

6.0 EAR NOSE AND THROAT

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6.1 ALLERGIC/VASOMOTOR RHINITIS

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AEROMEDICAL CONCERNS: Allergic Rhinitis resulting in mucosal inflammation can lead to nasal congestion, impairment of paranasal sinus ventilation, and Eustachian tube dysfunction. These can, in turn, lead to sinus/facial pressure and discomfort, ear and/or sinus barotrauma, along with the potential use of medications with unacceptable side effects, all of which have the potential for in-flight incapacitation and prolonged periods of grounding.

WAIVER: *Uncomplicated* perennial and seasonal allergic rhinitis [PAR and SAR] are **NCD!** *Vasomotor* rhinitis (VR) may be CD if symptoms interfere with aviation, although this is a rare occurrence. For more information on VR, see the Discussion section below. In evaluating a member with a history of allergic rhinitis, the following conditions must **all** apply before determining that the member is PQ:

1. Symptoms, if present or expected to recur, must be controllable with any combination of topical nasal steroid sprays, approved antihistamines, montelukast (Singulair), nasal cromolyn, or the topical antihistamine, azelastine (Astelin).
2. A Waters' view x-ray of the sinuses must show no evidence of acute or chronic mucosal disease (mucus retention cysts are the exception and are NCD). See Manual of the Medical Department, Chapter 15, section 15-84.
3. A nasal examination using a hand-held magnifying otoscope with large speculum must show no evidence of mucosal disease such as polyp(s) or purulent drainage. If in doubt, seek ENT consultation. Your nasal examination is best done several minutes after spraying both nasal cavities with a decongestant nasal spray.
4. There has been no use of allergy immunotherapy (AIT) within the past 12 months. (The active use of immunotherapy requires a waiver. However, if an individual has completed immunotherapy and it has been 12 months since the last dose of immunotherapy, he/she may request that the waiver be lifted/removed.)
 - a. If an applicant has used immunotherapy in the past, but it has been more than 12 months since their last dose, a waiver is not required as long as all the other conditions listed above are met.

(Note: AR and SAR do not automatically become CD if the only additional treatment is an antihistamine and/or nasal steroid. It is the severity of the condition that requires the waiver, not the medication. See more in the TREATMENT section below)

INFORMATION REQUIRED:

1. Documentation of diagnosis on DD 2807/2808
2. Nasal speculum exam
3. Waters' view x-ray (only x-ray report needs to be submitted, not actual films)
4. [Allergic Rhinitis Worksheet](#)

If the conditions outlined above aren't met, then the allergic rhinitis is presumably more complicated and the member is NPQ. Depending on the reason for disqualification, a waiver may or may not be considered. In these cases, the following information is also required for waiver consideration:

1. ENT and/or Allergy consultation
2. Results of any further tests that have been performed, such as sinus CT

Vasomotor rhinitis, which causes significant disability, will require the same documentation as for allergic rhinitis. The [Allergic Rhinitis Worksheet](#) (see below) is helpful in assuring that all useful information is collected for submission and need for waiver review.

TREATMENT: The non-sedating antihistamines (Claritin, Clarinex, and Allegra), one topical second-generation antihistamine (azelastine-Astelin-topical nasal spray) and the leukotriene receptor antagonist montelukast (Singulair) are approved for use in all aviation personnel, **with no waiver required providing the above conditions are met.** If the Flight Surgeon chooses to start a member on one of these medications, a seven-day grounding period is mandatory in order to observe for any untoward effects. This period does not need to be repeated with subsequent use of that drug. However, if the member switches to another antihistamine, another grounding period is then necessary as two of the three approved medications are chemically dissimilar from the third. Note **that only the plain forms of these antihistamines are approved and not the ones containing decongestants.** Singulair is not generally considered first line therapy. It is generally used as a medication that provides benefit in conjunction with topical nasal steroids or antihistamines. Topical nasal steroids and cromolyn do not require a waiver and do not require a 7 day period of observation, although it may take that long for the patient to notice a benefit of the medication.

Allergy immune therapy (AIT) in stable, (maintenance) effective doses is CD but will be considered for waiver. AIT can be delivered using subcutaneous injections-subcutaneous immunotherapy (SCIT), or by sublingual instillation in the form of drops or tablets-sublingual immunotherapy (SLIT). SCIT can be challenging to administer (12 hour grounding after shot, refrigeration of allergen solutions required, loss of serum potency, potential for anaphylaxis necessitating a 30 minute period of observation following administration and difficulty obtaining refills) and should not be undertaken if topical sprays or non-sedating antihistamines are effective. SLIT is not as widely available as the more traditional SCIT, and requires daily administration (sometimes 3 times a day), but the SLIT formulations of allergens are stable at room temperature and do not require refrigeration. There is also virtually no risk of anaphylaxis with SLIT. For this reason there is no requirement to observe the individual in the clinic following administration of the allergen.

All forms of AIT require a variable period of time to work up to appropriate dosages of the allergen(s) being administered. During this phase of treatment, the individual will be in a down status. Once the individual has reached maintenance levels of allergen and has achieved relief of symptoms, he or she may be considered for a waiver. 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 one or more components of the allergens in the solution. If a change is made to the concentration of any component of the allergen solution of an aviator receiving SLIT, the individual will be in a down status for 7 days in order to be sure that there are no new side effects from the change. Applicants on a stable dose of AIT may be considered for waiver.

There has been success with an accelerated method of reaching maintenance (Rush technique), and, if available, this may be considered when grounding time must be minimized.

DISCUSSION: PAR and SAR are manifested by any or all of the following symptoms: rhinorrhea, sneezing, lacrimation, pruritus (nasal, ocular, and palatal) and congestion. Etiology is inhaled allergens (and on rare occasions, food in PAR). SAR tends to be seasonal or multi-seasonal, whereas PAR may be year round. AIT is used in the treatment of PAR/SAR following allergy testing, though, as noted above, AIT is not without problems. Sometimes individuals using either form of AIT will have some break through symptoms. This can sometimes mean that the individual will be receiving AIT and also using topical steroids or an approved antihistamine. This is very appropriate and is better than trying to tough it out and being at increased risk of barotrauma. Nasal inhaled steroids, azelastine and cromolyn have minimal side effects and are approved for use in aviation personnel, as are three non-sedating antihistamines (Claritin, Clarinex, and Allegra).

It can be very helpful in evaluating an individual for their suitability for a career in aviation to ask them about their experience in commercial flights and also about their ability to tolerate diving to a depth of 10' or more. If an individual is a certified SCUBA diver it is unlikely (although not impossible) for them to have significant Eustachian tube dysfunction or sinus problems. Please be sure to include information regarding their ability to tolerate pressure changes in your submission of a waiver request.

Allergic rhinitis may be mimicked by Vasomotor Rhinitis, which may consist of rhinorrhea, sneezing, and congestion. The congestion is often seen as alternating, sometimes severe, nasal obstruction. Inciting factors include temperature and humidity changes, odors, irritants, recumbency, and emotion. Treatment of vasomotor rhinitis with inhaled nasal steroids can be effective, and, if symptoms aren't disabling, no waiver is required. The potential for VR to cause barotrauma is nil.

ICD-9 CODES:

477.9 Allergic/Vasomotor Rhinitis

477.98 Allergic Rhinitis, treated with steroids

477.0 Allergic Rhinitis, due to pollen

477.8 Allergic Rhinitis, due to other allergens

P22.60 Functional Endoscopic Sinus Surgery (FESS)

ALLERGIC RHINITIS WORKSHEET

EXAMINING FACILITY:			FACILITY UIC:		
TODAY'S DATE:			EXAMINER'S PHONE #:		
REQUESTING WAIVER?			REQUESTING TO ELIMINATE WAIVER?		
HISTORY					
SYMPTOMS		FREQUENCY		TREATMENT	
	RHINORRHEA		SPRING		None
	CLEAR		SUMMER		OTC Med
	CLOUDY		FALL		Steroid Spray
	LACRIMATION		WINTER		Rx. Med*
	SNEEZING		PERENNIAL		AIT**
	CONGESTION				OTHER:
	ITCHING				
How many years of sx.?			Typical duration of sx:		
CURRENT SYMPTOMS (if no sx. at present, when was pt. last symptomatic?):					
CURRENT THERAPY, IF ANY: *(LIST MEDS)			PAST EFFECTIVE THERAPY:		
**IF HX. OF ALLERGY IMMUNOTHERAPY, DATE BEGUN:					DATE COMPLETED:
PHYSICAL EXAMINATION					
RIGHT EAR:					VALSALVA?
LEFT EAR:					VALSALVA?
PHYSICAL EXAMINATION					
NOSE:					
MOUTH:					
OROPHARYNX:					
SINUS FILMS RESULTS: (Include actual films if abnormal/ submit all films on APT applicants)					
ENT EVALUATION: (ONLY IF REQUIRED PER WAIVER GUIDE)					
ALLERGY EVALUATION: (ONLY IF REQUIRED PER WAIVER GUIDE)					
IMPRESSION:					
FLIGHT SURGEON'S RECOMMENDED DISPOSITION					
	NPQ, WAIVER RECOMMENDED				PQ, DISCONTINUE WAIVER
	NPQ, WAIVER NOT RECOMMENDED				
FLIGHT SURGEON SIGNATURE/ STAMP					
PATIENT'S SIGNATURE:					DATE:
PT'S NAME: LAST/ FIRST/ MIDDLE/RANK/RATE					
DATE OF BIRTH:		AGE:		SSN:	

6.2 CHRONIC SINUSITIS/SINUS SURGERY

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AEROMEDICAL CONCERNS: This 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, intermittent facial pressure, post nasal drip, cough, Eustachian tube dysfunction, etc.) that can lead to frequent trips to sick call and an inordinate amount of time in a down status, thus impacting squadron flight schedules and mission accomplishment.

WAIVER: Students and designated aviation personnel who are diagnosed with chronic sinusitis while on active duty are NPQ. Waiver will only be considered after the disease has been successfully treated. Many patients with chronic sinusitis will require surgery, but there are some patients who will respond to prolonged courses of medical management. If surgery (usually FESS, or Functional Endoscopic Sinus Surgery) is performed, before the patient can return to flight duties, they must be healed and free of active disease as demonstrated by an endoscopic examination performed by the surgeon. Regardless of treatment method, the patient must demonstrate that his/her sinuses are able to tolerate pressure changes. This is usually accomplished by having the patient complete a functional hypobaric chamber run where the chamber is taken up to three successively higher altitudes (5,000', 10,000' and 18,000') at 5,000 ft/min and returned to site level at 2,500 ft/min after each sequential ascent. If surgery was performed, the surgeon should state that the patient is cleared for evaluation in a low-pressure chamber before the flight surgeon schedules a chamber run. If a hypobaric chamber is not available, then a hyperbaric chamber run down to 33 feet or a flight (not in control of the aircraft) that includes touch and go landings from 5,000' and 10,000' will demonstrate that the individual is able to tolerate pressure changes.

Class III aviators (Air Traffic Controllers, UAV operators, etc.) are somewhat of an exception to the above. For these individuals, a history of chronic sinusitis is not necessarily disqualifying. The Manual of the Medical Department, section 15-94: non-disqualifying conditions for Class III aviators lists the following as not being disqualifying: "Chronic sinus disease, unless symptomatic and requiring frequent treatment." In this vein, if a Class III aviator requires sinus surgery to manage their symptoms, this would be considered disqualifying. A waiver would be favorably considered when the patient reports that his/her symptoms have significantly improved such that they feel well and the surgeon states that the endoscopic exam shows a good surgical result and is ready to return the patient to full duty. A chamber run or other demonstration of their ability to tolerate pressure changes is not required.

Civilian applicants with a history of chronic sinusitis are NPQ. A waiver shouldn't be requested unless he or she is free of disease, as indicated by a recent ENT consultation and on some occasions, a sinus CT. 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, regardless of treatment method, should be documented. Low 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'. If the applicant is military, make every attempt to have him or her perform a barofunction run in a low pressure chamber.

PLEASE NOTE, IN THOSE PATIENTS WHO HAVE BEEN TREATED FOR CHRONIC SINUSITIS WITH SURGERY THERE IS NO REQUIREMENT FOR A POST-OPERATIVE CT SCAN.

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. Although there are several very serious potential complications from sinus surgery, the most frequent “complication” is that patients who have had sinus surgery have an approximately 10% chance of requiring additional sinus surgery. This will generally necessitate at least one additional sinus CT scan as part of the subsequent evaluation and these sinus patients can end up with an amazing number of sinus CT scans. There is no need to add to this number with a post-op CT scan if the individual has demonstrated a good functional result with a functional baro run. If the patient successfully completes the run without pain or significant facial pressure, a waiver is generally recommended and usually granted. A common waiver stipulation is that the patient must have an annual ENT consultation with nasal/sinus endoscopy for the first 3 years after surgery (with annual submission) before a request for routine (every 5 years) waiver continuation can be recommended. The following is the usual provision in the waiver endorsement from NAMI: “ENT evaluation with endoscopy 2 or 3 times in the first year and once a year for the next 2 years. After 3 years, if 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:

1. Detailed information on the events that led to the diagnosis
2. Physical examination findings
3. X-ray studies (including CT scan if performed)
4. Details on the treatment provided or operation performed
5. Surgeon's postoperative findings and recommendations
6. Copies of the pre- and post-op notes and dictated operation report
7. Post-op CT report (if performed, please remember that this is not necessary and is not required by NAMI. A post-op CT scan should only be ordered if clinically indicated by the otolaryngologist/surgeon.)
8. Documentation of a successful post-treatment/post-surgical barofunction run in a low pressure chamber or other means (hyperbaric chamber, touch and go landings in the back seat from 5,000' and 10,000' or other means-call NAMI ENT to discuss if necessary).

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, but it is best to consult with the NAMI Otolaryngology Department and NAMI Physical Qualification before doing so. **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.**

TREATMENT: Chronic sinusitis can be relatively asymptomatic, and may only come to the attention of the flight surgeon because the member suffers an episode of sinus barotrauma. On the other hand, there may be persistent or intermittent cough, purulent postnasal drainage, facial pressure, nasal congestion, and low-grade malaise for many months without history of barotraumas before the flight surgeon is consulted. The symptoms may date back to a particularly severe upper respiratory infection, or even to an episode of acute sinusitis. The symptoms may be dismissed as allergic (although sneezing, clear rhinorrhea, and lacrimation are usually absent) and the patient may have been treated for allergies on multiple occasions, usually with little or no relief. By definition, chronic sinusitis is a condition that is present for more than three months, although in reality most patients have a considerably longer history of waxing and waning symptoms that often are mistakenly treated as multiple episodes of acute sinusitis.

Broad spectrum antibiotic therapy with activity against anaerobes is recommended for three weeks or more. Decongestants, mucolytics, nasal saline, and topical steroid sprays are often prescribed, but there is no consensus as to their effectiveness in shortening the course of chronic sinusitis. If antibiotics fail to eliminate the symptoms and the x-rays don't improve, surgery is often the next step. Surgery may be done sooner in aircrew than in others because flying personnel are unable to do their jobs until the disease is eliminated. Again, be judicious in the use of CT scans since these patients can accumulate an amazing number of scans in the course of an evaluation and treatment.

DISCUSSION: Although early surgery may seem a bit extreme, it is quite effective in eliminating disease and returning aircrew to flying. Not all ENT surgeons are comfortable with doing early surgery, especially if the patient is asymptomatic and the CT shows only minimally diseased mucosa, but when the "minimal" disease is in the area of the osteomeatal complex, it can have a profound effect on the sinuses' ability to ventilate and thereby lead to recurrent episodes of sinus barotrauma. The Air Force studied 50 pilots and navigators who were found to have chronic sinusitis during an evaluation following an episode of sinus barotrauma. They all underwent FESS, and 47 returned to flying without further problems. The other three, because of barotrauma in the chamber post-op, needed a minor revision of the original surgery. They eventually returned to flying too. The post-op chamber run is invaluable in proving that the member will do well upon returning to flying. Although it seems obvious that the chamber run is necessary in someone who had suffered barotrauma previously, it is also necessary in post-op patients who never had barotraumas since it is possible for the surgery itself to cause scarring that can compromise sinus ventilation. An uneventful chamber run puts those concerns to rest. Chronic sinusitis can recur in spite of successful treatment in the past, so the flight surgeon should have a relatively low threshold for treatment or for referral back to ENT if typical symptoms (or barotrauma) should resurface. There is one circumstance in which neither a waiver nor a chamber run would be necessary for an aircrew who has undergone FESS. Occasionally this surgery is done to open a maxillary sinus in order to decompress a mucus retention cyst. In such a case there is no chronic sinusitis, and the surgery itself has little chance of leading to barotraumas, but virtually all other patients who undergo FESS will need a waiver.

ICD-9 CODES:

473 Chronic Sinusitis

P22.60 Endoscopic Sinus Surgery

6.3 NASAL/SINUS POLYPS

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AEROMEDICAL CONCERNS: Sinus barotrauma has the potential for in-flight incapacitation and prolonged periods of grounding. Changes in olfactory abilities (one of the most common presenting symptoms in a patient with nasal polyps) result in a decrease in ability to respond in a timely manner to cockpit smoke and fumes during emergencies.

WAIVER: Civilian applicants with nasal polyps present at the time of examination are CD, no waiver. They may be considered for waiver if the polyps were surgically removed more than three years earlier, have required no subsequent surgical treatment, and have not recurred. For military, if surgery is done (see the exception to surgery regarding polypoid middle turbinates in the treatment section below), waivers are considered if the condition is controlled postoperatively and a barofunction run in a low pressure chamber is completed successfully. Inflammatory nasal polyps are similar to other chronic diseases that require lifelong management. Control may require immunotherapy, long term usage of topical nasal steroids and/or cromolyn, or other approved medical management. At the very least, daily sinus irrigations are usually necessary. Some polyp patients have a past history of treatment with systemic steroids. If systemic steroid treatment has been used as primary therapy and/or has been necessary to control polyp recurrences, these patients may be eligible for a waiver if the need for steroids is infrequent (less than once a year) and if there have been no episodes of barotrauma. The occurrence of barotrauma in a patient with nasal polyps indicates a degree of obstruction that is significant and that should probably be managed with surgical intervention to hopefully ensure a more favorable long term result. Use of topical nasal steroids is approved, and is encouraged as needed to control polyp recurrences. As a general rule, if polyps are diagnosed and treated, a post-treatment barofunction run in the chamber will be necessary. If in doubt as to the need for a chamber run, call NAMI ENT.

PLEASE NOTE, IN THOSE PATIENTS WHO HAVE BEEN TREATED FOR CHRONIC SINUSITIS OR NASAL POLYPS WITH SURGERY THERE IS NO REQUIREMENT FOR A POST-OPERATIVE CT SCAN UNLESS IT IS CLINICALLY INDICATED.

INFORMATION REQUIRED:

1. ENT evaluation
2. All surgical reports
3. Any CT Scan Reports
4. Results of post-op barofunction chamber flight(s)

If polyps are currently present, the following additional information is also required:

1. Sinus CT (to look for the sinus disease that often accompanies polyps)

TREATMENT: Resection of nasal polyps is advisable in most cases. If polyps are very small and in no way blocking the middle meatus according to the ENT consultant, and the CT scan shows no significant sinus disease, then a waiver may be recommended even without surgery. Topical nasal steroids may be needed to keep these from enlarging.

DISCUSSION: Nasal polyps have a poorly understood etiology and tend to be recurrent. "Once a polyp former, always a polyp former," is a common statement made by otolaryngologists and these patients must be advised that they need to maintain good nasal "hygiene". At a minimum,

they may need to perform saline nasal irrigations on a daily basis and may very likely need to use daily topical steroids or other forms of treatment for the rest of their lives. Allergic polyps are relatively uncommon considering the large number of allergic rhinitis patients on active duty. Inflammatory nasal polyps may be more common in our population, and are frequently the result of chronic sinusitis. They are usually found in and near the middle meatus, which is why even a small polyp may lead to sinus barotrauma. Polypoid middle turbinates are somewhat more common, and don't cause barotraumas frequently. They often can be reduced dramatically in size by topical nasal steroid sprays, and rarely require surgery. If there is no history of barotrauma or chronic sinusitis, the presence of polypoid turbinates alone is NCD. Sinus mucus retention cysts are often mistakenly called "polyps", and these cysts are NCD. Large maxillary mucous retention cysts may occasionally cause symptoms and may need to be treated surgically. This surgery may be of such a limited nature that a waiver is not required since it has no impact on the other sinuses. Since radiologists often cannot differentiate between a sinus cyst and polyp, it is fair to call them cysts unless there is obvious evidence of mucosal thickening elsewhere, in which case the diagnosis is more likely chronic sinusitis. This is CD and needs treatment as in section 6.2.

ICD-9 CODES:

471 Nasal Polyps

P21.31 Nasal Polypectomy within last 12 months

471.0 Polyp of Nasal Cavity

471.8 Polyp of Sinus Cavity

471.9 Nasal Polyp, site unspecified

6.4 DISORDERS OF THE SALIVARY GLANDS

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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 (and films, if available)
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 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 65% 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 60% of these are the benign mixed type. Another benign tumor, the Warthin's tumor, accounts for 7% 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 33%. 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. The 20-year survival figures are not readily available. Fortunately, salivary gland disorders of any kind are rare in our population, so this section does not go into great detail. When questions arise that aren't answered here, please consult with NAMI ENT.

ICD-9 CODES:

527 Disorders of the Salivary Glands

527.2 Sialoadenitis

527.5 Sialolithiasis

527.9 Disease of Salivary Gland, unspecified

142.9 Malignant neoplasm of Salivary Gland

210.2 Benign Neoplasm of Salivary Gland

6.5 HEARING LOSS/STAPEDECTOMY (OR STAPEDOTOMY)

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

For the purposes of this discussion, whenever the word stapedectomy is used it can be assumed that this also refers to a stapedotomy. Generally speaking, most patients with otosclerosis who undergo surgery are having a stapedotomy performed and not a stapedectomy, which was the original procedure that resulted in long term correction of stapes fixation secondary to otosclerosis. However, the term stapedectomy has remained entrenched and is used in this discussion.

WAIVER: Waivers will be considered depending on the degree of hearing loss, and the member's functional capability. Waivers following surgical treatment of conductive hearing loss may or may not be necessary, depending on the final hearing result and the nature of the surgery. For instance, repair of a traumatic eardrum perforation resulting in full correction and normal hearing would not require a waiver. However, a stapedectomy done to treat otosclerosis is CD and requires a waiver. Designated pilots are grounded for three months following stapedectomy before a waiver would be recommended to SG1. 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. **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.**

Waivers for applicants will be considered on a case-by-case basis.

Other waiver criteria for surgical correction of middle ear disease include:

1. Asymptomatic
2. Passes a current flight physical
3. Prosthesis used for stapedectomy was not a wire loop/gelfoam (a piston prosthesis and tissue seal is preferred versus a blood seal)
4. There are no other restrictions on the types of prostheses that might be used for other forms of ossicular reconstruction.

For all individuals with hearing loss of any variety- conductive, sensorineural, mixed (with or without surgical correction, no waiver will be recommended if there are signs of vestibular dysfunction, spontaneous nystagmus, or if progressive sensorineural hearing loss (SNHL) is present. A patient who has suffered a sudden SNHL will 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). If an individual has suffered severe sudden hearing loss and does not recover function in spite of aggressive treatment, it is unlikely that a waiver will be recommended. This individual is now reliant on one ear and to put that ear at risk in the noisy aviation or shipboard environment is unwise. Bilateral stapedectomy will be considered for a waiver on a case-by-case basis. For anyone undergoing a stapedectomy, the use of a tissue seal to seal the hole around the piston of the prosthesis is recommended over the use of a blood clot to seal the area around the shaft of the prosthesis. Presumably a tissue seal results in a repair that is less likely to suffer a perilymphatic fistula. **Applicants with a history of stapedectomy are CD, no waiver.**

INFORMATION REQUIRED: (Please note the standards for the worse ear listed below. There has been a mistake in previous iterations of this guide. See also ManMed section 15-85.)

1. ENT consult
2. Audiology consult (must include speech reception thresholds and speech discrimination scores)
3. Surgical report (if applicable)
4. Result of functional/cockpit hearing test if there is a SNHL or if a conductive loss persists following treatment/surgery that exceeds standards as listed below:

<u>500</u>	<u>1000</u>	<u>2000</u>	
35	30	50	(worse ear)
35	30	30	(better ear)

Wearers of hearing aids will also require:

1. Cockpit/in-flight hearing evaluation (to demonstrate the ability of the subject to communicate adequately in that noisy environment)
2. 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.

Testing in a multiplace aircraft will suffice for testing of aviators normally assigned to single seat aircraft, provided ambient noise levels are similar. 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 actually be detrimental. **Remember all equipment must be tested for use in the aviation environment to make sure that it is compatible with systems (i.e. will not explode at altitude).** Therefore an in-flight hearing test should be performed both with and without the aid(s), if the individual intends to wear them. In the past, use of the US Air Force in-flight hearing test was advised, but it proved to be difficult to administer. Instead, it would seem 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. Admittedly, there would be no data on how well a normal-hearing individual would do on such a test, but at least you and the member will have an idea of where you stand. 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 and/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 in spite of an audiogram that shows pure tone thresholds to be above standards. A sample submission narrative for a functional hearing test is listed at the end of this portion of the waiver guide.

TREATMENT: Conductive hearing loss may well be improved with amplification (hearing aid) if surgical treatment is not a reasonable alternative, or the individual does not desire to pursue surgery. Benefits from amplification for SNHL are variable, but can be significant. The use of hearing aids in flight, however, 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 as long as they have a properly fitting helmet, wear noise attenuating plugs or Communication Ear Plugs (CEPs), and carefully adjust their radio volumes. Hence the in-flight hearing test gives the most

information if performed both with and without the aid(s). In some aircraft, it is possible to utilize active noise reduction headsets (e.g. those made by Bose and David Clark) which will further enhance speech intelligibility, although at some financial cost. In some aircraft, the noise cancellation headsets cannot be used because some of the cockpit alarms are external to the cockpit communication system and will therefore be cancelled by the noise cancellation technology.

DISCUSSION: Persons with conductive hearing losses usually hear relatively well in noisy backgrounds, due to a phenomenon called the paracusis of Willis, while those with SNHL are more often handicapped when there is significant background noise such as in the cockpit. In some respects, individuals with a sensorineural hearing loss can be considered to be comparable to a computer with limited bandwidth or RAM. Their inner ears have a limited ability to process the sounds that they hear and if there is a great deal of background noise, this noise takes up some of their bandwidth and limits their ability to understand the spoken words in their headset. Therefore, aeromedical decisions should be based on evaluation of hearing on the ground **and** in the cockpit, especially if the loss is severe enough to warrant use of a hearing aid or aids on the ground. Unilateral 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 acoustic neuroma or atypical Meniere's (cochlear hydrops). The guidelines used at NAMI for when to refer a patient for 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
- 1 frequency that is 25 dB worse than the same frequency in the other ear.

These are very tight guidelines and other otolaryngology departments may have different criteria. The important thing is to recognize when asymmetry is present and be sure that it receives appropriate consideration and evaluation if indicated. A stapedectomy may present problems because the operation creates an opening into the labyrinth, and involves the placement of a prosthesis. There is a risk of postoperative perilymph fistula, as well as subsequent shifting of the prosthesis, both of which can result in sudden attacks of vertigo. The 3 month post-op waiting period allows for healing, which reduces the chances that barotrauma (or an over enthusiastic Valsalva maneuver) will cause a perilymph leak.

Patients with sudden SNHL can present a diagnostic challenge. Frequently these patients have difficulty describing what they feel and in addition to saying that their hearing has diminished they use phrases like; "My ear feels plugged," or "My ear feels full." Frequently these patients end up with a course of treatment for Eustachian tube dysfunction when there is nothing wrong with their Eustachian tubes. **Examine patients with a complaint of sudden hearing loss carefully.** Observe their tympanic membranes for movement with Valsalva. Be suspicious of sudden SNHL and have a low threshold for using tuning forks, getting a formal audiogram or getting an ENT consult. The longer it takes for this to be recognized, the less likely it is that intervention will be successful to restore hearing. Current accepted management includes an aggressive steroid taper and also may include transtympanic steroids and/or hyperbaric oxygen. There probably is no role for oral antiviral medications. Some patients will recover most of their hearing with no intervention. But, a significant number of patients with sudden SNHL will not recover and this will have a significant impact on their quality of life and may not be waivable for aviation. The percentage of patients who recover serviceable hearing is improved with

steroid treatment. A waiver may be considered if there is adequate recovery and if stability is demonstrated for at least 30 days, assuming there were no vestibular symptoms.

Below is a brief paragraph that can be used to submit the results of a functional cockpit hearing assessment for aviation personnel who have hearing that is abnormal enough to bring into question their ability to communicate. This test does not need to be elaborate. All that needs to happen is for the individual to be tested in their airframe or usual duty station (the tower for an air traffic controller, for example) and to demonstrate that the individual is able to communicate clearly and without mistakes or repetition. An example of a situation where this would be required is an individual with otosclerosis who does not want to have surgery (or is not quite ready for surgery). He/she may or may not have hearing aids. Typically hearing aids are not used in flight, and probably should not be used in flight. The volume control for the headset works as a hearing aid. Before this individual can be considered for a waiver, we will need the results of a functional cockpit hearing test.

Make adjustments to this statement as necessary for your particular situation.

NARRATIVE STATEMENT FOR FUNCTIONAL COCKPIT 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.)

Signed:

If the test was done in an aircraft that was airborne (which is perhaps a bit more accurate) then change the second line accordingly.

ICD-9 CODES:

389.0 Conductive Hearing Loss/Stapedectomy

389.1 Sensorineural Hearing Loss

387 Otosclerosis

P19.1 Stapedectomy

As an indication of how seriously hearing loss is being considered in individuals attempting to join the Navy, the following Memorandum from the Surgeon General of the Navy is included for your review. It states that individuals with hearing levels that do not meet accession standards (which are slightly worse than the standards for aviation applicants, see below) will not be allowed to enter the Navy. Generally speaking, the first official audiogram is obtained in Boot Camp or at OCS/TBS (or its equivalent). If the individual has a conductive loss that was previously unrecognized and that is amenable to treatment, that treatment may be undertaken if it is reasonable (again, see below). If the hearing loss is a sensorineural loss, then they will be discharged from the Navy at that time. No exceptions!



DEPARTMENT OF THE NAVY
BUREAU OF MEDICINE AND SURGERY
7700 ARLINGTON BOULEVARD
FALLS CHURCH, VA 22042

IN REPLY REFER TO

5100
Ser M00/14AT-0287204
21 Apr 2014

MEMORANDUM FOR COMMANDER, NAVY MEDICINE EAST
COMMANDER, NAVY MEDICINE WEST

Subj: GUIDANCE ON THE DISPOSITION OF ACTIVE DUTY AND RESERVE
ACCESSIONS FAILING TO MEET HEARING REQUIREMENTS

Ref: (a) DoD Instruction 6130.03 of April 28, 2010
(b) NAVMED P-117, Manual of the Medical Department, Article 15-38

Encl: (1) Guidelines on New Accessions and Hearing Loss

1. Enclosure (1) provides Department of the Navy guidance regarding the evaluation and disposition of accessions failing to meet the hearing requirements specified in references (a) and (b).
2. Please ensure your medical treatment facilities responsible for processing enlisted and officer accessions are aware and comply with the guidelines.
3. My point of contact for this matter is CDR Joel Bealer, MSC, USN, at 703-681-5392 or via e-mail at joel.bealer@med.navy.mil.

A handwritten signature in black ink, appearing to read "M. L. Nathan", is positioned above the printed name.

M. L. NATHAN

Guidelines on New Accessions and Hearing Loss

Individuals seeking to serve in the Navy or Marine Corps are required to meet minimal health standards as specified in DODI 6130.03. Occasionally, the services may elect to waive certain conditions in order to meet manpower requirements. Hearing loss, however, is not a condition that may be considered for waiver. Military Entrance Processing Stations are effective in screening candidates. Occasionally, some individuals report to training commands before the condition is identified. The purpose of this document is to provide guidance on the evaluation and disposition of new Navy and Marine Corps accessions who fail to meet hearing standards.

1. Identification

a. All active duty and reserve personnel in the Navy and Marine Corps are required to obtain a reference audiogram at their initial point of training. Reference audiogram results are documented on DD Form 2215, placed in the medical record, and serve as the baseline to compare future hearing performance.

b. The initial reference audiogram should occur as early in the training cycle as possible to facilitate the evaluation and disposition process.

c. Minimal hearing performance standards as specified in DODI 6130.03 and the Manual of the Medical Department are:

(1) Pure tone thresholds at 500, 1000, and 2000 cycles per second for each ear of not more than 30 decibels (dB) on the average with no individual level greater than 35 dB at those frequencies.

(2) Pure tone level not more than 45 dB at 3000 cycles per second or 55 dB at 4000 cycles per second for each ear.

(3) There is no standard for 6000 cycles per second.

(4) Individuals failing to meet minimal hearing performance standards on their initial DD Form 2215 must be referred to an audiologist for full diagnostic evaluation.

2. Evaluation

a. Referrals for full diagnostic evaluations must be made to an audiologist with current privileges and license to practice audiology. Department of Defense (DoD)/Veterans Affairs providers follow and are most familiar with DoD requirements.

b. A full diagnostic evaluation in accordance with American Speech-Language-Hearing Association or American Academy of Audiology clinical practice guidelines must be performed to validate screening test results and rule out mitigating factors such as medical or functional issues that may adversely affect the results.

Enclosure (1)

3. Disposition

a. Individuals who meet hearing standards following a full diagnostic evaluation will proceed with training as directed.

(1) Any special testing requirements must be noted in both the physical and electronic health record.

(2) Examples of special testing requirements may include:

(a) Masking (Identified on initial screening exam)

(b) Collapsing ear canals

(c) Test anxiety

(d) Claustrophobia

b. Individuals failing to meet hearing standards following a full diagnostic evaluation will be released from military service.

(1) For accessions who fail to meet the standard due to a treatable medical condition, a reasonable effort will be made to resolve the condition prior to a final decision to retain or release.

(2) "Reasonable effort" will be determined at the discretion of the clinical facility directly supporting the relevant training command based on:

(a) Facility limitations

(b) Availability of specialists

4. References

a. DoD Instruction 6130.03 of April 28, 2010

b. Manual of the Medical Department, Chapter 15, Article 15-38

6.6 MENIERE'S DISEASE/VERTIGO

Last Revised: Feb 2015

Last Reviewed: Feb 2015

AEROMEDICAL CONCERNS: Incapacitating vertigo may occur suddenly in flight, which is obviously a potentially catastrophic occurrence. Attacks may be precipitated by stress and fatigue. A fluctuating hearing loss usually accompanies the labyrinthine symptoms in a patient with Meniere's disease, and may progress over a period of time to a significant and permanent impairment. Other forms of vertigo such as Benign Positional Vertigo (BPV), Vestibular Neuritis (or Neuronitis), or Labyrinthitis may also present suddenly and can be incapacitating as well.

WAIVER: Due to the unpredictable and sudden nature of the vertigo episodes in many patients with Meniere's disease and the potential for the condition to become bilateral, waivers are very rarely granted for a diagnosis of Meniere's disease. Other causes of vertigo may be waiverable, hence the importance of gathering as much diagnostic information as possible. Waivers for applicants will be considered on a case-by-case basis.

INFORMATION REQUIRED:

1. ENT evaluation
2. Audiology evaluation, including any vestibular function testing that has occurred (such as rotary chair testing, video nystagmography [VNG], vestibular evoked myogenic potentials [VEMP], electrocochleography [Ecog], dynamic posturography or dynamic visual acuity)
3. Results of vestibular rehabilitation therapy (if performed).
4. Results of follow up vestibular function testing and demonstration of compensation as indicated by dynamic posturography and dynamic visual acuity testing (if applicable).

Not all vertigo is Meniere's, and causes which are self-limiting and non-recurrent may well be waiverable once symptoms have abated. A neurology consultation can be of great help in making or ruling out specific diagnoses, and should be included with waiver submission if performed. Some vestibular injuries can leave a permanent deficit of a particular part of the vestibular system and may initially be incapacitating, but with appropriate vestibular rehabilitation therapy and enough time, many individuals can compensate and achieve a normal degree of function.

TREATMENT: Treatment with low sodium diet, thiazide diuretics, stress management, and vestibular sedatives such as diazepam may diminish symptoms, but the underlying condition persists and is very unlikely to be waiverable, especially if vestibular sedatives are required for the patient to remain symptom free. Surgery (labyrinthectomy, endolymphatic sac drainage or decompression, and vestibular nerve section) is of variable effectiveness. Surgery may diminish or even abolish some of the more severe symptoms, but the patient may be left with some vestibular dysfunction so waiver consideration remains highly individualized. Transtympanic middle-ear gentamicin therapy via microcatheter or injection is being done at many centers, but the relief of vertigo is variable, so this treatment has not yet been routinely considered for waiver and will require one-on-one communication with the NAMI ENT Department. At present, very few aviation personnel have received waivers for Meniere's Disease. 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 waived to SG3. They will generally need to have had ablative therapy (transtympanic gentamicin or surgery) and will need to demonstrate normal function on dynamic posturography and dynamic visual acuity. A waiver to SG1 is extremely

unlikely. Other aviation personnel with Meniere's disease may receive a waiver if they have demonstrated long term stability of symptoms using appropriate (non-sedating) medical management or with ablative therapy. This will generally require a period of at least 6 months with no symptoms and they will also need to demonstrate normal function on dynamic posturography and dynamic visual acuity.

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.

Vestibular nerve section is not an operation to be taken lightly, and there is no guarantee that a waiver will be granted if surgery is done.

Treatment of patients with BPV is best accomplished with a canalith repositioning maneuver (such as the Epley Maneuver), although symptoms generally do resolve spontaneously, but take a lot longer to go away. Aviation personnel with BPV can be considered for a waiver when their symptoms have been totally resolved for at least 4 weeks. Advanced vestibular testing and/or therapy is not usually employed, nor is it required, for patients with "straight forward" BPV.

A diagnosis of labyrinthitis requires the presence of both hearing loss and vertigo. Remember, the labyrinth consists of both the cochlear and the vestibular systems and the labyrinthine fluid communicates throughout the entire labyrinth. Inflammation in one part of the labyrinth will affect all parts, at least in theory. If a patient presents with both vertigo and a sensorineural hearing loss, this represents somewhat of an emergency and in most otolaryngology clinics, this individual would be treated with an aggressive steroid taper (and/or transtympanic steroids). It would behoove the flight surgeon evaluating such a patient to communicate with their local otolaryngologist. The degree of recovery of hearing and vestibular function will dictate the potential for a waiver. Vestibular rehabilitation therapy has a very real role in the recovery of those patients with a protracted course of vertigo. Some patients recover quickly and will not need it. In those patients with an extended period of significant vertiginous symptoms, a demonstration of compensation and recovery will be necessary. At a minimum this will require normal results of dynamic posturography and dynamic visual acuity.

The evaluation of a patient with an extended course of vertigo can be a fairly extensive process and will often involve other specialties, such as neurology as mentioned above. Testing that may be performed includes video nystagmography (which includes caloric testing), rotary chair testing, electrocochleography, vestibular evoked myogenic potentials as well as dynamic posturography and dynamic visual acuity. Not every test is indicated in each patient and the tests obtained will sometimes depend on availability. Please contact NAMI ENT to discuss the more complicated cases in order to make sure that requirements are met up front.

DISCUSSION: The cause of symptoms in Meniere's Disease is felt to be due to an increase in pressure of the endolymph within the labyrinth. The reason for this increase is not known, although multiple theories abound. The average age of onset is in the forties, with a range between 20 and 60, which includes virtually all military aviation personnel. The disease is progressive in approximately 10% of patients, with a relentless worsening of the vertigo episodes and hearing loss. Medical treatment is often of no help in these individuals, and surgery or ablative therapy is often the only option. The other 90% can expect some symptomatic relief from medical therapy, and on occasion may show spontaneous long-term remission, although the underlying pathology is not actually altered by medical therapy. One should therefore be reluctant to say that a case of Meniere's is cured or "burned out", even in

the face of a prolonged symptom-free interval. Even when Meniere's has been successfully treated, there is approximately a 20% incidence of the disease later striking the other ear, hence the reluctance to waiver to SG1 no matter what the result of treatment has been.

In a population of young healthy aviation personnel, the most common form of vertigo is probably vestibular neuritis (or neuronitis). These patients have no aural symptoms (fullness, hearing loss, tinnitus), an important distinguishing feature. Their symptoms frequently follow a viral illness, so the etiology is presumed to be viral. Symptoms can be every bit as disabling as other forms of vertigo and can drag on for days or weeks. Sometimes these patients (or other vertigo patients as well) are so disabled that they need vestibular suppressants such as diazepam or meclizine. However, the use of vestibular suppressants can delay central compensation, so advise patients to use them sparingly, if possible.

Other vertigo-producing labyrinthine disorders, such as vestibular neuronitis and Benign Paroxysmal Positional Vertigo (BPPV) are not nearly as likely as Meniere's disease to be recurrent, and recovery is frequently complete, so a waiver for these conditions is more likely. If an individual has a viral illness followed by a brief (1-3 day) period of vertigo or disequilibrium followed by complete recovery of function and a completely normal neurologic evaluation with no evidence of vestibular dysfunction, then this individual can be returned to flight duties without need for a waiver if they remain completely free of symptoms for at least 4 weeks. Do not be in too big of a hurry to return these patients to flight duty. More protracted cases of vertigo following viral illnesses should be more fully evaluated, including advanced vestibular testing as indicated above and if a vestibular deficit is identified, they will need to demonstrate complete central compensation as indicated by dynamic posturography and dynamic visual acuity testing. A precise diagnosis is not always possible in cases of vertigo, but if a waiver is sought, the more specific a diagnosis one has, the easier it is to determine waiverability.

ICD-9 CODES:

386.0 Meniere's Disease/Vertigo

780.48 Vertigo, not otherwise specified

386.12 Vestibular neuronitis

386.11 Benign paroxysmal positional vertigo

6.7 CHOLESTEOTOMA

Last Revised: Jul 14

Last Reviewed: Feb 2015

AEROMEDICAL CONCERNS: This is a concern in aviation personnel due to hearing loss and risk of recurrence, with the possibility of labyrinthine involvement, and even intracranial extension in the more advanced cases.

WAIVER: A history of cholesteatoma is CD. It must be surgically removed before a waiver can be considered. Since the recurrence rate is approximately 35%, initial waivers are for one year only; an ENT consultation must be submitted before the waiver will be continued after that first year. Persistence of cholesteatoma would be cause for waiver withdrawal, pending the outcome of further surgery. Waivers for applicants will be considered on a case-by-case basis.

INFORMATION REQUIRED:

1. Current ENT evaluation
2. Current audiology evaluation
3. Operative report

Since cholesteatoma surgery usually involves the mastoid, there is risk to hearing, balance, and facial nerve function. Any impairment in these areas should be addressed in the waiver request. Post-op 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, it is important that every attempt is made to assure that there is no residual disease. Recurrent or continuous drainage following surgery may indicate the presence of persistent cholesteatoma, and is not waiverable until adequately treated. Occasionally, the surgeon will plan (or advise) a re-exploration of the ear at a specific time in the future, usually in 6-12 months. Every attempt should be made to have this done, as the surgeon most likely feels that the chance of there being persistent disease is fairly good. **If re-exploration uncovers residual disease, the waiver process must be repeated.** As a rule, each time residual cholesteatoma is found, the surgeon will recommend re-exploration at yet a later date until no further cholesteatoma is found. There is no policy stating the maximum number of repeat surgeries that are allowed before a waiver is permanently revoked, but **Code 53HN and ENT need to be advised each time a surgery is performed for recurrent cholesteatoma.**

ICD-9 CODES:

385.3 Cholesteatoma

P18.29 Excision of cholesteatoma

6.8 VESTIBULAR SCHWANNOMA/ACOUSTIC NEUROMA

Last Revised: Jul 14

Last Reviewed: Feb 2015

AEROMEDICAL CONCERNS: Progressive hearing loss, tinnitus, trigeminal parasthesia, imbalance, and occasionally true vertigo have all been attributed to acoustic neuromas. Following surgery, total hearing loss, labyrinthine dysfunction, and facial nerve weakness or paralysis can be present on the side of the procedure. 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: One year following successful excision of a unilateral tumor, a waiver may be considered if there are no serious sequelae. Vertigo, ataxia, and facial paralysis are examples of unacceptable complications. Unilateral hearing loss, even total loss, 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 any and 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 have a peak incidence in individuals approximately 50 years of age. They 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. 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 thereby impact cranial nerves in that region, such as the trigeminal nerve, resulting in facial

parasthesias/numbness. Other neurologic dysfunction is possible, so a thorough neurologic evaluation is critical. In patients with neurofibromatosis, 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 and an asymmetric hearing loss may be the first sign of a problem, vestibular schwannomas are likely to be found before they have gotten very large and before there is a significant effect on the individual's ability to function. Many of these individuals will be unaware of their asymmetric hearing and will be otherwise completely asymptomatic. In these cases, it may be completely appropriate for the patient to elect no treatment. In these cases, they will usually be followed with serial MRIs at 6 to 12 month intervals. As long as there is no evidence of clinically significant vestibular dysfunction, these individuals may be eligible for a waiver to Service Group 3 after an initial 6 month period of observation. Generally speaking, if the tumor increases in size, if there is further decrement in the hearing on the affected side, if facial weakness or paralysis develops or if vertiginous symptoms develop, the tumor is either removed surgically or treated with stereotactically delivered radiation therapy. Roughly 50% of these lesions will not progress any further. 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 is not recommending a specific treatment. Regardless of treatment modality, if the treatment is effective and if the patient demonstrates a good recovery with good vestibular function, no significant complications and adequate hearing, a waiver is possible.

ICD-9 CODE:

225.1 Acoustic Neuroma

6.9 OVAL/ROUND WINDOW FISTULA

Last Revised: Jul 14

Last Reviewed: Feb 2015

AEROMEDICAL CONCERNS: A perilymph fistula (PLF) can result in either the sudden onset of sensorineural hearing loss or a rapidly progressive and/or fluctuating loss, with or without episodic vertigo. It may mimic Meniere's disease.

WAIVER: A history of fistula is CD, no waiver, for all applicants. For a unilateral healed fistula in Designated Naval Aviator, ground for six months, SG3 for six months, then SG1. For NFO's and all Class II or III personnel, ground for six months, submit a waiver request. 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 and 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 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 in either the RW or the OW allows some perilymphatic fluid to escape and then 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-9 CODE:

386.4 Oval/Round Window Fistula

6.10 SURGICAL PROCEDURES THAT DO NOT REQUIRE A WAIVER

Last Revised: Jul 14

Last Reviewed: Feb 2015

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 at 850-452-3256/3251 (commercial) or 459-3256/3251 (DSN).

NASAL SURGERY

If any of the following procedures are done in conjunction with sinus surgery (endoscopic or otherwise), then the patient will require a waiver.

Septoplasty: Cautery or submucous resection of the inferior turbinates (or any other means of reducing the size of the inferior turbinates, such as coblation, cryotherapy, radiofrequency ablation, etc.).

Septorhinoplasty: For all these procedures there will be a degree of tenderness involved and it seems as though the nose becomes a target for elbows and other random blows once it has undergone surgery. When the tenderness has resolved so that the nose can be manipulated without discomfort (this can take up to 4-6 weeks for some folks) the patient can return to flight duties. There can also be a risk of bleeding that can last up to three weeks or so. For this reason, putting anyone back in the cockpit any sooner than three weeks following one of these operations is not recommended.

EAR SURGERY

Otoplasty: This procedure will frequently involve placing sutures to hold the ear 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, call NAMI ENT at the above number.

THROAT SURGERY

Tonsillectomy

Adenoidectomy

Uvulopalatopharyngoplasty (UPPP) for primary snoring. [If the patient has obstructive sleep apnea and undergoes a UPPP, 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 (Restore© 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 as long as 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 as long as there is no evidence of 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 as long as 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 fairly 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-9 CODES:

P21.89 Repair and plastic operations on the nose, other

P21.88 Septoplasty, other

P21.87 Rhinoplasty, other

P18.79 Plastic repair of external ear, other
P19.5 Tympanoplasty, other
P28.2 Tonsillectomy without adenoidectomy
P28.3 Tonsillectomy with adenoidectomy
P28.6 Adenoidectomy without tonsillectomy
P27.69 Plastic repair of palate, other
P26.29 Excision of salivary gland lesion, other
P29.2 Excision of branchial cleft cyst or vestige
P06.7 Excision of thyroglossal duct of tract
802.0 Closed fracture of nasal bones
802.4 Closed fracture of molar and maxillary bones
475 Peritonsillar abscess