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

BUMEDINST 5450.245
BUMED-N1
27 Jun 2025

BUMED INSTRUCTION 5450.245

From: Chief, Bureau of Medicine and Surgery

Subj: MISSION, FUNCTIONS, AND TASKS OF NAVAL SUBMARINE MEDICAL RESEARCH LABORATORY NEW LONDON CONNECTICUT

Ref: (a) BUMEDINST 5450.174B

Encl: (1) Functions and Tasks of Naval Submarine Medical Research Laboratory, New London

1. Purpose. To define the mission, functions, and tasks of Naval Submarine Medical Research Laboratory, New London, Connecticut (NAVSUBMEDRSCHLAB NEW LONDON CT) as prescribed by mission defined in reference (a).

2. Cancellation. NAVMEDRSCHCENINST 5450.3A.

3. Mission. To maximize warfighter performance through optimized medical readiness tailored to operational requirements; enhance the readiness of the medical force to sustain expeditionary medical capability; and train and develop the Navy Medicine force.

4. Command Hierarchy. NAVSUBMEDRSCHLAB NEW LONDON CT is a shore activity in an active status under a commanding officer.

a. Command

Commanding Officer
Naval Submarine Medical Research Laboratory
PO Box 900
Groton, Connecticut 06349-5900

(SNDL: FH5) (UIC: 66596)
(PLA: NAVSUBMEDRSCHLAB NEW LONDON CT)
(Activity Code: 3850-600)

b. Echelon

(1) Echelon 1: Chief of Naval Operations

(2) Echelon 2: Chief, Bureau of Medicine and Surgery (BUMED)

(3) Echelon 3: Commander, Naval Medical Forces Pacific

(4) Echelon 4: Commanding Officer, Naval Medical Research Command

(5) Echelon 5: Commanding Officer, Naval Submarine Medical Research Laboratory

c. Immediate Superior in Command. None.

d. Area Coordination

(1) Commanding Officer, NAVSUBMEDRSCHLAB NEW LONDON CT is subject to area coordination of Commanding Officer, Naval Submarine Base New London.

(2) Commanding Officer. NAVSUBMEDRSCHLAB NEW LONDON CT is subject to the regional coordination of Commander, Navy Region Mid-Atlantic.

e. OPNAV Resource Sponsor

(1) OPNAV N13, and OPNAV N4L4

(2) Activity-level aggregation of estimated manpower cost

(a) Military Personnel Navy: 2.84 million dollars

(b) Civilian Personnel: 6.3 million dollars

5. Supporting Relationships

a. Additional Duty Relationship with Naval Undersea Medical Institute (NUMI). Receives support from an Industrial Hygiene Officer: NAVSUBMEDRSCHLAB NEW LONDON CT executes the U.S. Navy's Submarine Atmosphere Health Assessment Program (SAHAP), a BUMED Program of Record with an annual budget of 450 thousand dollars. This program catalogs the central atmospheric monitoring logs of the Submarine Force and develops the latest technology to assess the constituents of submarine atmospheres and the potential effects on submariner health. This operationally relevant health program requires the capabilities of a military industrial hygienist to fulfills its mission.

b. Memorandum of Agreement (MOA)

(1) MOA between Chief, BUMED and Commander, Submarine Forces (COMSUBFOR NORFOLK) for Studies of Submariner Health and Performance – Physical and Mental. This MOA applies to NAVSUBMEDRSCHLAB NEW LONDON CT’s efforts specific to the Submarine Force. Such efforts include studies of the physical and mental

aspects of submariner health and performance, which are COMSUBFOR NORFOLK-funded or sponsored via reimbursable research. This MOA specifies the functions, responsibilities, and actions which NAVSUMEDRSCHLAB and COMSUBFOR NORFOLK must establish and accomplish to execute specific taskings.

(a) NAVSUBMEDRSCHLAB NEW LONDON CT serves as COMSUBFOR NORFOLK's primary laboratory for addressing the physical and mental aspects of submariner health and performance aligned with Undersea Warfare Science and Technology Objectives or other needs conveyed by COMSUBFOR NORFOLK. Provides support for medical, physiological, and psychological research, independent reviews and analyses of submariner problems and human systems-related issues, and development and demonstration of innovative concepts or devices.

(b) NAVSUBMEDRSCHLAB NEW LONDON CT provides plans, presentations, and research reports to COMSUBFOR NORFOLK (via the COMSUBFOR NORFOLK-designated POC and copying other interested COMSUBFOR NORFOLK parties) for all COMSUBFOR NORFOLK-related research projects, as well as reports on relevant non-COMSUBFOR NORFOLK-related research, as authorized by research sponsors.

(2) MOA between Navy Medicine Readiness and Training Command New England (NAVMEDREADTRNCMD NEW ENGLAND NEWPORT RI), on behalf of Navy Medicine Readiness and Training Unit Groton (NAVMEDREADTRNUNIT GROTON CT), and NAVSUBMEDRSCHLAB NEW LONDON CT. This agreement defines the responsibilities of NAVMEDREADTRNUNIT GROTON CT and NAVSUMEDRSCHLAB in administration of the Civilian Drug-Free Workplace Program.

(a) NAVMEDREADTRNCMD NEW ENGLAND NEWPORT RI and NAVMEDREAD-TRNUNIT GROTON CT Civilian Drug-Free Workplace program manager (PM) is authorized to schedule random urinalysis collections for test designated position (TDP) NAVSUBMEDRSCHLAB NEW LONDON CT employees. NAVMEDREADTRNUNIT GROTON CT provides and maintains facilities with the necessary office equipment, services, and supplies for the operation of the Civilian Drug-Free Workplace Program.

(b) NAVSUBMEDRSCHLAB NEW LONDON CT will manage the Civilian Drug-Free Workplace Program and ensure all managers and supervisors carry out their responsibilities for effective program management within the framework of Federal and Department of the Navy policies and procedures. Authority is delegated to the NAVMEDREADTRNCMD NEW ENGLAND NEWPORT RI and NAVMEDREAD-TRNUNIT GROTON CT Civilian Drug-Free Workplace PM to prepare and forward all required reports. NAVSUBMEDRSCHLAB NEW LONDON CT will ensure TDP employees undergo drug testing on a frequency determined by the drug program coordinator (DPC), as required by the Department of the Navy Drug-Free

Workplace Program and any required delegation of authority will be made by letter, notice, or instruction with a copy provided to the NAVMEDREADTRNCMD NEW ENGLAND NEWPORT RI and NAVMEDREADTRNUNIT GROTON CT Civilian Drug-Free Workplace PM.

(3) MOA between Naval Health Clinic New England, on behalf of Naval Branch Health Clinic Groton, and NAVSUBMEDRSCHLAB NEW LONDON CT. BRHEALTHCLINC GROTON CT's Biomedical Repair Division supports the duties required for maintenance of agreed upon biomedical equipment and automated external defibrillators housed at NAVSUBMEDRSCHLAB NEW LONDON CT.

(a) BRHEALTHCLINIC GROTON CT provides the biomedical equipment preventive maintenance services on select equipment housed at NAVSUBMEDRSCHLAB NEW LONDON CT's buildings on Naval Submarine Base New London defined in this MOA, without reimbursement from NAVSUBMEDRSCHLAB NEW LONDON CT, and in a timely manner.

(b) NAVSUBMEDRSCHLAB NEW LONDON CT assigns a custodian for their equipment and ensures their contact information is provided to BRHEALTHCLINIC GROTON CT Biomedical Repair Division personnel and provides the BRHEALTHCLINIC GROTON CT Biomedical Repair Division with accurate inventories of agreed upon equipment.

6. Obligations to External Entities. None.

7. Action. NAVSUBMEDRSCHLAB NEW LONDON CT will execute the assigned mission, functions, and tasks. NAVSUBMEDRSCHLAB NEW LONDON CT will update this directive every 8 years.

8. Records Management

a. Records created as a result of this instruction, regardless of format or media, must be maintained and dispositioned per the records disposition schedules located on the DON Assistant for Administration, Directives and Records Management Division portal page at https://portal.secnav.navy.mil/orgs/DUSNM/DONAA/DRM/Records-and-Information-Management/Approved%20Record%20Schedules/Forms/AllItems.aspx.

b. For questions concerning the management of records related to this instruction or the records disposition schedules, please contact the local records manager or the OPNAV Records Management Program (DNS-16).

9. Review and Effective Date. Per OPNAVINST 5215.17A, BUMED-N12 will review this instruction annually around the anniversary of the issuance date to ensure applicability, currency, and consistency with Federal, Department of Defense, Secretary of the Navy, and Navy policy and statutory authority using OPNAV 5215/40, Review of Instruction. This instruction will be in

effect for 10 years, unless revised or cancelled in the interim and will be reissued by the 10-year anniversary date if it is still required, unless it meets one of the exceptions in OPNAVINST 5215.17A, paragraph 9. Otherwise, if the instruction is no longer required, it will be processed for cancellation as soon as the need for cancellation is known following guidance in OPNAV Manual 5215.1 of May 2016.

D. K. VIA

Releasability and distribution:
This instruction is cleared for public release and is available electronically only via the Navy Medicine Web site, https://www.med.navy.mil/Directives/

FUNCTIONS AND TASKS OF NAVAL SUBMARINE MEDICAL RESEARCH LABORATORY

1. Functions. Provides basic and applied research competence and delivers evidence-based solutions in the areas of undersea warfighter health, protection, and performance directly supporting Naval and Joint military requirements and operational needs.

a. Warfighter Health and Protection Research. Supports the operational readiness of submariners, divers, and other warfighters by conducting research focused on optimizing health and performance and reducing attrition due to medical, psychological, and physical conditions. Serves as the Navy's subject matter experts (SME) on submarine escape and rescue.

(1) Monitors and reports on submarine atmospheric constituents. Conducts research, test, and evaluation activities on new technologies to monitor submarine atmospheric contaminants.

(2) Conducts research and provides consultation on complex factors associated with submarine survival, escape, and rescue in cases of a disabled submarine (DISSUB), including: submerged survival times and survival equipment evaluation, escape (e.g., saturation decompression drop-out modeling, escape suit testing, medical hazards of escape, etc.), rescue procedures and equipment testing (e.g., test and evaluation of closed-circuit O2 rebreathers for accelerated decompression of DISSUB survivors), and science-based recommendations to enhance usability and accuracy of the Guard Book (the manual that provides guidance to survivors of a submarine casualty).

(3) Tests and evaluates head-worn hearing protection devices (HPDs) for their impact on hazardous noise exposure, communication, sound localization, and attenuation of impulse (blast) noise. Executes large-scale shore and afloat hearing conservation field studies.

(4) Leverages information from "big data" platforms to identify environmental or occupational exposure risks that correlate with negative health outcomes, premature separation from military service, and medical evacuations to improve the health and warfighting capability of the undersea warfare community.

b. Warfighter Performance Research. Conducts research on the psychological screening and assessment of submariners, human factors, gender integration in submarines and other unique environments, optimizing the safety and performance of Navy divers, and the bio-effects of underwater sounds and blasts. Provides subject matter expertise on underwater force protection.

(1) Performs psychological screening of prospective submariners and conducts research on improving the psychological suitability of prospective submariners, predicting and reducing the number of unplanned losses (unexpected separation from service) from operational units, and exploring and enhancing individual and team resilience.

(2) Translates research findings into evidence-based guidance for diver exposure to underwater sound and blast. Research areas include physiological mechanisms for underwater sound perception; diver protection from underwater sound and blast; use and effectiveness of underwater sound in non-lethal diver deterrence systems; creation of physical and computational models of physiological response to underwater sound; and development of tools and guidance for underwater hearing conservation. Conducts research and provides guidance to the Fleet on how underwater sound and blast from sources such as sonar, tools and equipment, and impulse sound affect human divers.

(3) Measures human performance in real-time and under various conditions without the interference of intrusive technology; assesses real-time team dynamics during virtually-created bridge operations; and implement studies on the effects of the submarine environment and lifestyle on submariner performance and physiology, including assessing submariners' sleep needs and evaluating countermeasures for fatigue and circadian rhythm misalignment.

(4) Combines knowledge of human capabilities and limitations with systems development to develop and improve submarine systems, enhance submariner performance, and increase readiness. Also, the program seeks to predict and mitigate degradations in performance through non-invasive monitoring of a variety of novel physiological measures, including face and eye tracking, heart rate, and electrodermal activity.

c. Diving and Hyperbaric Research Support. Performs novel research in diving, hyperbaric, and hypobaric environments utilizing:

(1) Equipment considered Authorized for Navy Use (ANU).

(2) Non-standard equipment currently designated Non-ANU.

(3) New, non-standard procedures, with the goal of increasing undersea medical research capabilities and improving the safety of diving operations. This research is conducted using the Genesis Hypo or Hyperbaric chamber complex, an indoor immersion test pool, and a command dive boat for open water diving operations.

2. Tasks

a. SAHAP

(1) Provides SME support and manages the Navy Medicine SAHAP Program.

(2) Monitors submarine atmosphere for hazardous constituents and maintains a historical database of submarine atmospheric data.

(3) Develops methods to optimize sampling methods, logistics, analysis, and Fleet reporting. Serves on the BUMED Submarine Environmental Advisory Board, providing SME support for sampling of environmental constituents in enclosed spaces, including providing recommendations for safe habitability and occupational thresholds.

b. Regional Hearing Conservation Program

(1) Provides SME support and consultation on hearing conservation, psychoacoustics, audiology, and hearing protection to the Navy and Marine Corps line communities.

(2) Provides support to audiologists, otolaryngologists, allied health professionals, audiometric technicians, and consultants across the DoD and Defense Health Agency.

c. Undersea Health Epidemiology Research Program

(1) Maintains a unique epidemiologic database that cross-references multiple Navy data sources and aids in characterizing the health effects of the submarine and diving environments to support operational planning and risk mitigation.

(2) Maintains a protected database of submarine medical evacuations to identify trends and inform prevention and mitigation strategies.

d. Submariner Psychological Fitness Program

(1) In support of the Submarine Force, manages and administers the psychological screening assessment and developmental tool known as the Submarine Environmental Fit (SUBFIT) focused on improving the psychological suitability of prospective submariners, predicting and reducing the number of unplanned losses from operational units, and enhancing individual and team resilience.

(2) Identifies psychological factors that can predict the success of officers and enlisted Service members enrolled at the Naval Nuclear Power Training Command.

a. Disabled Submarine Support. Maintains military and civilian expertise in submarine survival, escape, and rescue to provide NAVSEA 00C, CSF, and the international community with evidence-based recommendations in the case of a DISSUB incident.

b. Local Research Support. Collaborates with fellow Submarine Base New London tenant commands, including NAVMEDREADTRNUNIT GROTON CT, NUMI, Naval Submarine School, the Submarine Operating Forces (Squadrons), the Submarine Learning Center, and the Undersea Warfare Development Command on research in support of undersea warfare objectives and priorities.