

# USAMRMC

U.S. ARMY MEDICAL RESEARCH AND MATERIEL COMMAND

## Major 2009 Command Accomplishments

**USAMRMC Vision:** We are the world's experts and leaders in the military relevant biomedical research and medical materiel communities, delivering the best medical solutions to enhance, protect, treat, and heal our warfighters.

USAMRMC Headquarters at Fort Detrick, Maryland, supports 11 subordinate commands located throughout the world. Six USAMRMC medical research laboratories and institutes perform the core science and technology (S&T) research to develop medical solutions. These laboratories specialize in various areas of biomedical research, including infectious diseases, combat casualty care, operational medicine, clinical and rehabilitative medicine, chemical and biological defense, combat dentistry, and laser effects, and are staffed with highly qualified scientists and support personnel. A large extramural research program and numerous cooperative research and development (R&D) agreements provide additional S&T capabilities by the leading R&D organizations in the civilian sector. Five USAMRMC subordinate commands perform medical materiel advanced development, strategic and operational medical logistics, and contracting, to complete the lifecycle management of medical materiel. USAMRMC's expertise in these critical areas has led to numerous accomplishments in 2009:



◆ In September 2009, the FDA granted 510k device approval for the use of the Army-funded BinaxNOW® Malaria Test—a 15-minute, handheld rapid detection test that does not require microscopy—that will be fielded in the Army's Basis of Issue approved medical assemblages.



◆ In collaboration with the Thai Ministry of Public Health and numerous Thai and U.S. partners, the Army sponsored the world's largest HIV vaccine trial in Thailand that tested a "prime-boost" vaccine strategy composed of two investigational vaccines. Results showed that the vaccine regimen is safe and 31.2% effective at preventing HIV infection.



◆ USAMRMC assisted with fielding 652 mine-resistant ambush protected (MRAP) 2-litter and 3-litter medical equipment sets to theater along with 652 CAT I and CAT II ambulances. Twenty-five M-1151 casualty evacuation (CASEVAC) kits and 773 redesigned, single-litter RG-31 MRAP CASEVAC kits were fielded to Operation Enduring Freedom (OEF) units, and an MRAP all-terrain vehicle single-litter CASEVAC kit has been developed and is being evaluated. Current efforts include developing 4-litter MRAP ambulances.



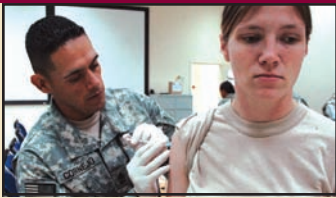
◆ USAMRMC played an integral part in the effort to find solutions to the H1N1 threat, which included surveillance at U.S. embassies worldwide of H1N1 and evaluation of the changing genome of the virus.

◆ Researchers participating in USAMRMC's Armed Forces Institute of Regenerative Medicine (AFIRM) conducted the Nation's first hand transplant at the University of Pittsburgh using bone marrow-induced immune tolerance in March 2009 and then conducted the Nation's first bilateral hand transplant in May 2009.



*our Warfighters*  
**Protect—Project—Sustain**

## Program Outcomes Protect, Project, and Sustain the Health and Safety of the Force



- ◆ A new Japanese encephalitis vaccine received FDA approval and is being utilized by troops.
- ◆ FDA inspections were completed for licensure of a new adenovirus vaccine (for Types 2 and 7), and approval is anticipated in April 2010.
- ◆ In July 2009, DoD signed an agreement with the French Republic Minister of Defense to further progress on a new drug being developed by USAMRMC for a safe and simple treatment for cutaneous leishmaniasis.
- ◆ The Multidrug-Resistant Organism Repository and Surveillance Network was established with a laboratory equipped to perform molecular/phenotype characterizations and store organisms and reference strains.
- ◆ Four products to improve nerve agent medical countermeasures are in advanced development.
- ◆ The Hospital Management of Chemical, Biological, Radiological/Nuclear, and Explosive Incidents Course (HM-CBRNE) was approved by the AMEDD C&S as a numbered course.
- ◆ USAMRICD broke ground for a new state-of-the-art laboratory to consolidate and improve facilities for the development of medical countermeasures against chemical weapons.
- ◆ A Collaborative Research Facility opened at USAMRICD to provide a venue for collaborating scientists to gain access to the medical chemical defense program and restricted agents.
- ◆ In April 2009, USAMRMC demonstrated a successful manufacturing process for Cryopreserved Platelets (CPP). In June, the FDA accepted the Army's application for Investigational New Drug (IND) status for CPP, which allowed the Army to begin clinical studies and move toward eventual licensure.
- ◆ Two additional IND applications were completed in September 2009 to further study and initiate clinical studies on Red Blood Cells Extended-Life and Freeze-Dried Plasma.
- ◆ Phase 1 of the DARPA-funded study PREVENT (Preventing Violent Explosive Neurologic Trauma) was completed. Phase 2, augmented by Army funding, is under way. Investigators contributed to a special issue of the *Journal of Neurotrauma*.
- ◆ Investigators discovered that the baseline pattern of functional connectivity between brain regions is disrupted during sleep, which suggests a target for future efforts to enhance sleep and wakefulness non-pharmacologically.
- ◆ Construction began on a new USAMRIID building that will contain the latest in biocontainment technology for medical biodefense research.
- ◆ The U.S. Army Medical Materiel Center-Korea was activated to improve medical logistics support to Soldiers, their families, and health care providers in Korea and the Pacific Region.
- ◆ Studies were completed that determined and documented:
  - "A History of Mental Health Disorders, Alcohol Abuse, or Injuries: Warnings of Possible Future Suicide Among U.S. Army Soldiers"
  - "Risk Factors for Discharge from the Army with a Permanent Disability"—of which over 70% are musculoskeletal
  - Changes in body composition, physical performance, and injuries with prolonged deployment to Iraq and Afghanistan
  - Improved prediction equations regarding Soldier sweat loss and water needs in operational environments, which were featured in the *Journal of Applied Physiology*
- ◆ U.S., European, and Australian patents were issued for a device that affixes to personal hydration systems to enable nutrient intake via an additive apparatus.
- ◆ Decision tools were produced that translate individual and unit physiological and health status indices into actionable information.
- ◆ Research showed that personality type interacts with the social environment to impact vulnerability and resiliency to sleep loss.
- ◆ The Mental Health Assessment Team-VI for Operation Iraqi Freedom (OIF) and OEF report was completed and briefed through the Joint Chiefs in October 2009.
- ◆ Aquatic Biomonitors, recently developed by USAMRMC to continuously monitor source and drinking water for toxic contaminants, have been implemented at Army water treatment facilities and by several large municipal water utilities.
- ◆ A European patent was issued for a microclimate cooling system that reduces power requirements by 50%.
- ◆ Over 450K materiel release orders for critical medical supplies were processed, and over 65K pairs of spectacles were provided in support of 1,400 joint customers stationed throughout EUCOM, CENTCOM, Iraq, Afghanistan, AFRICOM, and the State Department.
- ◆ USAMRMC responded to 10 Requests for Information from the Field Assistance in Science and Technology Team, providing 5 potential materiel solutions to OIF and OEF.

### People in the News...

- ◆ COL Donald Heppner, Jr., M.D., Deputy Commander of WRAIR, was awarded the 2009 Kiwanis World Service Medal for his critical role in the development of a promising vaccine against malaria.
- ◆ USAMRIID investigator, LTC Felicia Langel, was selected as the Army's military recipient of the 2009 DoD Women's History Month Foreign Language and Science, Technology, Engineering, and Math Role Model Award.

For more information, please visit:

<https://mrmc.amedd.army.mil>

*the best  
medical solutions*