with boosters at one and 6 months. Current CDC recommendations are to immunize everyone 18 years of age or younger and adults over 18 who are at risk. The at-risk population includes health care and public safety worker who might have contact with blood or body fluids, people who have more than one sex partner in six months, sex contacts of infected people, people who inject illegal drugs, hemodialysis patients, and household contacts of people with chronic HBV infection. Contraindications to vaccination include a history of allergic reaction to either baker's yeast or the hepatitis B vaccine. Mild soreness at the injection site is seen in approximately one out of 11 children and adolescents and one out of four adults, and mild to moderate fever is seen in up to one out of 14 children and one out of 100 adults. A 12 hour grounding period is recommended for this vaccination.

## INFLUENZA

### INJECTABLE INACTIVATED INFLUENZA VACCINE

This vaccine is composed of inactivated whole or disrupted influenza viruses and changed annually to reflect antigenic changes in the A and B strains of the virus that is in circulation. Immunity after the standard 0.5 cc IM dose lasts about six months, so annual administration is required, ideally before the start of flu season. The vaccine is indicated in the elderly (>65), residents of chronic care facilities, those with cardiac, pulmonary or immunosuppressive diseases such as cancer and DM, and close contacts of those at risk. All active duty Navy and Marine Corps personnel are required to have one dose of this vaccine each year. The only contraindication is a bona fide history of generalized allergic reaction to the vaccine, eggs, or egg components. Effectiveness varies with how closely vaccine strains match the strains in the community, generally about 60-85%. A mild local reaction is the most common adverse effect,

although some individuals have a transient mild "viral syndrome." A 12 hour grounding period is recommended for this vaccination.

### FLUMIST

All active duty Navy and Marine Corps personnel are required to have one dose of influenza vaccine (IM or intranasal spray) each year. FluMist® (Influenza Virus Vaccine Live, Intranasal), is composed of live, attenuated influenza virus (LAIV) that is administered by nasal spray. It is used for the prevention of Influenza A and B in healthy adults under age 50 who are not pregnant. The 0.5mL dose is given as a 0.25mL spray in each nostril.

The immunization is less effective in those with pre-existing nasal congestion. The dose should be repeated if the patient sneezes following administration. Immunity after the standard intranasal dose declines during the year, so annual administration is required—ideally, before the start of “flu season.” There appears to be an increase in protective antibodies over time with subsequent doses. Effectiveness varies according to how closely the strains used to make the vaccine match those in the community.

The onset of symptoms after immunization usually occurs within the first 24 hours, with most symptoms presenting by the third day. The duration of symptoms is typically 1-2 days. The most common adverse effects include:

- headache 40%
- sore throat 28%
- tiredness 26%
- myalgias 17%
- cough, nasal congestion, and rhinitis 9-45%
- Less common adverse effects include chills, abdominal pain, diarrhea, vomiting, and otitis media.

A “self-limited” grounding period of 72 hours after immunization is required to assess for symptom severity. Commanding officers may return aeronautically designated personnel to duty involving flight operations in less than 72 hours on the recommendation of a flight surgeon when necessary to meet “real world” operational commitments. The presence and severity of symptoms may require the grounding of some personnel for greater than 72 hours. To minimize operational impact, commands may elect to stagger the administration of the vaccine to their personnel. For example, a command might elect to vaccinate 50% of eligible personnel one week and the remaining personnel the following week. Another option would be to schedule immunizations immediately prior to a period when no flights are scheduled (e.g., just prior to a holiday weekend).

Additional information is available via the CDC website at,
http://www.cdc.gov/flu/professionals/vaccination/

### ANTIVIRAL MEDICATIONS:

OSELTAMIVIR (TAMIFLU), ZANAMIVIR (RELENZA)-
NCD, Requires an initial 72-hour grounding period. See Antimicrobial Section 18.2.

### JAPANESE ENCEPHALITIS (March 2010)

Japanese Encephalitis (JE), a mosquito-borne arboviral infection, is the leading cause of viral encephalitis in Asia with over 50,000 sporadic and epidemic cases reported annually. Two

inactivated virus vaccines are currently available, JE-Vax, licensed in 1993, and Ixiaro, licensed in 2009.

**JE-VAX.** JE-Vax is administered as a 1.0 mL SC dose with an effectiveness of 80-90%. Intradermal dosing at two sites is as immunogenic as a single SC dose. Three doses during a 30 day period (days 0, 7, and 30) provides the longest immunogenic protection. A booster given at one year will significantly increase antibody titers, which may then persist for several years. An abbreviated schedule of immunizations given on days 0, 7, and 14 may be used if significant time constraints exist.

JE-Vax is associated with a moderate frequency of local and mild systemic side effects. About 20% of recipients experience local redness, swelling, or tenderness, and systemic side effects (fever, headache, malaise, and rash) have been reported in about 10% of vaccine recipients. An additional pattern of adverse reactions characterized by generalized urticaria and/or angioedema, and rarely respiratory distress or collapse, has been reported. These reactions occurred after a longer interval and usually after the first or second dose. The median time to onset of symptoms after the first dose is 12 hours, and 88% of reactions occur within 3 days. The interval after the second dose is longer, with a median time of 3 days and possibly as long as two weeks. After reviewing the experiences of I-MEF personnel during the first several years of use, the original 3-5-3 day grounding regimen appears excessive based upon the actual observed incidence of reactions. **A 24 hour grounding period is recommended after each dose providing that aviators are formally briefed about possible delayed reactions.** Individuals who have a past history of urticaria or hypersensitivity phenomena should remain under the previous guidelines (3-5-3 grounding).

JE-Vax is no longer produced. The DoD stockpile is projected to be exhausted in April 2010 and has an expiration date of May 2011. Ixiaro is an available alternative to JE-Vax.

**Ixiaro.** Ixiaro is administered as a 0.5 mL IM dose. Two doses are given 28 days apart (days 0 and 28). The protective antibody response is 95% at six months and 83.4% at 12 months. Ixiaro is associated with a moderate frequency of mild systemic and local side effects. About 20% of recipients experience headache, 15% experience myalgia, and 50% experience mild local reactions in rates comparable to placebo. **A 12 hour grounding period is recommended for this vaccination.**

**Summary-** Either JE-Vax or Ixiaro can be used for aviators as described above. JE-Vax will become unavailable by May 2011 unless a shelf-life extension is approved. Ixiaro is likely to have less serious adverse events than JE-Vax. Ixiaro requires only two doses, and requires a 12-hour grounding period instead of 24-hours for JE-Vax. Ixiaro is the preferred vaccine for aviation, especially when the duration of the grounding period impacts mission accomplishment.

## MEASLES/MUMPS/RUBELLA (MMR)

This vaccine, composed of live, attenuated viruses, is indicated in adults born after 1956 without a history of documented measles or measles/mumps vaccination. Some people vaccinated before 1980, especially if before 14 months of age, may be inadequately protected and now require revaccination. Contraindications include pregnancy, immunosuppression (except HIV), recent IG administration, or anaphylactic reactions to the immunization, eggs, or neomycin. Efficacy is 95% for all three components. Serious adverse events are rare, but include acute encephalopathy, parotiditis, and orchitis. Transient arthralgias may occur in up to half of first-time recipients, but arthritis and arthropathy are rare. About 5-15% of vaccine recipients have

fever up to 21 days post-vaccination and 5% may develop a rash. One study assessed the incidence of adverse events after revaccination. This study noted local injection site discomfort and flu-like symptoms amongst 6.6% and 3.4% of male and female students respectively. The 4% rate of joint related complaints after revaccination was less than that found after primary vaccination. A 12 hour grounding period is recommended for this vaccination.

## MENINGOCOCCAL

Each year, approximately 2,600 people contract meningococcal disease. Of these, 10 to 15% die. Of those who live, another 11 to 19% lose their arms or legs, become deaf, have problems with their nervous system, become mentally retarded, or suffer from seizures or strokes. The meningococcal vaccine is a polysaccharide vaccine that can prevent 4 types of meningococcal disease including 2 of the 3 most common in the United States and a type that causes epidemics in Africa. It is administered as a 0.5 cc SC dose, and is recommended for all children at their preadolescent visit, military recruits, college freshman living in dormitories, microbiologists who might be exposed to the bacteria, anyone with an immune system disorder, asplenic patients, people who might have been exposed to meningitis during an outbreak, and anyone traveling to or living in a part of the world where meningococcal disease is common. Approximately half of vaccine recipients experience mild side effects, such as pain or redness at the injection site. A small percentage of patients also develop fever. Although rare, serious allergic reactions can develop within a few minutes to hours of vaccination. Of note, a few cases of Guillain-Barre syndrome have been reported among people who received the MCV4 vaccine, however there is currently not enough information to determine if this was caused by the vaccine. A 12 hour grounding period is recommended for this vaccination.

## PLAGUE

This vaccine is composed of a suspension of killed bacteria, and is given as a dose of 1.0 cc IM. It is used in laboratory workers and travelers to endemic areas. The vaccine is given as a series with a primary dose as above, then 0.2 cc IM doses at 4 weeks and 6 months. Boosters are given every 6 to 12 months as long as exposure continues. There is a 90 to 93% antibody response however efficacy is uncertain. Up to 10% of recipients will develop local reactions. Sterile abscesses and hypersensitivities have also been reported.

## PNEUMOVAX (PPV23)

This vaccine was designed to decrease the risk of pneumococcal infection in susceptible individuals such as military recruits, asplenic patients, immunosuppressed individuals, and those over 65. This preparation consists of purified polysaccharide coats of 23 serotypes and is considered to be 60 to 80% efficacious, reducing serious sequelae of infection by about 50%. In asplenic patients it is about 13 -33% effective in producing a two-fold increase in antibody titer. The dose is 0.5 cc IM or SC, and a booster is recommended in high-risk (transplant, nephrotic syndrome, asplenic) individuals at 6 years. Pneumovax has been associated with a 50% local reaction rate, an arthus-like reaction with booster doses, and rarely, anaphylaxis. A 12 hour grounding period is recommended for this vaccination.

## POLIO

The inactivated polio virus (IPV) is given as a dose of 0.5 cc IM or SC. The use of oral polio vaccine (OPV) is no longer recommended. Travelers to endemic areas who have received primary immunization during childhood should consider a single booster (IPV) in adulthood,

while those who were never vaccinated should be vaccinated according to current CDC guidelines. A 12 hour grounding period is recommended for this vaccination.

## SARS-COV-2 (COVID-19)

COVID-19 infection is caused by a novel coronavirus, SARS-CoV-2, and can lead to a spectrum of symptoms and physical manifestations ranging from a mild fever and cough to significant cardiopulmonary compromise. Infection with SARS-CoV-2 can adversely impact Navy and Marine Corps force readiness and mission execution. Several SARS-CoV-2 vaccines of varying platforms have been released under Federal Drug Administration (FDA) Emergency Use Authorizations (EUA). Some vaccines utilize mRNA delivered via a lipid nanoparticle (LNP) delivery system while others utilize a live-non-replicating viral vector.

The initial two SARS-CoV-2 vaccines are two-dose series with each dosing separated by 21-28 days. The first one-dose SARS-CoV-2 vaccine received FDA EUA in February of 2021. Navy and Marine Corps personnel in a flight duty status may volunteer for administration of any SARS-CoV-2 vaccine unless OPNAV or other operational directives provide restriction. Once a vaccine series is initiated, the Service member should complete the series from the same manufacturer and vaccine platform type. Service members should not be given a SARS-CoV-2 vaccine from different manufacturers. Receipt of a single dose of a two-dose mRNA vaccine series does not contraindicate receipt of the Janssen vaccine for individuals who are unable to complete the two-dose mRNA vaccine series and who were administered the first dose at least 28 days prior. This should be very infrequent and must be reported to the Vaccine Adverse Event Reporting System (VAERS). Although serious side effects are rare, they can last for a prolonged period of time, necessitating an extended grounding period. In order to minimize impact on training and operations, personnel in a flight duty status should consult with their Aerospace Medicine provider to determine the optimal timing to receive the vaccine. Additionally, to minimize operational impact, commands may elect to stagger the administration of the vaccine to their personnel. Personnel in a Class 1 or 2 flight duty status who have received any dose of a SARS-CoV-2 vaccine course, and develop symptoms consistent with COVID-19 outside of expected side effects, and before the projected window of final dose immunity, should be tested for COVID-19. If the test result is positive and medical evaluation results in a diagnosis of COVID-19, personnel and Aerospace medicine providers shall follow ALNAV 096/20.

**Nucleic Acid Vaccines**

DNA Vaccines: No current recommendation at this time, as this type of vaccine has yet to receive EUA from the FDA. Until a recommendation is published, personnel in a flight duty status should not receive this vaccine platform.

Messenger RNA Vaccines: The Pfizer-BioNTech and Moderna SARS-CoV-2 vaccines are variations of a messenger RNA (mRNA) platform. The vaccines are administered as a two-dose intramuscular injection series. Both vaccines may cause side effects (SEs), which are defined as reported symptoms shown to be linked to a vaccine by scientific studies. SE symptoms may be local, such as pain, redness, and swelling at the injection site, or systemic, including fatigue, headache, myalgias, nausea, and chills. During the Phase 3 randomized and placebo-controlled trials of the Pfizer-BioNTech vaccine, over 70% of participants over the age of 16 experienced local SEs after any dose, approximately 60% experienced systemic SE after the first dose, and approximately 70% experienced systemic SE after the second dose (Pfizer-BioNTech, 2020). The incidence of severe local reactions varied between 0-1%, and the incidence of severe systemic SE varied between 0-4.6%. The median onset of local SE was 0-2 days with a median duration of 1-2 days, and the median onset of systemic SE was 1-2 days with a median duration

of 1 day. During the Phase 3 randomized and placebo-controlled trials of the Moderna vaccine, a majority of participants ages 18-63 reported local SE; 87% after dose one and 90% after dose two. Systemic SEs were reported by 55% of participants after dose one and 79% of participants after dose two (Moderna, 2021). Of these SEs, between four and seven percent of the local reactions were rated as severe and between three and sixteen percent of the systemic reactions were rated as severe. The median onset of both local and systemic SEs was one day with a median duration of 2-3 days. The most common reported local SE was pain, and the most common reported systemic SEs were headache and fatigue. Rare cases of myocarditis, most commonly affecting young men, have also been reported following administration of the mRNA vaccine platform, but a causal link has not been established.

If personnel in a flight duty status (all classes) receive a dose of a SARS-CoV-2 mRNA vaccine, a "self-limited" grounding period of **48-hours** is required to assess for onset of systemic SEs (fatigue, headache, myalgia, nausea, fever, and chest pain) after any dose in the series. The development or presence of any systemic SEs during these **48-hours** requires extending the "self-limited" grounding for a total of **96-hours,** regardless of when the SEs resolve, to allow for full recovery. If systemic SEs persist for greater than 96-hours, any personnel in a flight duty status should see their Aerospace Medicine provider for evaluation. If any health problems develop besides known side effects, personnel must also see their Aerospace Medicine provider for evaluation. The presence and severity of symptoms may require the grounding of some personnel for greater than 96-hours. Medical evaluations for return to flight status in these prolonged symptomatic cases shall follow the return to flight status symptomatic protocols outlined in ALNAV 096/20. Due to variations in vaccine composition between manufacturers, timing of SARS-CoV-2 vaccination with other vaccinations should follow current Centers for Disease Control and Prevention (CDC) Advisory Committee on Immunization Practices' (ACIP) guidelines (Cohn and Mbaeyi, 2020). Aerospace Medicine providers administering the vaccine should review further information provided by the FDA (U.S. Food & Drug Administration, 2021).

**Live Non-replicating Viral Vector Vaccines**

Replication-incompetent Adenovirus Type 26 (Ad26) Vectored Vaccine: The Janssen (Johnson & Johnson) SARS-CoV-2 vaccine Ad26 platform encodes a stabilized variant of the SARS-CoV-2 S protein. The vaccine is administered as a one-dose intramuscular injection. The briefing document supplied to the FDA for EUA approval revealed five common systemic side effects (SEs) to the vaccine and three localized SEs (Janssen, 2021). The Phase 3 randomized and placebo-controlled trial revealed both categories of SEs were reported by more than 50% of the 18-59 years of age participants (systemic SEs 61.5%, local SEs 59.8%). The major concern for aerospace safety of flight is the systemic SEs (fatigue, headache, myalgia, nausea, and fever) with median time to onset of two days and a median duration of two days. Local SEs would become an aerospace safety of flight concern if they become severe enough to require use of medication for pain control or they impair daily activities or flight egress. Local SEs of this severity were only reported by 0.9% of trial participants, 18-59 years of age. For personnel in a flight duty status (all classes) who receive the Janssen vaccine, a "self-limited" grounding period of **48-hours** is recommended to assess for onset of systemic SEs. The development or presence of any systemic SE during these **48-hours** requires extending the "self-limited" grounding period for a total of **72-hours,** regardless of when SEs resolve, to allow for full recovery. If systemic SEs persist for greater than 72-hours, any personnel in a flight duty status should see their Aerospace Medicine provider for evaluation. Rare cases of Guillain-Barré Syndrome and thrombosis with thrombocytopenia, most commonly affecting young women, have also been reported following administration of this vaccine, but a causal link has not been established. If any health problems develop besides known side effects, personnel must also see their Aerospace Medicine provider for evaluation. Recipients of Janssen COVID-19 Vaccine

should be instructed to seek immediate medical attention if they develop shortness of breath, chest pain, leg swelling, persistent abdominal pain, neurological symptoms (including severe or persistent headaches or blurred vision), or petechiae beyond the site of vaccination. The presence and severity of symptoms may require the grounding of some personnel for greater than 72-hours. Medical evaluations for return to flight status in these prolonged symptomatic cases shall follow the return to flight status symptomatic protocols outlined in ALNAV 096/20. Aerospace Medicine providers administering the vaccine should review further information provided by the FDA (U.S. Food & Drug Administration, 2021).

**Adverse Events and Side Effects of CoVID-19 Vaccines**:
The spike protein region of the SARS-CoV2 virus appears to be the most highly correlated with systemic toxicity occurring in the small percentage of individuals which suffer highly symptomatic CoVID-19 infections, usually in the geriatric population or in individuals with co-morbidities. Principle clinical sequelae include hemagglutination, leading to small vessel thrombi, and auto-immune reactions that can manifest as cytokine release syndrome. Since the mRNA in the vaccine codes for an almost identical copy of the SARS-CoV2 spike protein, similar effects can be observed in the immunized, after the spike protein is translated and expressed on cell surfaces (Kanduc and Shoenfeld, 2020; Charlie-Silva, et al, 2021). The adverse events (AE), possibly related to spike protein expression in vascular endothelial cells, can be placed into three principle categories:

1) Auto-immune - chiefly manifest by conditions such as diffuse dermatitis or myocarditis.
2) Neurologic - manifested by conditions such as transverse myelitis, Guillain-Barre syndrome or Bell's Palsy.
3) Provoked clotting cascade / platelet aggregation - manifested by conditions such as pulmonary embolus and stroke.

Per the CDC VAERS database, as of this revision, adverse events are reported in approximately 0.34% (~450K/130m), severe AE's in 0.027% (~35K/130m) and deaths in 0.0077% (~10K/130m) of those immunized with U.S. FDA EUA-approved CoVID-19 vaccines. This information will fluctuate as adverse events are continually reported into the database. One Harvard study estimates that only 1% of all vaccine-related AE's are posted into the CDC VAERS reporting system, so the actual rates of side effects may be significantly higher (Lazarus, et al, 2011, and Davenport, 2000). Higher rates of AE's, serious AE's and deaths have been observed in the United Kingdom (MHRA Yellow Card System) and European (EudraVigilance) reporting platforms, but this may be due to inclusion of the Astra-Zeneca (Vaxzevria™) COVID-19 Vaccine *(ChAdOx1-S [recombinant])* immunization data, which has shown an increased rate of thrombotic events after injection, and is not approved for use by the FDA in the U.S via EUA.

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## SMALLPOX

**BACKGROUND:** The World Health Organization effectively used smallpox vaccine to eradicate natural smallpox from the planet however regimes hostile to the United States may possess strains of the smallpox virus for use as a biological weapon. While routine vaccination is not recommended for the general population, military and other personnel who serve in high risk parts of the world may receive smallpox vaccine to protect them from the disease in the event of a biological attack.

Expect more side effects within the vaccinated population than normally seen with other vaccines. One expert stated that approximately 10% of vaccine recipients may have side effects significant enough to cause possible distraction during flying activities. The time range for development of side effects varies from day 0 until day 14, with most occurring within 3 to7 days post-vaccination.

**Grounding Period:** In **view of the complications seen with the smallpox vaccination, a 24 hour grounding period is required.** It is recognized that complications from the immunization are most likely in the 3 to 7 day period post immunization. For this reason, close observation and follow-up is recommended by the Designated Aeromedical personnel or health care provider. Personnel should be specifically briefed to report any symptoms or complications during this 3 to 7 day period and to have them evaluated. Depending on the severity, the Flight Surgeon (or Aeromedical Examiner or Aeromedical Physician Assistant) may ground the aviator until symptoms have resolved.

**ADDITIONAL INFORMATION:** Please review the attached "Smallpox Fact Sheet - Information for Clinicians" and visit the CDC web site and military smallpox website (http://www.vaccines.mil/) for additional information. Use the CDC Smallpox Adverse Event Reporting web site to report any adverse events resulting from the administration of the smallpox vaccination.

## TYPHOID AND ORAL TYPHOID:

Vaccine is made of a killed suspension of the bacteria, or a new oral 4 dose preparation. The injection is a 0.5 cc IM dose at zero and four weeks with about 50-76% efficacy, and protection for travelers to endemic areas lasts only a few months. This is contrasted with the oral form, which is equally efficacious but confers immunity to the 21a strain that lasts for years (booster required at least every 4 years). It is given every other day before meals for a total of 4 doses, and must be kept refrigerated. Errors in compliance reached 30% of individuals in one study, so direct observation may be the way to go. Adverse reactions to typhoid injections include frequent fever, local swelling and pain, and consequently require a 12 hour downing period. There are no reactions reported to the oral typhoid, therefore no grounding is necessary.

## YELLOW FEVER:

This vaccine is used to prevent infection with this flavivirus and its subsequent jaundice, hemorrhage, and albuminuria in travelers to endemic areas (e.g. South America and Africa). It is given as a 0.5 cc SC dose. Booster vaccinations are recommended every 10 years. Efficacy is noted to be high, but adverse side effects include encephalitis/encephalopathy (though fewer than one in a million cases), and anaphylaxis in those individuals allergic to eggs. A 12 hour grounding period is recommended for this vaccination.

## COMBINED ADMINISTRATION OF VACCINATIONS:

A number of these vaccines can be given together. Generally, any live virus vaccine can be given with any killed agent or toxoid as long as they are given at the same time and in different anatomic locations. For example, typhoid may be given with either plague or yellow fever. Hepatitis A and yellow fever may be given in the same session. One exception to this is cholera and yellow fever. Administration of these vaccines within 3 weeks of one another results in a poor antibody response. Unless there is insufficient time, 3 to 4 weeks between live virus vaccinations should be sought for maximal antibody production. If possible, vaccines frequently associated with systemic side effects (cholera, typhoid and plague) should not be given simultaneously so that toxicities will not overlap and that a causative agent can be determined should a reaction occur.

## PREGNANCY AND VACCINATIONS:

Refer to specific immunization guidelines for vaccination recommendations and precautions during pregnancy.

## GROUNDING FOR VACCINATIONS:

OPNAVINST 3710.7 series requires a 12 hour grounding period following immunizations unless otherwise specified in this document. The specific guidelines and grounding periods for each vaccination are described above. As per MANMED Article 15-77, the administration of routine immunizations that require a temporary grounding, do not require issuance of an Aeromedical Grounding Notice. This is a “self-limited” grounding period allowed in the absence of adverse side effects.

## 18.6 MISCELLANEOUS MEDICATIONS

Last Reviewed: Feb 25 Last Revised: February 25

**ALLOPURINOL:** CD. Waivers are recommended to SG3, Class II, or Class III. Re-evaluation for upgrade from SG3 to SG1 is considered in 3 months if member remains asymptomatic and on a stable dose of medication.

**ANTIHISTAMINES (SEDATING):**

CD. The member should be grounded for the duration of therapy**.**

**ANTIHISTAMINES (NON-SEDATING):**

NCD. Allegra and Claritin are NCD if given in accordance with the Allergic/Vasomotor Rhinitis section of the Waiver Guide. Refer to this section for additional restrictions and clarification. Zyrtec, although considered by some to be non-sedating, still has a moderate sedating effect and is therefore not approved (CD) for use in aviation personnel.

**CLOMIPHENE (CLOMID):** CD- No Waivers.

**CONTRACEPTIVES:**

**DEPO-PROVERA** : NCD. Any grounding period at discretion of the local Flight Surgeon to assure tolerance.

**LEVONORGESTEROL (NORPLANT):** NCD. Any grounding period at discretion of the local Flight Surgeon to assure tolerance.

**PROGESTASERT IUD:** NCD. Any grounding period at discretion of the local Flight Surgeon to assure tolerance.

**DECONGESTANTS:** CD. Requires temporary grounding while in use.

**FINASTERIDE (PROPECIA/PROSCAR)**:

**Finasteride** may be utilized for prostatic hypertrophy or alopecia. DoD pharmacy does not allow prescriptions of **finasteride** for hair loss.

**1mg**: NCD. Finasteride use for alopecia; a 72-hour grounding period is required, and the patient remains asymptomatic.
**5 mg**: CD. Finasteride use for Benign Prostatic Hypertrophy is managed per ARWG Urology section 16.4.

**H2 BLOCKERS:**

**RANITIDINE, CIMETIDINE, FAMOTIDINE:** CD. A waiver is required for any chronic use. Refer to the Gastroenterology Waiver Guide section on reflux esophagitis for additional information.

**INHALED STEROIDS:** CD. Decisions are individualized. Any chronic use requires a waiver. Call NAMI Code NA05 for additional guidance.

**ISOTRETINOIN (ACCUTANE, AMNESTEEM, CLARAVIS, SOTRET):** CD. See Dermatology section 4.1. Waivers will be considered on a case-by-case basis after a 14-day period of observation. Accutane use requires monthly follow up by prescribing physician and notification to Flight Surgeon of any side effects related to the medication. Additionally, patients require an eye exam two weeks (including slit lamp) after initiation of treatment to ensure that vision remains within flight class standards.

**LEVOTHYROXINE (SYNTHROID):** CD. A waiver may be requested when member is clinically and chemically euthyroid on stable dosage.

**LINDANE (KWELL):** NCD**.** Requires a 48-hour grounding period. Kwell can be absorbed in variable amounts and give some significant CNS side effects. Aviation personnel must be grounded for 48 hours after the compound is washed off.

**MESALAMINE (ASACOL, ROWASA, ETC.):** CD. A major advantage of mesalamine is that it avoids some side effects associated with the sulfapyridine moiety of sulfasalazine. Waiver will be considered after maintaining clinical remission for one month without evidence of side effects.

**MINOXIDIL (TOPICAL)**: NCD after a 72-hour ground testing for side effects.

**NEDOCROMIL (TILADE):** CD. Tilade may be considered for waiver for in designated aviation personnel for the preventive treatment of mild to moderate asthma or cold-induced and exercise-induced bronchospasm. Member will be eligible for waiver consideration and return to flight status at a minimum two weeks after remaining symptom free on a stable dose of medication with demonstrated normal pulmonary function tests. Waivers are restricted to non-high performance aircraft.

**NASAL STEROIDS:**

**FLONASE, NASONEX, RHINOCORT:** NCD. Refer to the Allergic/Vasomotor Rhinitis section of the Waiver Guide under Ear/Nose/Throat for additional restrictions and clarification**.**

**SMOKING CESSATION:**

**NICORETTE GUM:** NCD if the following conditions are met:

1. Enrolled in formal organized stop smoking program.
2. Close observation by flight surgeon.
3. No adverse effects.
4. Duration of use does not exceed three months.

**NICOTINE TRANSDERMAL SYSTEM (NICODERM):** NCD. Aviators should be grounded for 48 hours following application of first patch.

**All other medications for tobacco cessation are not approved for use by personnel on active flight status, so require grounding during treatment.** This can often be planned to coincide with non-flying periods. Guidance for timing of return to flight is based on the elimination half-life of the drug being used, as follows:

**VARENICLINE (CHANTIX®):** Varenicline has an elimination half-life of 24 hours, so individuals should be grounded for one more week after finishing Chantix

**BUPROPION (ZYBAN®, WELLBUTRIN®):** Bupropion is cleared more quickly, but only about 1% is excreted unchanged in the urine; the rest is metabolized to three major active

metabolites, threohydrobupropion, erythrohydrobupropion and hydroxybupropion, which accumulate to levels much higher than the parent compound and can have extended half-lives of as long as 43 hours. Individuals taking bupropion should therefore be kept down for two weeks following completion of treatment.

**NON-STEROIDAL ANTI-INFLAMMATORY DRUGS (NSAIDS):**

**ASPIRIN:** NCD for occasional analgesic use or at cardioprotective dosing. Other chronic use is CD and requires a waiver.

**IBUPROFEN/NAPROXEN:** NCD. Medication can be used for short term use under direct supervision of Flight Surgeon. Any chronic or high dose use is disqualifying. If recommending that an aviator continue to fly during treatment, consider the underlying reason for its use. It may be the condition which is disqualifying.

**INDOCIN**: CD. No waiver. Ground during medication use and for two weeks after medication is completed.

**PHOSPHODIESTERASE INHIBITORS (PDI):**

**SILDENAFIL (VIAGRA), VARDENAFIL (LEVITRA), TADALAFIL (CIALIS):**

1. Long-acting PDI, tadalafil (Cialis): CD. No Waivers

2. Short-acting PDI: sildenafil (Viagra), vardenafil (Levitra): CD. Waivers possible for:
   a. Initial Applicants – considered on a case-by-case basis
   b. Designated Personnel – may request waiver after evaluation for the cause of ED.

3. Information Required:
   a. AMS – history, physical, lab, prior treatment course, side effect.
   b. Consultation – Urology, Internal or Family Medicine – Must evaluate causes of ED including co-morbid conditions such as cardiovascular (hypertension, atherosclerosis, or hyperlipidemia), diabetes mellitus, depression and alcoholism
   c. An exercise stress test should be completed prior to waiver submission whenever indicated. If test is not performed, reasons should be substantiated in AMS or by consultants.

4. Follow-up: annual – to assess efficacy, side effects, and significant changes in health status including medications

5. Treatment:
   a. Must be free of side-effect for 2 doses after beginning medication before returning to flying duty
   b. No flying duties within 12 hours of last dose (medicine use to briefing time)

6. Links:
   a. Diagnostic evaluation: **Link to diagnostic evaluation** **(**http://www.aafp.org/afp/2000/0101/p95.html)
   b. Precautions**: Link to precautions** (http://www.aafp.org/afp/1999/0915/p1159.html)
   c. Medications: sildenafil (**Viagra®)** , vardenafil (**Levitra®**)

**PROBENECID:**

CD. Waiver is required for any long-term treatment.

## PROTON-PUMP INHIBITORS

**OMEPRAZOLE, LANSOPRAZOLE, RABEPRAZOLE:** CD. Waiver required for chronic use. Refer to the Gastroenterology Waiver Guide section on reflux esophagitis for additional information.

**SUCRALFATE (CARAFATE):**

NCD when used in dosages of 1 gm bid or less. However, the diagnosis of peptic ulcer disease is certainly CD and requires a waiver.

**SULFASALAZINE (AZULFIDINE):**

CD. Waiver considered after maintaining clinical remission for one month without evidence of side effects.

**TAMOXIFEN:** CD. No Waiver.

## TOPICAL COMPOUNDS:

As a general rule, medications applied to the surface of the body which are not absorbed to any significant extent are NCD. However, please see notes on Kwell. The recommended initial treatment is over a weekend to allow return to flight duties the following Monday, thus minimizing flight schedule loss.

# 18.7 PSYCHOTROPIC MEDICATIONS

Last Revised: April 2025 Last Reviewed: April 2025

| | Applicant | Class I | | | Class II | Class III | Class IV |
|---|---|---|---|---|---|---|---|
| | | SG1 | SG2 | SG3 | | | |
| **CD** | X | X | X | X | X | X | X |
| **NCD** | | | | | | | |
| **WR** | | case-by-case | case-by-case | case-by-case | case-by-case | case-by-case | case-by-case |
| **WNR** | X | | | | | | |
| **LBFS** | No | No | No | No | No | No | No |
| **EXCEPTIONS** | | | | | | | |
| **LIMDU/ PEB** | May be required, depending on the severity of the clinical condition. | | | | | | |

**AEROMEDICAL CONCERNS**: Untreated or poorly-controlled psychiatric symptoms can negatively impact occupational functioning, as well as quality of life and social, emotional, and cognitive functioning of affected individuals. A 2002 study found that when advised of the FAA's policy at the time (that each pilot would be grounded until the depression had cleared and the medication had been discontinued for approximately three months) the pilots indicated their intended responses to the prospect of not flying for nine months or more. Of the 1200 pilots surveyed, some 59% (710) said they would refuse the medication and continue to fly. About 15% (180) indicated an intention to take the medication and continue their flight duties without informing the FAA. The remaining 25% (300) said they would take sick leave, undergo the recommended treatment, and return to work when aeromedically cleared to do so.[1] In addition to concerns about the avoidance of treatment for clinically and aeromedically significant psychiatric symptoms, and the unmanaged risks associated with treatments not disclosed to the aviator's flight surgeon, premature discontinuation of a psychotropic medication, which may be driven by a desire or operational need to return to Duty Involving Flying (DIF), may result in a return of psychiatric symptoms, worsen the overall course of the disease process, and necessitate grounding. For these reasons, waivers for return to DIF will be considered according to the following guidelines.

**Maintenance Pharmacotherapy:** Maintenance pharmacotherapy is sometimes used to mitigate the risk of future recurrence of some psychiatric disorders, typically after several discrete episodes. In cases of persistent (chronic) or recurrent disorders, maintenance pharmacotherapy may be considered. Designated Flying Class I, SG3 aviators (SG1 on a case-by-case basis) and Flying Class II-IV service members on aviation status All Flying Classes are eligible for waiver consideration for continuous (i.e., not PRN) maintenance pharmacotherapy with FDA- approved psychotropic medication(s) for the conditions listed below:

1. Anxiety Disorders (ARWG Section 14.5)
2. Depressive Disorders (ARWG Section 14.7)
3. Obsessive-Compulsive Disorder and Related Disorders (ARWG Section 14.10)
4. Trauma and Stressor-Related Disorders (ARWG Section 14.17)

Waiver consideration may be requested after a suitable *Period of Observation in a Non-flying Status* (PONS) has elapsed. The PONS begins once an authorized mental health provider (an aeromedically trained clinical psychologist or psychiatrist whenever possible) has declared, by way of a formal medical record entry, that the service member's condition is in full remission. The duration of the PONS will vary depending on the particular psychiatric diagnosis. Applicants will

not be considered for a waiver if on maintenance pharmacotherapy. Waivers will not normally be recommended for acute-phase treatment of initial episodes of any of the above conditions. During the PONS and thereafter:

1. The dose of the medication(s) must remain stable.
2. There must be no aeromedically-significant medication side effects.
3. The clinical condition must remain in stable remission.

**INFORMATION REQUIRED FOR INITIAL MEDICATION WAIVER:**

1. The psychiatric condition must be waiverable.
2. All waiver requirements for that psychiatric condition must be met. Without this, no request for a medication waiver can be considered.
   *Note: Medication use and waiver provisions may be included in the comprehensive AMS. (Only one AMS is required.)*
3. A comprehensive NAMI Psychiatric and Neuropsychological assessment is required as part of any waiver request.

**INFORMATION REQUIRED FOR MEDICATION WAIVER CONTINUANCE:**

1. A comprehensive local psychiatric evaluation must be conducted every **6 months**.
2. An Aeromedical Summary (AMS) documenting the presence or absence of interim symptoms must be submitted to NAMI (via AERO) **annually**. This summary must include a copy of the comprehensive local psychiatric evaluation reports.
3. CogScreen-AE testing must be performed **annually** and the results must be submitted via AERO.

**INFORMATION REQUIRED FOR CHANGES IN MEDICATION DOSING (Including dose increase, decrease, or discontinuation):**

1. If a medication for which a waiver has been previously granted is discontinued or the dose is changed, **grounding is required**.
2. Consultation with NAMI psychiatric is required prior to return to flight and shall occur no earlier than **60 days after medication dose change**.
3. Local mental health evaluations are required **6 and 12** months after medication discontinuation. The results of these evaluations are to be submitted with the next annual flight physical via AERO.

**Notes:**

For the purpose of standardization of terms used in discussing aeromedical disposition, the following definitions will be used. These are based on recommendations of a task force convened in 1988 to create a consensus vocabulary for discussing Major Depressive Disorder.[2]

*Partial Remission* is a period during which an improvement of sufficient magnitude is observed that the individual is no longer fully symptomatic (i.e. no longer meets full syndromal diagnostic criteria for the disorder) but continues to suffer more than minimal symptoms.

*Response* is the point at which a partial remission begins (in pharmaceutical studies, medication response is typically defined as a 50 per cent reduction on a symptom severity measure, such as the Hamilton Depression Rating Scale).

*Full Remission* is a relatively brief period (DSM-5 suggests 2 months for Major Depressive Disorder) with no symptoms, or “only one or two symptoms to no more than a mild degree.” While

"mild" symptoms may be reasonable in general clinical settings, the standard for aviation duty must be higher, so in this context "no symptoms" is the standard.

*Recovery* is remission sustained for a minimum specified period of time. For the purpose of waiver consideration, refer to the relevant section of the ARWG for the minimum time to recovery for a particular condition. Recovery can occur in response to treatment, but can also happen spontaneously in the natural course of the condition.

*Relapse* is defined as a return of symptoms satisfying the full syndromal diagnostic criteria for an episode that occurs during the period of remission, but before recovery as defined above. Relapse can represent a change from either partial or full remission to fully syndromal diagnostic criteria for the disorder. The reason to distinguish between a relapse and a recurrence is the idea that relapse represents the return of the symptoms of a still ongoing but symptomatically suppressed episode, while a recurrence represents an entirely new episode, with significantly different prognostic implications.

*Recurrence* is the appearance of a new episode and so can only occur during a recovery.

[1]Hudson DE Jr. SSRI use in professional aircrew. Panel presentation. Aerospace Medical Association annual meeting. 9 May 2002, Montreal, Canada.

[2]Frank E, Prien RF, Jarrett RB, Keller MB, Kupfer DJ, Lavori PW, Rush AJ, Weissman MM: Conceptualization and rationale for consensus definitions of terms in major depressive disorder. Arch Gen Psychiatry 1991; 48:851-855.

# 19.0 NUTRITIONAL AND ERGOGENIC SUPPLEMENTS

## 19.1 AIRCREW GUIDANCE AND POLICY

This document is a major revision and update from the previous policy. It is intended to be a succinct guide that creates an informed and realistic policy based on the latest scientific literature and lessons learned from the fleet. This document covers, at the time of this writing, the most relevant over-the-counter supplements encountered by persons engaging in flight duties. It is a living document in the sense that it will provide practical “rules of engagement” for Flight Surgeons (or Aeromedical Examiner or Aeromedical Physician Assistant) and their patients, but be aware that new products are constantly being brought to market and many are not specifically covered in this document.

The Naval Aerospace Medical Institute (NAMI) does not have the capability to systematically evaluate, test, monitor and provide post approval surveillance for the human use of dietary supplements. The FDA has this responsibility. However, based upon the millions of people consuming food supplements and the low adverse outcome rate, there is no sound evidence suggesting that most common dietary supplements pose a significant aeromedical risk. NAMI accepts that some dietary supplements may be safe for consumption but others do pose a real and preventable aeromedical risk. This policy strives to set common sense and reasonable restrictions while continuing to prohibit the consumption of substances that are known to be dangerous.

In the military, all personnel are “tactical” athletes as they regularly participate in physical training in a variety of disciplines. An athlete’s ability to sustain consistent intensive training and competition without succumbing to chronic fatigue, injury, and illness is influenced not only by the types of foods eaten, but also by the amount and timing of food intake. Many believe that a normal diet will not suffice for optimum performance and decide to use dietary supplements as part of their regular training or competition.

A dietary supplement is a product taken by mouth that contains a "dietary ingredient" intended to supplement the diet. The "dietary ingredients" in these products may include vitamins, minerals, herbs or other botanicals, amino acids, and substances such as enzymes, organ tissues, glandular extracts, and metabolites. Dietary supplements can also be extracts or concentrates, and may be found in many forms such as tablets, capsules, softgels, gelcaps, liquids, or powders. Supplements commonly used include vitamins, minerals, protein, and various other ‘‘ergogenic’’ compounds.

Congress has defined the term "dietary supplement" in the Dietary Supplement Health and Education Act (DSHEA) of 1994 and considers dietary supplements as foods and not drugs. Information on the efficacy and safety of many, if not most, of these products is limited. In some cases, evidence is lacking entirely. In other cases, the cited so called ‘‘evidence’’ comes from studies of isolated lab tissues exposed to amounts of the supplement that are unrealistic. In Naval Aviation, it is the job of Flight Surgeons (FS), Aviation Medical Examiners (AME), Aeromedical Physician Assistants (APA), Aerospace and Operational Physiologists (AOP) and other Aviation Medical Officers (AMO) to inform, educate and regulate the use of nutritional supplements as a method of exercising Operational Risk Management.

## 19.2 GENERAL DIETARY SUPPLEMENTATION GUIDELINES

- FS, AME, APA and/or AOP should inform aircrew that the U.S. Food and Drug Administration (FDA) does not regulate dietary supplements in the same way it regulates medicines. The FDA does not test dietary supplements or authorize their use prior to their being marketed. A dietary supplement can be sold with limited or no research on how well it works. The FDA can order the removal of a dietary supplement from the marketplace if it feels that it is unsafe for consumers.

- FS, AME, APA and/or AOP should educate aircrew that dietary supplements may cause side effects, trigger allergic reactions, or interact with prescription and nonprescription medicines or other supplements they might be taking. A side effect or interaction with another medicine or supplement may make other health conditions worse. FS, AME and/or AOP should recommend that aircrew members avoid starting a new non-prohibited substance within 24-hours before flying. This is especially important when an aircrew member is consuming supplements above the Food and Drug Administration Recommended Daily Allowance.

- FS, AME, APA and/or AOP should inform all personnel to not assume that the ingredients listed on the supplement label are present in the amounts stated unless marked with USP or CL seals. There are no regulated manufacturing standards in place for many herbal compounds, and some marketed supplements have been found to be contaminated with toxic metals or other drugs. Be aware that herbal supplements sometimes include anabolic steroids, ephedrine, caffeine, and other substances that may not be listed on the label and may cause a failure of drug testing and/or damage a person's health. Herbs can be especially dangerous when taken with certain prescription drugs or over-the-counter medications. Some supplements have been found to exceed the maximum limits for substances such as arsenic, cadmium, lead and mercury.

- FS, AME, APA and/or AOP should educate all personnel that so-called "muscle building" anabolic herbs are unlikely to have any effect on muscles. The plant steroids/sterols found in many of these herbs cannot be converted by the human body into testosterone or other anabolic steroids. If it sounds too good to be true, it probably is. Don't expect herbal supplements to take the place of quality training as a means of improving performance.

- FS, AME, APA and/or AOP should warn all personnel to not consume Energy Beverages or Pre-workout supplements with stimulants and/or vasodilators before, during or after strenuous activities. Some of the deaths allegedly due to energy drinks occurred when a person consumed energy drinks before and/or after performing strenuous activities.

## 19.3 FLIGHT SURGEON, AVIATION MEDICAL EXAMINER AND AEROMEDICAL PHYSICIAN ASSISTANT RESPONSIBILITIES

- Shall not recommend the consumption of dietary supplements for medical conditions, performance enhancement or health maintenance. Should the member choose to consume allowed dietary supplements, the FS/AME/APA shall record such use in the aircrew member's health record, typically at their annual flight physical. A simple statement like, "uses dietary supplements and has been informed of the policy" and a list of the supplements is sufficient. If usage or maximum dosage limit recommendations are provided by the FS/AME/APA, those should be documented as well.

- Shall screen aircrew members for those potential diseases in accordance with the current clinical practice guidelines and the Aeromedical Reference and Waiver Guide (AWRG) if they report use of dietary substances for a specific health disorder.

- Shall authorize only allowed dietary supplement products that have the United States Pharmacopeia (USP) Verified Dietary Supplement Ingredient Mark, Consumer Lab (CL) seal of approval, or come from a reputable manufacturer. These trademarked seals are not to be confused with any company or group that manufactures nutritional supplements that use "USP" or "CL" in their name.

- Shall include information about an aircrew member's dietary supplement use in the medical portion of any mishap investigation.

- Personnel inadvertently consuming these prohibited substances should be removed from aviation duty for a minimum of 24 hours after the last use of the substance. Before being returned to aviation duty, the FS/AME/APA should examine the aircrew member and ensure that they are safe for aviation duties.
  - The aircrew members shall be symptom-free of the acute effects of the prohibited substance. If indicated by the clinical situation and setting, appropriate toxicological studies and consultations shall be obtained.
  - The event shall be documented in the member's health record and the on the next flight physical.
  - The aircrew member should be counseled and educated on this policy and NATOPS by the examining FS/AME/APA.

## 19.4 DIETARY SUPPLEMENT POLICY

**CLASS A Substances for Flying Classes I, II, III, and IV:** Use requires documentation at annual flight physical. Use of these substances within the limits noted is NCD.

These are substances for which there is strong evidence of safety and/or efficacy. Limitations on quantity and type of each dietary supplement shall be discussed and documented at the time of the annual physical as described below. Keep in mind that natural products are not always necessarily safe and dosages can be important. It is important to ensure that dosages follow relevant directions on product labels.

1. **"Sports" or "Recovery" drinks without prohibited ingredients (*not to be confused with "Energy" beverages or pre-workout supplements*).**
   For training periods that will exceed one hour of duration, sports drinks can help prevent dehydration and restore important minerals lost through perspiration and produce better hydration than water alone. The proper CHO ratio for sports drinks is 6-8%.

2. **Protein supplementation including the use of individual amino acids (except where specifically identified), derivatives, metabolites and combinations such as essential amino acids (EAAs) or branched chain amino acids (BCAAs).**
   For those individuals who decide to use protein supplementation, it is recommended that exercising individuals need approximately 1.4 to 2.0 grams of protein per kilogram of (fat free) bodyweight (BW) per day.
   **Note**: Protein bars are typically formulated with trace amounts of glycerol (a Class C supplement). Glycerol in this form (when taken as part of a protein bar) does not cause any significant blood sugar response and seems to be eliminated from the body mostly unused. This product is authorized for use by aircrew.

3. **Vitamins, Minerals and Essential Nutrients**
   An essential nutrient is a nutrient required for normal body functioning that either cannot be synthesized by the body at all, or cannot be synthesized in amounts adequate for good health, and thus must be obtained from a dietary source. Categories of essential nutrients include vitamins, dietary minerals, essential fatty acids, and essential amino acids. Intake should not exceed tolerable upper intake level (UL) as determined by the Institute of Medicine (IOM). UL is the maximum amount of daily vitamins and minerals that you can safely take without risking an overdose or serious side effects. Unless otherwise specified, the UL represents total intake from food, water, and supplements. Note: Essential nutrients are defined by the collective physiological evidence for their importance in the diet and are listed in US government approved tables for Dietary Reference Intake.

4. **Caffeine (including guarana, kola nut, cocoa beans)**
   Intake should be limited to not more than 450 mg per day. Limit caffeine intake to no more than 250 mg over a short time (30 minutes) as this may cause caffeine intoxication.

5. **Cranberry products (including juice, tablets, capsules)**
   For urinary tract infection prevention, 500 mg of *Vaccinium macrocarpon* (cranberry) supplements or 8 oz of 100% cranberry juice is authorized up to twice daily.

**CLASS B Supplements for Flying Classes I, II, III and IV:** Use not prohibited but information is required. Flight Surgeon, AME or APA approval and documentation at the annual flight physical is required for use. Use of these substances within the limits noted is NCD.

These are substances for which evidence of risk is minimal. Use requires consultation with a Flight Surgeon/AME/APA and documentation in the medical record. The Flight Surgeon/AME/APA should counsel the member on any specific dosage limits for aircrew, possible risks, benefits, and side effects.

1. **Glucosamine (glucosamine sulfate, glucosamine hydrochloride, or N-acetyl-glucosamine) with or without chondroitin**
   Dosage should not exceed 1500 mg per day for glucosamine and 1200 mg per day for chondroitin.
   **Warning:** There are several reports showing that taking chondroitin with glucosamine increases the effect of warfarin on blood clotting. This can cause bruising and bleeding that can be serious.
   **Grounding: 24 hour local grounding after first dose.**

2. **Saw Palmetto (Serenoa repens)**
   Dosage for the liposterolic extract of saw palmetto berries (containing 85–95% fatty acids and sterols) is up to 320 mg daily.
   **Grounding: 24 hour local grounding after first dose.**

3. **Creatine (phospohcreatine, creatine monohydrate)**
   **Warning:** During creatine supplementation, water intake should be >64 ounces per day and sufficient to maintain proper hydration level. Creatine functions by drawing water from the rest of the body and holding it in the muscles. During creatine use, the need to drink more water than normal is needed. Some individuals may experience gastrointestinal symptoms, including loss of appetite, stomach discomfort, diarrhea, or nausea. Diabetes medications, acetaminophen, and diuretics may have interactions with creatine and should not be used together. Taking caffeine with creatine can increase the risk of side effects.
   **Grounding: 24 hour local grounding after first dose and if experiencing GI symptoms.**

4. **Melatonin**
   For sleep disturbance or jet lag and upon permission from Flight Surgeon/AME/APA, up to 5 mg may be taken at bedtime. It should not be taken for longer than 2 weeks.
   **Grounding: At a minimum, 24 hour local grounding after dose. Member should be free from "sleep hangover" symptoms before flying duties.**

5. **Ginger**
   For motion sickness and upon permission from Flight Surgeon/AME/APA, 250 mg up to 1 g may be taken prior to situations where motion sickness may be an issue. Dosage not to exceed a total of 4 g daily.
   **Grounding: None.**

**CLASS C Supplements for Flying Classes I, II, III and IV:** Not authorized for use. Use of these substances is CD.

Dietary Supplements and other preparations containing the following incapacitating or dangerous substances shall not be used by aircrew. There are no regulated manufacturing standards in place for many herbal compounds and some marketed supplements have been found to be contaminated with toxic metals or other drugs. Many of these substances have either (1) proven to be hazardous or (2) have not been proven to be safe with no clear proven benefit.

In addition to the supplements listed below, any supplement not listed in this guide should be classified as Class C. A supplement is of particular concern if its effects can be shown (or suspected) to lead to sedation, lead to excitation (stimulant), lead to hallucinations, have cardiovascular or hemodynamic effects (vasodilatation, vasoconstriction, hypertension, hypotension, tachycardia, etc), or act as or block neurotransmitters. Supplements containing known (or suspected) toxic compounds are also of particular concern. Personnel taking these substances should be removed from aviation duty for a minimum of 24 hours and until effects are no longer evident.

**Special Note:**
Energy Beverages / Energy Shots: Class C. For the purposes of this guide, Energy Beverages (EBs) are beverages that (typically) contain as main ingredients caffeine, taurine, glucuronolactone, B vitamins, guarana, l-carnitine, sugars, antioxidants, and trace minerals. Energy shots are 2-3 oz beverages that contain as much caffeine as regular energy drinks as well as mega doses of vitamins and other compounds such as taurine, l-tyrosine, phenylalanine, and guarana. The negative effects of excess caffeine have been proven, but the positive effects of many of the other additives, such as taurine and glucuronolactone, remain unproven, as does the combined effect of these ingredients. The active ingredient of concern for this product line is caffeine and other methylxanthines. Some EBs, mixes, or energy shots have up to 500 mg of caffeine per bottle . Aside from the main ingredient (caffeine), most other ingredients tend to be below the quantity expected to deliver therapeutic benefits or cause adverse reactions. EBs have been shown to increase heart rate, blood pressure, and can have a net dehydrating effect. There have been several case reports of seizures and caffeine-associated deaths when EBs are paired with exercise or intense physical activity. Research (at the time of this publication) indicates that while EBs may increase gross motor reflex reaction time, fine motor skills and cognitive processing accuracy may be impaired and extend the time it takes to complete a complicated, precise tasks correctly. EBs and derivatives (shots, gels, gum, chews, inhalers, nasal sprays, etc.) are not authorized for use by personnel on flight status who are actively performing duties in an aircraft. Personnel consuming EBs should be grounded for at least 24 hours before resuming flight duties.

## 19.5 CLASS C SUPPLEMENT LIST BY EFFECT

This list is not all-inclusive and is presented for informational purposes only. It contains commonly known and marketed supplements.

**Sedation:**

- Effects may be additive with other over-the-counter or prescription agents with sedative properties.
- The duration of action is unpredictable.
- **Plant products known or likely to be sedatives:** *indicates anticholinergic properties
  - *Valeriana officinalis (Valerian)*
  - *Rauwolfia serpentina (Indian Snakeroot)*
  - *Atropa belladonna (Deadly Nightshade)**
  - *Chelidonium majus (Celandine)*
  - *Humulus lupulus (Hops)*
  - *Conum maculatum (Hemlock)*
  - *Lycopodium serratum (Jin Bu Huan)*
  - *Papaver somniferum (Opium Poppy)*
  - *Passiflora incarnata (Passion Flower)*
  - *Scutellaria laterfoloia (Skullcap)*
  - *Lactuca virosa (Wild Lettuce)*
  - *Aconitum napellus (Wolfsbane)*
  - *Hyoscyamus niger (Henbane)**
  - *Datura stramonium (Jimson Weed)**
  - *Scopolia carniolica (Scopolia)**

**Hallucination:**

- **Plant products known or suspected to cause hallucinations or altered sensorium:**
  - *Psilocybe semilanceata (magic mushrooms)*
  - *Exchscholzia californiica (California Poppy)*
  - *Piper methysticum (Kava-Kava)*
  - *Mandragora officinarum (Mandrake)*
  - *Myristica fragrans (Nutmeg) in large quantities*
  - *Cantharanthus roseum (Periwinkle)*
  - *Datura stramonium (Thorn Apple)*
  - *Corynanthe yohimbe (Yohimbe Bark, Yohimbine HCL)*

**Cardiovascular Effects:**

**Cardiac glycosides**

- May precipitate dysrhythmias; especially when found in association with electrolyte abnormalities such as would occur with poor hydration status (digitalis family).
- **Plant products known to contain cardiac glycosides or cardioactive substances:**
  - *Digitalis purpura (Purple Foxglove)*
  - *Urginea maritima (Squill)*
  - *Cystisus scoparius (Broom)*
  - *Convallaria majalis (Lilly of the Valley)*
  - *Adonis vernalis (Pheasant's Eye)*

- *Strophanthus kombe (Strophanthus)*
- *Scilla maritima (White Squill)*
- *Digitalis lanata (Yellow Foxglove)*

**Stimulants:**

- Contain sympathomimetic agents that directly stimulate the heart and blood vessels.
- Implicated in deaths due to stroke or heart attack attributed to precipitous increases in pulse rate and blood pressure.
- **Substances known to be potent cardiovascular stimulants:**
  - *Ephedra sinica (Ma-Huang, Ephedra, Ephedrine)*
  - *Citrus aurantium (Bitter Orange, Synephrine)*
  - *Sida cordofolia (bala, malva branca, country mallow, heart-leaf sida or flannel weed)*
  - *Pelargonium graveolens (geranamine, geranium oil)*
  - *Evodiae fructus (evodiamine, Evodia, Evodia Lepta, Wu-Chu-Yu)*
  - *Coryanthe Yohimbe (Yohimbe, Yohimbine, Yohimbine HCl, 11-hydroxy Yohimbine, Alpha Yohimbine HCl, Yohimbinum Muriaticum):*

    Note: Yohimbe has been linked to reports of severe side effects including irregular/rapid heartbeats, kidney failure, seizure, and heart attacks.
  - *Methylhexanamine (MHA, dimethylamylamine, DMAA, 1,3-dimethylamylamine):*

    Note: Vasoconstrictor which can elevate blood pressure and may lead to shortness of breath and MI. Formerly patented as a nasal decongestant, it is similar in structure to ephedrine and amphetamine.
  - *Norcoclaurine HCL (higenamine, Norcoclaurine):*

    Note: Beta-2 adrenergic agonist and is found in a variety of plants including *Nandina domestica* (fruit), *Aconitum carmichaelii* (root), *Asarum heterotropioides, Galium divaricatum* (stem and vine), *Annona squamosa*, and *Nelumbo nucifera* (lotus seeds). Has been traditionally been used as an anti-asthmatic.

**Hypotensive Agents:**

- These substances may relax blood vessels and lower blood pressure. Such products would potentially affect Gz tolerance
  - *Pinus pinaster (Pycnogenol, Pine Bark extract)*
  - *Coenzyme Q* (CoQ10, ubiquinone, ubidecarenone) with or without niacin (vitamin B3, nicotinic acid and vitamin PP).

  Note: CoQ10 has the potential to lower systolic blood pressure by up to 17 mm Hg and diastolic blood pressure by up to 10 mm and should not be used by any person who experience >4Gz forces.

**Diuretic Agents:**

- These herbs may have effects on water balance and may affect blood pressure. Commonly used for weight loss.
  - *Taraxacum officinale*
  - *Verbena officinalis*
  - *Lithospermum officinale*
  - *Equisetum arvense*
  - *Arctostaphylos uva-ursi*
  - *Arctium lappa*
  - *Silene saxifrage*

**Hepatotoxins:**

- A number of plants elaborate pyrollizidine alkaloids, known to cause harm to the liver
- Damage is often irreversible, and may result in permanent disability or death.
- **Substances known or believed to be toxic to the liver:**
  - *Senecio spp. (Thread Leafed Groundsel and Life Root)*
  - *Larria tridentata (Chaparral)*
  - *Symphytum officinale (Comfrey)*
  - *Teucrium spp. (Germander)*
  - *Usnic Acid (Usnea)*

**Other Adverse Effects and Drug Interactions:**

- **Substances known or believed to have adverse effects and drug interactions:**
  - *Hypericum perforatum* (St John's Wort, Tipton's Weed, Chase-devil, Klamath weed)

**Other Nutritional Supplements of Concern:**

- *Pangamic Acid (Vitmain B15*): Pangamic acid is considered UNSAFE. There is no standard chemical identity for pangamic acid. Chemicals found in some formulations of pangamic acid may cause cancer.
- *Ginkgo biloba:* Ginko contain components that can trigger side effects and interact with other herbs, supplements, or medications. May enhance bleeding due to blood thinning action and may lower blood pressure and cause gastrointestinal distress, headaches, skin reactions, and dizziness.
- *Ginseng:* There are four common ginsengs; American, Chinese, Siberian (Eleuthoro Root) and Indian (Ashwagandha). Most supplements that list ginseng refer to Panax ginseng (AKA Asian ginseng, Chinese ginseng and Korean ginseng). This type of ginseng should not be confused with American ginseng or Siberian ginseng, which are entirely different herbs and have differing uses, dosing schedules and effects. Panax ginseng may have interactive effects with commonly prescribed medications.

  Warfarin/Blood Thinning Medications: Research studies in humans do not show this herb to affect blood clotting. However, studies done in laboratory settings show it to reduce blood clotting.

  Diabetic Medications/Insulin: Ginseng may lower blood sugar levels.

  Hypertension: Ginseng has been reported to increase blood pressure at a low dose but can decrease blood pressure at higher doses.

  Autoimmune: Ginseng seems to stimulate the immune system. In people with an immune disorder such as multiple sclerosis (MS), rheumatoid arthritis (RA), systemic lupus erythematosus (SLE), psoriasis or ezcema (ectopic dermatitis) it may worsen the condition.

  Due to the wide variety of cardiovascular, neurologic and immune system effects, dosage effects and the multiple varieties of ginseng marketed, ginseng is not approved for use by aircrew.
- *Chromium Picolinate, Phosphate salts, Vanadyl sulfate:* May affect insulin sensitivity and blood sugar levels leading to hypoglycemia.
- *Echinacea*: Echinacea seems to activate chemicals in the body that decrease inflammation, which might reduce cold and flu symptoms. Laboratory research suggests that echinacea can stimulate the body's immune system. However, side effects include fever, nausea, vomiting, unpleasant taste, stomach pain,

diarrhea, sore throat, dry mouth, headache, numbness of the tongue, dizziness, insomnia, disorientation, and joint and muscle aches. Additionally, echinacea might decrease how quickly the body breaks down caffeine. Taking echinacea along with caffeine might cause too much caffeine in the bloodstream and increase the risk of side effects.

- *Glycerol* : Glycerol has been used to increase hydration within cells, allowing tissues to remain hydrated during prolonged endurance exercise, when taken in combination with ample amounts of water. Glycerol can cause side effects including headaches, dizziness, bloating, nausea, vomiting, thirst, and diarrhea.

## 19.6 GENERAL GUIDANCE FOR NEWLY DEVELOPED DIETARY SUBSTANCES

The Federal Food, Drug, and Cosmetic Act requires manufacturers and distributors that market dietary supplements that contain "new dietary ingredients" to notify the Food and Drug Administration about these ingredients. According to this act, the manufacturer must “provide a history of use or other evidence of safety establishing that the dietary ingredient, when used under the conditions recommended or suggested in the labeling of the dietary supplement, will reasonably be expected to be safe.” To date, the FDA has not published guidance defining the specific information that these submissions must contain.

When faced with a new supplement that has ingredients that are not covered by this guide, the Flight Surgeon/AME/APA should advise the member that use is prohibited in aircrew. The number of new supplements coming to market and varieties of new formulations prohibit effective evaluation of the aeromedical safety of the entire range of supplements available. However, flight surgeons or other aeromedical officers with questions about specific supplements may forward available information on the product to the Naval Aerospace Medical Institute. Additions and updates to supplement policy will be made based on questions from the Fleet indicating a need for policy on a particular product.

Some of the considerations used in evaluating a new supplement include:

- What information is provided on the container?
- What are the claims and are they potentially hazardous during flying duties?
- Are the servings/doses standardized (CL or USP validated)?
- Does the label or advertisement contain references?
- Does the supplement act to sedate, excite (stimulant), cause or is suspected to cause changes in perceptions, cause cardiovascular or hemodynamic effects (vasodialation, vasoconstriction, hypertension, hypotension, tachycardia, etc), or block or affect neurotransmitters? Does it contain known (or suspected) toxic compounds?
- What are the potential interactions with other supplements or medications?
- What literature or publications are available indicating safety?

## 19.7 ADDITIONAL RESOURCES

- U.S. Army Public Health Command
  http://phc.amedd.army.mil/topics/healthyliving/n/Pages/default.aspx

- The Center for Food Safety and Applied Nutrition
  http://www.fda.gov/Food/default.htm

- Office of Dietary Supplements
  http://ods.od.nih.gov

- Medline Plus
  http://www.nlm.nih.gov/medlineplus/medlineplus.html

- ConsumerLab.com
  http://www.consumerlab.com/

- Gatorade Sports Science Institute
  http://www.gssiweb.com/

- Human Performance Resource Center
  http://hprc-online.org/

- WebMD Vitamins & Supplements
  http://www.webmd.com/vitamins-supplements/default.aspx

- Institute of Medicine (IOM)
  http://www.iom.edu/

- Council for Responsible Nutrition
  http://www.crnusa.org/

- Nutrition.Gov
  http://www.nutrition.gov/dietary-supplements

- Unites States Department of Agriculture/National Agricultural Library
  http://fnic.nal.usda.gov/dietary-supplements

## 19.8 PRINTED RESOURCES

- PDR for Nutritional Supplements
  Sheldon Saul Hendler, PhD, MD, FACP, FACN, FAIC
  David Rorvik, MS
  Publisher: Thomson Healthcare; 1st Edition (March 15, 2001)
  ISBN-10: 1563633647
  ISBN-13: 978-1563633645

- PDR for Herbal Medicines
  Thomson Healthcare
  Publisher: Thomson Reuters; Fourth Edition (September 15, 2007)
  ISBN-10: 1563636786
  ISBN-13: 978-1563636783

# H1N1 Vaccinations:

Aviators receiving H1N1 vaccination must follow the influenza vaccination protocol and grounding period as described in the ARWG, under Medications, Section 18.5: Immunizations.

The grounding period is self-expiring and requires no grounding chit provided there are no adverse side effects.

# WS-HTN (HYPERTENSION WORKSHEET)

| **REQUIRING DOCUMENT** (*Title and Number*) | **ISSUANCE DATE** |
|---|---|
| Aeromedical Reference and Waiver Guide | 30 August 2015 |

Submit this completed form, **electronic Aeromedical Summary** (you may use N/A in fields other than Disqualifying Conditions fields) and current physical exam to NAMI Code NA05 via AERO.
If desired, contact NAMI Code NA05 to expedite processing.

## NEW WAIVER REQUEST

☐ Health record reviewed and aeromedical status checked. Member is in compliance with all previous waivers and/or physical exam submission requirements.

☐ Cardiac Risk Factors have been reviewed and evaluated. Member has been counseled on risks and current treatment guidelines. Consider 10-year risk calculation: https://tools.acc.org/ascvd-risk-estimator-plus/#!/calculate/estimate/

**EFFECT OF THERAPY:**

3-5 Day BP Average (with therapy): /

| | YES | NO |
|---|---|---|
| *Is BP consistently <140/90 with therapy? | ☐ | ☐ |
| *Is fundoscopic exam normal? | ☐ | ☐ |
| ***LAB REVIEW:** | | |
| *Is Chem 7/BMP normal? | ☐ | ☐ |
| *Is CBC normal? | ☐ | ☐ |
| *Is TSH normal? | ☐ | ☐ |
| *Is UA NEG for protein, blood, glucose? | ☐ | ☐ |
| *Is ECG NOT suggestive of LVH? | ☐ | ☐ |

**DIAGNOSIS:**

Select or free type

Select or free type

**MEDICATION:**

**AEROMEDICAL DISPOSITION:**

NPQ/AA DIF Class III, WR annual submission

**Member's commanding officer is aware of and concurs with waiver recommendation.**

| | YES | NO |
|---|---|---|
| Member issued 90 day up chit via LBFS? | ☐ | ☐ |

**With your digital signature, you are certifying that all above is true. Errors/omissions may be brought to the attention of your clinical supervisor and/or privileging authority.** Flight Surgeon digital signature:

Any other comments should be included in discussion section of AERO AMS.
***If no, or if member previously grounded by Waiver Authority, do not use this worksheet, fully describe case in AMS in AERO, LBFS not authorized.**

## CONTINUATION REQUEST

☐ Health record reviewed and aeromedical status checked. Member is in compliance with all previous waivers and/or physical exam submission requirements.

☐ Cardiac Risk Factors have been reviewed and evaluated. Member has been counseled on risks and current treatment guidelines. Consider 10-year risk calculation: https://tools.acc.org/ascvd-risk-estimator-plus/#!/calculate/estimate/

| | YES | NO |
|---|---|---|
| *Is BP consistently <140/90 with therapy? | ☐ | ☐ |
| **LAB REVIEW:** | | |
| *Is Chem 7/BMP normal? | ☐ | ☐ |
| *Is UA NEG for protein, blood, glucose? | ☐ | ☐ |
| *Is ECG NOT suggestive of LVH? | ☐ | ☐ |

**DIAGNOSIS:**

Select or free type

Select or free type

**MEDICATION:**

**AEROMEDICAL DISPOSITION:**

NPQ/AA DIF Class III, WR-continue annual submission

**Member's commanding officer is aware of and concurs with waiver recommendation.**

**With your digital signature, you are certifying that all above is true. Errors/omissions may be brought to the attention of your clinical supervisor and/or privileging authority.** Flight Surgeon digital signature:

Any other comments should be included in discussion section of AERO AMS.
***If no, or if member previously grounded by Waiver Authority, do not use this worksheet, fully describe case in AMS in AERO, member is med down until NAMI review completed.**

| | | | |
|---|---|---|---|
| **DATE** | | **NAME** | |
| **AVIATION DUTY** | | **DOD ID #** | |

**Category: Treatment**



CLEAR FORM