

U.S. Navy Scientists Share Research Benefits with the World (2007)

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This is the third in a series on U.S. Naval Medical Research Unit No. 3, Cairo, Egypt

Washington – It takes time and money to study and fight emerging infectious diseases like avian influenza and less well-known pathogens like rotavirus or enterotoxigenic E. coli – money for laboratory equipment and researchers, and time to teach scientists and laboratory technicians how to diagnose and treat the illnesses.

In his State of the Union address January 23, President Bush said the United States is a country that can and does work with global partners to fight infectious disease, and contributes substantial human and financial resources to the effort.

"American foreign policy is more than a matter of war and diplomacy," he said. "Our work in the world is also based on a timeless truth: To whom much is given, much is required. We hear the call to take on the challenges of hunger, poverty and disease – and that is precisely what America is doing."

In Cairo, Egypt, the U.S. Navy has been partnering with its neighbors in North Africa, the Middle East and Southwest Asia since 1946, when it commissioned the Naval Medical and Research Unit No. 3 (NAMRU-3) to study, prevent and control epidemic and endemic diseases in subtropical areas where Navy personnel were stationed.

Today, as they have for more than 60 years – including during a 1967-1974 lapse in diplomatic relations between Egypt and the United States – U.S. Navy, U.S. Army and Egyptian scientists and staff members at NAMRU-3 study viruses, disease vectors (carriers) like ticks and mosquitoes, and enteric (intestinal) diseases, and establish surveillance networks to monitor the most important infectious disease threats in the region.

"Our idea is that, no matter how bad things are in the political scene, it's good just to keep talking," said NAMRU-3 Commanding Officer Captain Bruce Boynton, a U.S. Navy doctor, during a recent interview in Cairo.

DISEASE SURVEILLANCE

As part of its mission, NAMRU-3 also works with international organizations. For the World Health Organization's Eastern Mediterranean Regional Office, for example, NAMRU-3 serves as a regional reference laboratory for identifying pathogens such as the H5N1 avian flu virus, and it operates disease-surveillance networks.

"This is an important part of what we do," Boynton said. "We have surveillance networks in pneumonia, bacterial meningitis and rotavirus, and we're starting one for acute febrile [fever] illness. We train

laboratory [technicians] in various countries, then the labs accumulate data and share it with each other.”

Surveillance systems help collect and monitor data for disease trends or outbreaks. The most efficient surveillance systems are computerized, and NAMRU-3 scientists, with funding from the U.S. Agency for International Development and the Ford Foundation, and surveillance software from the U.S. Centers for Disease and Control and Prevention, worked with the Egyptian Ministry of Health and Population to build the National Egyptian Disease Surveillance System (NEDSS), which links most of Egypt’s hospitals and all 249 governates to a sophisticated tracking and reporting tool.

The system rapidly detects outbreaks and monitors public health, electronically transfers data from clinical information systems in the health care system to public health departments, and improves information timeliness and quality.

“Hospitals are supposed to report certain types of diseases in a timely manner,” said U.S. Navy Lieutenant Commander Guillermo Pimental, a microbiologist in the NAMRU-3 Disease Surveillance Program, “so we gave them the tools to act rapidly. Instead of taking three or four or 10 weeks to report, they can do it now in less than 24 hours.”

CRITICAL INFRASTRUCTURE

Surveillance is also an important part of the NAMRU-3 Enteric Disease Research Program, which studies and monitors pathogens such as enterotoxigenic E. coli, the region’s major cause of traveler’s diarrhea and a concern to U.S. service members, and rotavirus, the most common cause of severe diarrhea among children and a killer of 600,000 children worldwide every year.

NAMRU-3 is a regional reference laboratory for rotavirus – a regional resource with specific technical capabilities, and it hosts a World Health Organization Rotavirus Surveillance Network Conference for participants in the Eastern Mediterranean region.

“We’re trying to give them [the Egyptian people] the critical infrastructure to develop rotavirus surveillance,” said the U.S. Navy Lieutenant Matthew Weiner, head of the Enterics Program Laboratory, which aims to determine what pathogens affect residents and travelers in the region, and to facilitate clinical trials of therapies and vaccines to combat the pathogens.

“They [Egypt] have hosted us for the last 60 years,” Weiner said, “and it’s been a tremendous relationship that the Navy has had with Egypt as a result.”