Local, Regional and Global Resource

Force Health Protection & Readiness

The top infectious disease threats to Service Members—including malaria, dengue, and diarrheal diseases—are all endemic in Southeast Asia. AFRIMS’ key location and relationships help ensure that the US military can effectively work with partners to anticipate threats and develop effective countermeasures.

Biosurveillance

Southeast Asia is the epicenter of emerging drug and antibiotic resistance, which can impact disease prevention and treatment. AFRIMS leads biosurveillance efforts to track emerging infectious disease threats like Zika and Middle East Respiratory Syndrome Coronavirus (MERS Co-V), while sustaining its monitoring of antimicrobial-resistant bacteria and viral diseases such as chikungunya and dengue.

AFRIMS supports the Global Emerging Infections Surveillance and Response System (GEIS) program. AFRIMS and One Health objectives emphasize foreign military partnerships in:

- Acute febrile illness & influenza
- Antimicrobial resistance
- Sexually transmitted infections
- Enteric pathogen surveillance
- Surveillance of zoonoses of FHP importance

About the Walter Reed Army Institute of Research

WRAIR develops and delivers innovative medical solutions to a range of Force Health Protection & Readiness challenges facing US Service Members. With a state of the art laboratory in Maryland, a specialized detachment in Washington, and laboratory and clinical research platforms in Asia, Africa, and Europe, the WRAIR research enterprise provides an extensive array of capabilities and competencies spanning biosurveillance activities, disease and pathogen characterization, and basic, translational, and clinical research activities. Through this network, our efforts remain relevant and agile to meet the current and future medical countermeasure needs of the US Service Member.

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A History of Excellence
The Armed Forces Research Institute of Medical Sciences (AFRIMS) is a biomedical research and development platform supporting US Force Readiness through the development of medical countermeasures mitigating the threat of infectious diseases. The oldest and largest overseas laboratory of the Walter Reed Army Institute of Research (WRAIR), AFRIMS was founded in 1960 as a South East Asia Treaty Organization (SEATO) asset to combat a regional cholera outbreak. Thai and US scientist collaborations proved extremely productive and the scope of their focus extended to other regional infectious diseases. Renamed AFRIMS in 1977, the joint Thai-US laboratory has been an exemplar of government collaboration working together to address health challenges affecting both nations.

Thai and US military science teams collaborate on research addressing malaria, HIV/AIDS, enteric pathogens, antimicrobial resistance, and viral threats such as influenza, dengue, chikungunya, and Zika.

AFRIMS is the premier expeditionary research and development platform to advance highly regulated vaccine and drug studies leading to licensure. AFRIMS conducts full life cycle science, beginning with biosurveillance and identification of threats, studying diseases in basic science laboratories, and conceiving, developing and testing countermeasures as part of the product development process. The Institute has completed the following Phase 3 trials:
- Japanese encephalitis vaccine trial paving the way to US licensure of JE-VAX
- Hepatitis A vaccine trial resulting in licensure of Havrix
- Two Phase 3 dengue vaccine trial sites in Thailand and the Philippines supporting ultimate licensure of the CYD vaccine in numerous countries
- Participated in discovery or development of most US-FDA approved anti-malarial drugs

AFRIMS supports Force Health Protection and Readiness in developing products to detect, prevent, and treat diseases where there is little to no commercial incentive.

Our investment in the early discovery and development of these products reduces the risk for industry partners to license and produce FDA-approved products.

Enduring Contributions to Global Health
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Countermeasures

**Diagnostics**
- WHO Collaborating Centre—diagnostic reference, training on emerging infectious disease, and outbreak investigation
- Evaluated BinsanOW rapid diagnostic kit for malaria
- Currently in advanced development of Leishmaniasis Rapid Diagnostic Device
- Developed an antibody capture ELISA for viruses employed at laboratories worldwide

**Drugs**
- Contributed to the FDA-approval of nearly every anti-malarial drug from chloroquine to atovaquone/proguanil
- Explored the potential of anti-malarial drug resistance and delayed cure in Southeast Asia and the impact on Force Readiness
- Exploring foreign military contributions to malaria transmission and harnessing the same to support malaria elimination and research and development initiatives

**Vaccines**
- Focused on the research and development of vaccine candidates to combat the following threats: malaria, diarrhea, dengue and hemorrhagic fevers, scrub typhus, and HIV
- Developing safe, efficacious vaccines reduces emergence of drug resistance and improves global health by preventing major infectious diseases

*Vaccines in use today: Japanese encephalitis, hepatitis A & B, oral live typhoid, meningococcus, adenovirus, dengue*

**Major Steps Forward in Infectious Disease Research**
- Led the successful completion of the world’s first HIV vaccine efficacy trial demonstrating the feasibility of a safe and protective HIV vaccine
- Developed the first human challenge model for Shigella sonnei
- Identified and reported initial cases of artemisinin-resistant malaria in the Mekong

**Unique Capabilities**

**Entomology**
The AFRIMS Entomology Department proudly boasts a long history of evaluating and testing disease vector control products at AFRIMS. All of the military’s current topical repellents, bed nets, and insecticide-treated uniforms were first evaluated at AFRIMS. Two field sites are maintained in Thailand to further explore these vector solutions.

AFRIMS maintains the largest and most complex insectary in the Department of Defense, rearing all the major mosquito vectors of malaria and dengue found in Southeast Asia. AFRIMS also houses many unique chigger colonies, including the world’s only scrub typhus infected colonies.

**Veterinary Services**
AFRIMS supports preclinical studies of drug and vaccine candidates and hosts the DoD’s largest NHP facility. Headquartered in Bangkok, the facility is AAALAC-accredited and complies with US and international regulations.

**Malaria Drug and Vaccine Research and Clinical Trial Sites**
AFRIMS supports multiple malaria clinical trial field sites in Thailand and Cambodia that conduct GCP-compliant drug, vaccine, and disease surveillance trials which support new product regulatory filings, identify emergence and spread of drug-resistance, and inform US DoD Force Health Protection practices in endemic areas and host-country treatment guidelines for malaria.

**Virology Laboratories and Clinical Study Sites**
Supporting three clinical trial sites in Bangkok and Kamphaeng Phet, Thailand and Cebu, Philippines, these laboratories and clinical study sites conduct regional respiratory and arboviral disease surveillance and provide diagnostic support to regional governments, militaries, and embassies.

AFRIMS hosts a large archiving facility with regional arboviral and respiratory specimens spanning several decades.

**HIV Vaccine Research Center of Excellence**
With the goal to produce a global HIV vaccine, the HIV Vaccine Research Center of Excellence (HVRC) hosts a CAP-certified clinical research and HIV serology lab supporting humoral, cellular, and general immunology as well as specimen processing and archiving.

AFRIMS played a critical role in the landmark RV144 “Thai study,” a 16,000 volunteer HIV vaccine trial that demonstrated modest efficacy (31%). Follow-on studies further explore correlates of immunity and risk based on RV144.