

U.S. Naval Medical Research Unit No. 3

The Naval Medical Research Unit No. 3 (NAMRU-3) is based in Cairo, Egypt. Its mission is to conduct infectious disease research, including the evaluation of vaccines, therapeutic agents, diagnostic assays and vector control measures, and to carry out public health activities aimed toward improved disease surveillance and outbreak response assistance. Our command plays a key role in enhancing the health, safety and readiness of U.S. DoD personnel assigned to Africa, the Middle East, and Southwest Asia on both peacetime and contingency missions.

NAMRU-3 works closely with the Egyptian Ministry of Health, the U.S. Agency for International Development (USAID) and the U.S. Centers for Disease Control and Prevention (CDC). Previously NAMRU-3 has also worked closely with the U.S. National Institutes of Health (NIH), the World Health Organization (WHO). In 1999, a U.S. DoD Global Emerging Infections System (GEIS) program was established which led to expansion of NAMRU-3 public health activities and capacity building in host countries. This in turn led to the recognition of NAMRU-3 as a WHO Collaborating Center for Emerging and Re-Emerging Infectious Diseases in 2001. NAMRU-3 also served as a WHO reference laboratory for influenza/H5 and meningitis in the Eastern Mediterranean Region (EMRO).



NAMRU-3 has modern research laboratories and a medical library. NAMRU-3 is one of only two research institutions in North Africa with a functional Biosafety Level (BSL-3) laboratory, and the only research institution in the region with an Association for Assessment and Accreditation of Laboratory Animal Care International (AAALAC) accredited animal facility. All human and animal research conducted at this facility is subject to approval by the NAMRU-3 Institutional Review Board (IRB) and/or the Institutional Animal Care and Use Committee (IACUC).

Research partnerships have been established in numerous other countries, to include Yemen, Saudi Arabia, Oman, Liberia, Uganda, Djibouti, Jordan, Gabon, Côte d'Ivoire, Burkina Faso, Togo, Bulgaria, and the Republics of Ukraine, and Kazakhstan. The NAMRU-3 Ghana Detachment, established in 2001, builds upon long-standing collaborations with the Ghanaian Ministry of Health and the Noguchi Institute on malaria research trials. NAMRU-3 plays an important role in the global response to the threat of avian influenza and pandemic influenza and is currently active in monitoring infectious disease trends among both civilian and military populations in the Middle East and Africa. Since 2009, NAMRU-3 has conducted 21 disease outbreak investigations in 14 different countries.

History of NAMRU-3 -- 1942 to Present

NAMRU-3 is the largest overseas military medical research facility and one of the largest medical research laboratories in the North Africa-Middle East region. The laboratory traces its origins to 1942, when American scientists and technicians began working with Egyptian physicians at the Abbassia Fever Hospital, Cairo, Egypt, under the auspices of the United States Typhus Commission established by President Franklin D. Roosevelt. Following World War II, the Egyptian Government invited the U. S. Navy to continue collaborative studies of endemic tropical and subtropical diseases with Egyptian scientists. NAMRU-3 was formally established in 1946, and the laboratory has been in continuous operation despite periods of political tension and a seven-year lapse in U.S.-Egyptian relations (1967-1973).

NAMRU-3 Research Programs

The research programs at NAMRU-3 are closely integrated to maximize use of scarce research dollars. NAMRU-3 continues to compete favorably among the eight DoD infectious disease laboratories, reflecting the high level of research and unique opportunities available to research scientists at NAMRU-3.

Bacterial and Parasitic Disease Research Program (BPDRP)

"To describe the epidemiology of enteric pathogens in the region and evaluate vaccines, therapeutic agents and diagnostic assays."

The BPDRP at NAMRU-3 engages in research and development activities across the spectrum of diseases of bacterial and parasitic origin with the aim of developing effective medical countermeasures and diagnostic assays. Our work involves partnerships across naval medical research arena as well as with local and international collaborators. Our projects span sites in Africa, Europe, Western and Central Asia.

Our program served as a WHO reference center for malaria diagnostics, serving as a training center for malarial microscopy diagnostics. We have also partnered with CDC to establish CaliciNet (surveillance network for norovirus sequences) in our operational region. BPDRP works closely with public health officials in the African and Middle-eastern countries, serving as a reference lab upon request. In addition, BPDRP has conducted laboratory capacity building initiatives in Afghanistan, Djibouti, Yemen, Liberia, Nigeria, Pakistan and Iraq.



Our activities are focus on basic research, epidemiology, and surveillance in enteric diseases, acute febrile illnesses, and other disease syndromes caused by bacterial and parasitic infections. In our earliest years, work focused on vaccine development and treatment trials against typhus, meningitis, tuberculosis, Salmonella, schistosomiasis, Brucella, and other tropical diseases. Currently, our core areas of investigation are acute febrile and diarrheal illness. The mission of BPDRP also encompasses multilateral training and research activities in bacteriology, clinical epidemiology, tropical medicine, ethics, biosecurity/safety, molecular, and immunological diagnostics.

Viral and Zoonotic Disease Research Program (VZDRP)

"To describe the epidemiology of viral pathogens and to genetically and antigenically characterize virus isolates and evaluate vaccines and diagnostic assays."

VZDRP continues to be the regional leader for influenza surveillance. Active seasonal influenza surveillance programs have been established in eleven nations. The primary purpose of this surveillance is the timely identification and reporting of circulating influenza viruses to the CDC vaccine developers, to ensure effective vaccination for a regional population of almost 600 million.

VZDRP supports avian influenza outbreak response in the region and can deploy state-of-the-art diagnostic capacity to most nations within the region in under 24 hours. Over the past few years, VZDRP has responded to several outbreaks including Dengue and Chikungunya in Yemen, Adenovirus in Jordan, and measles and mumps in Egypt. In addition, VZDRP conducts acute febrile illness surveillance studies focused on defining Arbovirus incidence and characterization in West Africa. The program has various modules used to train investigators from Eastern Mediterranean countries, Central Asia and Eastern Europe. These modules include molecular and serologic diagnoses of viral etiologies, tissue culture, sequencing, functional markers for anti-viral drug resistance, biosafety and biohazard training, Good Lab Practices, and data entry/analysis. VZDRP further supports essential viral diagnostics procedures with CAP-accredited laboratory workflows.

Global Disease Detection & Response Program (GDDRP)

“Our top priority is to strengthen regional infectious disease surveillance system, public health laboratory capacity to prevent, detect, and respond to infectious disease outbreaks in support of the International Health Regulation and the President’s Global Health Security Agenda.”

CDC’s Global Disease Detection Center (GDD) Egypt at NAMRU-3 (N3) was established in 2006 and is one of ten CDC GDDs worldwide. GDD Egypt coordinates its activities at NAMRU-3 including reach back for technical assistance and subject matter expertise to CDC’s Center of Global Health based in Atlanta GA.

GDD/N3 is the gold standard of USG interagency collaboration allowing the unique merger of CDC’s public health mission with N3’s military medical R&D focus. GDD/N3’s currently implements the following programs: International Emerging Infection Program (IEIP)/One Health including the 750K population based site including surveillance for Acute Febrile Illness (AFI), Acute Respiratory Illness (ARI) and Acute Diarrheal Illness (ADI) located in the Nile Delta at Damanhour; Public Health Workforce Development including the Field Epidemiology Training Program (FETP); Sudden Acute Respiratory Infection (SARI)/Influenza Surveillance in the WHO/EMRO regional countries; Prevention of Hospital Acquired Infection (HAI)/ Antimicrobial Resistance (AMR) surveillance in Egypt; Laboratory Capacity building in support of the International Health Regulation/Biosafety-Biosecurity training for ISO 15189 accreditation with a focus on Egypt and Jordan; Hepatitis C prevention and control in Egypt and; Support to the Egyptian MOH as Regional Collaborating Center of the African Union’s Africa CDC.

Vector Biology Research Program (VBRP)

“The mission of the VBRP is to identify arthropod vectors, detect vector-borne disease threats of military and public health importance, assess its risk in the region and evaluate vector control measures”.

NAMRU-3 was created by the U.S. military in a response to typhus outbreak (vectored by the body louse), giving birth to the Medical Zoology Department. In 1999, the Medical Zoology Department was renamed VBRP. VBRP has been instrumental in conducting mosquito, tick, and sand fly surveillance in several countries across Africa and Asia including Liberia, Ghana, Morocco, Libya, Egypt, Sudan, Djibouti, Yemen, Afghanistan and Pakistan. Proper identification of disease-

Associated parasites. VBRP has built laboratory capacities for the surveillance of medically important arthropods in many countries like Yemen, Liberia, Nigeria, and Libya and has held many local and regional trainings on vector surveillance and VBRP provides technical assistance regarding vector surveillance, monitoring, and control to deployed military forces in AFRICOM and CENTCOM.



NAMRU-3 Ghana Detachment

“A partnership between the U.S. Navy and Ghana for laboratory and field-based infectious disease research focused on disease threat information and evidence-based product development to promote U.S. and Ghanaian force health readiness and improve the public health of host partners.”

Productive research collaboration between NAMRU-3, the Ghana Ministry of Health, and the Noguchi Memorial Institute of Medical Research began in 1995 and was formalized with the establishment of a NAMRU-3 detachment with an assigned, full-time U.S. Naval medical research officer. Shortly thereafter, NAMRU-3 leveraged its unique U.S. to Ghana Armed Forces relationship to include multiple Ghanaian military field sites including the prestigious 37th Military Hospital. Accomplishments have included completion of a phase I malaria blood stage vaccine (EBA-175), completion of a pivotal FDA placebo-controlled double-blinded dose ranging trial for the drug tafenoquine, epidemiological investigation establishing etiologies of newly identified cutaneous leishmaniasis and publication of the first report of L. major in Ghana, and establishment of a West African military collaboration for surveillance of influenza, upper respiratory infections, sexually transmitted infections, and acute febrile illnesses.

Upcoming efforts include collaborations with GEIS in executing malaria resistance and immunological research, developing arboviral research in collaboration with the Ghanaian Health Service, working with other DoD, U.S. and West African partners on Austere Environment Consortium for Enhanced Sepsis Outcomes (ACESO) and Joint West Africa Research Group (JWARG) funded activities, and expanding NAMRU-3 ongoing activities in Liberia and Nigeria.

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