# NAVAL MEDICAL R&D NEWS

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Featured Story: ASTMH

# ASTMH - NAMRU-3 Researchers Contributed to the Influenza Vaccination Selection for 2016

*From Naval Medical Research Center Public Affairs*

SILVER SPRING, Md - The American Society of Tropical Medicine and Hygiene (ASTMH), annual meeting in Atlanta, Georgia, held Nov.13-17, brought researchers from all over the world together to share the latest advancements and important breakthroughs in various areas of infectious disease research. Influenza, a highly contagious airborne infectious disease that occurs in seasonal epidemics, is one of the more widely-known viruses. Influenza A can cause severe respiratory illnesses and has the potential to impact mission effectiveness of warfighters.

The study of the genetic changes of the different influenza strains is a crucial first step in selecting the most effective vaccine for the next year. Reporting on the genetic changes in the virus in Egypt was the basis of the research presented at ASTMH by the research team from the U.S. Naval Medical Research Unit-3 (NAMRU-3) located in Cairo, Egypt.

The NAMRU-3 team, along with the Center for Disease Control and Prevention (CDC) partners, focused on characterizing the strain of the disease from samples from the 2014/2015 influenza season in Egypt, which typically runs from October to April.

"Our data supports the World Health Organization's (WHO) recommendation of replacing (A/Texas/50/2012) with (A/Switzerland/9715293/2013), in the influenza vaccine composition for the 2015/16 flu [sic] season," said Ehab Saad, Medical Research Technologist, NAMRU-3.

The CDC reported lower vaccine effectiveness rates during the 2014-2015 influenza season (18 percent), the rates increased for the 2015-2016 season (59 percent)

"The findings of this research assisted in the prediction of the appropriate influenza strains for vaccine formulation and suggested the susceptibility of certain strains to vaccines. The data that is continuously generated is uploaded onto online data bases; NAMRU-3 has been a contributor to the seasonal flu surveillance and characterization for thirteen years," said Saad.

According to the CDC, influenza viruses undergo gradual and continuous changes (genetic drift) and vaccines can lose much of their 'fighting' power because the changes in the virus continue after the vaccine has been produced.

"Alteration in the genetic properties of the virus can lead to antigenic changes. Antigenic changes might lead to severe infections. Tracking both genetic and antigenic drifts helps predict unprecedented disease outcomes," explained Saad.

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# Rear Adm. Chinn, Defense Health Agency's Director of Research Development and Acquisition Visits NAMRU-Dayton

*From NAMRU-D Public Affairs*

DAYTON, Ohio - Rear Adm. Colin G. Chinn, Director of Research, Development & Acquisition (RDA) at the Defense Health Agency, was onsite at Wright-Patterson Air Force Base (WPAFB) to meet with Air Force and Navy medical research subject matter experts in an effort to foster strategic partnerships and learn about those already in existence, Sept 23.

Chinn leads RDA to advance collaborative innovative medical research and development to improve military community health and save lives on and off the battlefield.

His visit to 711th Human Performance Wing (711 HPW) and Naval Medical Research Unit Dayton (NAMRU-D) provided a platform on which leadership from all three commands could discuss how to effectively align their goals, all of which point directly to the safety of the warfighter.

Capt. Rees Lee, NAMRU-D commanding officer, highlighted the exceptional capabilities.

"Navy Medicine researchers have developed, and continue to develop, as a result of fully engaging in a partnership with the collocated 711 HPW," said Lee...

Full Article

# NAMRU-3 Change of Command Ceremony Highlights the Importance of Collaboration

*By Denise Alford, NAMRU-3 public affairs officer*

CAIRO, Egypt- The U.S. Naval Medical Research Unit 3 (NAMRU-3), held a change of command (CoC) ceremony in Cairo, Egypt, Sept. 27.

Capt. Andrew F. Vaughn, assumed command of NAMRU-3 relieving Capt. John R-H. Gilstad.

During his time as commanding officer of NAMRU-3, Gilstad directed over 40 research projects, spanning 23 countries. Vice Adm. Forrest Faison, Navy surgeon general and chief, U.S. Navy Bureau of Medicine a ifnd Surgery, presented Gilstad the Legion of Merit medal on behalf of the President of the United States...

Full Article

# R&D Chronicles:
## The Mosquito Fighters, Part VIII

### *Malaria Control in the Pacific War*

*By André B. Sobocinski, Historian, BUMED*

*"Malaria is the primary military problem facing our troops in most active theaters of operation. In the past this disease has immobilized whole armies and, unfortunately, its disabling effects have been too recently re-demonstrated at the expense of our own military efforts. Without detraction, it can be unequivocally stated that this disease is the most serious enemy we will be called to face."*

*~Vice Adm. Ross McIntire, Surgeon General of the Navy, 1943*

Throughout World War II, malaria accounted for 70 percent of all insect-borne diseases affecting U.S. Navy and Marine Corps personnel and sidelined them for over 3.3 million sick days. Although the disease would be encountered in the United States and across almost all combat theaters, nowhere was the malaria menace greater than on the islands and atolls in the Pacific.

As U.S. and Allied Forces fought to remove the entrenched Imperial Japanese foes in the Solomons and New Hebrides Islands they would face what was termed a "hyperendemic intensity" of malaria. According to malariologist Cmdr. (later Rear Adm.) James J. Sapero, in 1942 the First Marine Division on Guadalcanal would suffer the highest malarial rate in the world (100 percent!)

Between August 7, 1942, and February 8, 1943, American troops in the Pacific averaged 10 malaria cases for every combat injury. By March 1943, it was estimated that over half of all Marines serving in the Solomons either had or had suffered from some form of the disease...

Full Article

## Lightening the Load: The Science Behind Finding the Balance Between Combat Load, Survivability, Health, and Performance

*From Naval Health Research Center Public Affairs*

SAN DEIGO - How fast can you run 50 yards? Now, add an 80 pound backpack and how fast can you run that same distance? Probably not quite as fast.

If you're a warfighter, running across open ground in battle, adding just one second to your time could be the difference between life and death.
Aside from matters of life and death, the long-term impact of carrying heavy loads may cause wear and tear on bones and muscles, potentially leading to acute and chronic injuries.

Full Article



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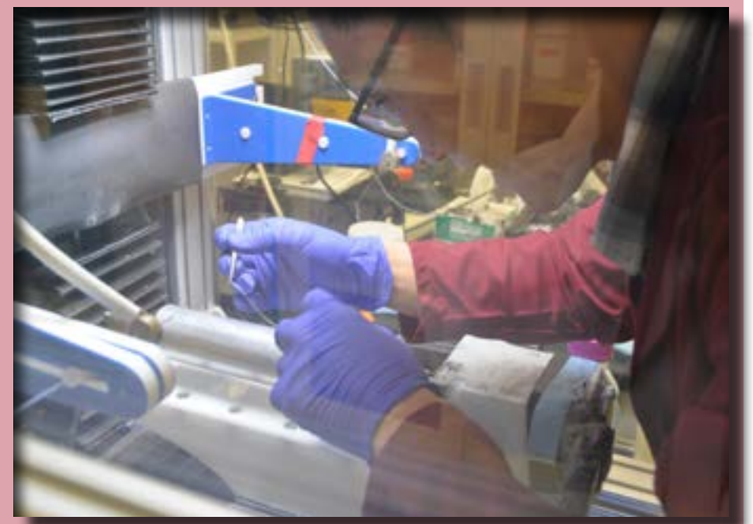
## NAMRU San Antonio Research Produces Platform for Next Generation Antimicrobial Wound Dressing

*Story Courtesy of NAMRU-SA Public Affairs*



SAN ANTONIO—Naval Medical Research Unit San Antonio (NAMRU-SA) recently published data in the Journal of Nanomaterials demonstrating that an electrospun chitosan (CS)/polyethylene oxide (PEO) scaffold is a promising candidate for wound dressing applications due to excellent antibacterial characteristics and biocompatibility.

"Battlefield wounds present a unique challenge due to extended evacuation times and non-endemic infections that often complicate the healing process," says Mr. Tony Yuan, NAMRU-SA researcher and lead author. Ideal management of cutaneous wounds is predicated on the minimization of infection at the site of injury...

Full Article

## Deputy Assistant Secretary of Defense for Research Visits NHRC (cover)

*From NHRC Public Affairs*

SAN DIEGO – Deputy Assistant Secretary of Defense for Research, Dr. Melissa Flagg, visited the Naval Health Research Center (NHRC) to learn more about the research being conducted to improve warfighter readiness and health, Oct. 26.

Flagg, who is responsible for policy and oversight of the Department of Defense (DoD) science and technology programs for basic research through advanced development, met with command leadership and toured...

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