Fact Sheet

Naval Medical Research Unit San Antonio
NAMRU-SA

The NAMRU-SA mission is to conduct medical, dental, and directed energy biomedical research, that focuses on ways to enhance the health, safety, performance, and operational readiness of Navy and Marine Corps personnel and addresses their emergent medical and dental problems in routine and combat operations.

Directed Energy Biomedical Research Department

The Bioeffects Program studies the effects of directed energy (non-ionizing electromagnetic (EM) radiation) upon living systems. EM sources are used extensively in the Navy in diverse applications. These include communications, jamming, target designation, surveillance and medical therapies, and emit radiation throughout the spectrum including radio-frequency, millimeter wave, and optical frequencies. This research ensures that exposure standards are adequate to protect the health and safety of all personnel operating in and around these sources. Research also identifies and characterizes new directed-energy threats in the operational environment.

The Modeling and Simulation Program conducts research to generate and test computational models representing the physical interaction of all forms of electromagnetic energy with biological systems ranging from single cells to complex organisms. These models are used to estimate and ensure EM source standards compliance, and to understand the effects of new EM sources on biological, biomedical or novel materials to include nanomaterials.

Combat Casualty Care Research Department

The Resuscitative Medicine Program (RMP) conducts RDT&E focused on the protection, resuscitation and stabilization of combat casualties at Echelon 1 and 2 points of care in the combat theater. Combat injuries are often sustained in fluid, austere environments, with anticipated delays in transition to Echelon 3 and higher definitive care. RMP strives to improve current militarily relevant models of combat injury, in order to reflect battlefield conditions and injury types, resulting in better methods for diagnosis and treatment.

The Trauma Medicine Program (TMP), in synergy with RMP, conducts primary and pre-clinical RDT&E for the development and optimization of drug products and advanced therapies for the treatment of hemorrhagic shock (blood replacement products and blood component therapies) as well as trauma-associated conditions, like multi-biologic infection sepsis, and complex injuries, which commonly occur on the battlefield. TMP harnesses pharmaceutical, biotechnology-based and medical device-based technologies to develop cutting edge solutions for trauma related pathologies.

The Expeditionary Medicine Program (EMP) works with U.S. Marine Corps and Navy operational commands to identify and effectively mitigate operational stressors and improve survivability through the evaluation of products and agents that deliver capabilities to meet rapidly evolving Expeditionary Warfare requirements.

Dental and Biomedical Research Department

The Applied Clinical Science Program emphasis is on the development of new restorative dental materials, as well as the epidemiology, diagnosis, treatment, and prevention of oral/dental diseases that affect the health and readiness of Sailors and Marines.

The Applied Laboratory Science Program conducts research in dental and the allied health sciences with an emphasis on microbiology, immunology, etiology, diagnosis, and prevention of medical and dental diseases and develops diagnostic tools to detect infectious diseases from saliva samples.

The Dental Materials and Equipment Program conducts research, development, test and evaluation of systems and technologies to minimize the environmental impact and occupational hazards of Navy Dentistry. This includes mobile dental delivery systems for use by the Fleet Marine Force and dental treatment byproducts in deployed environments.

Veterinary Sciences Department

The Veterinary Science Department works in parallel with staff researchers to provide services, facilities, and technologies to support the diverse animal-based research requirements. The veterinary staff performs comprehensive oversight to ensure the ethical use of laboratory animal models under controlled and healthful conditions. The staff also manages the preventive medicine programs and provides preoperative and postoperative care for the research animal models. Experienced scientific and technical personnel offer consultation and assistance in the design of research protocols and in the selection of appropriate models to meet the research objectives of investigators.

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