

USAMRMC

U.S. ARMY MEDICAL RESEARCH AND MATERIEL COMMAND

Major 2011 Command Accomplishments

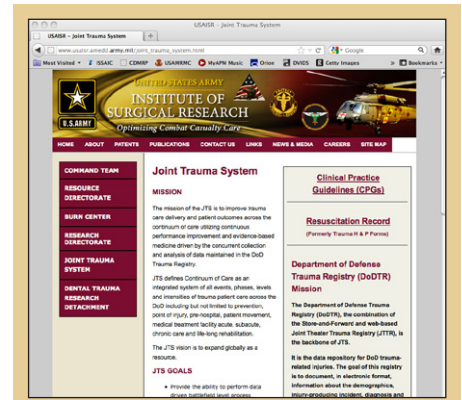
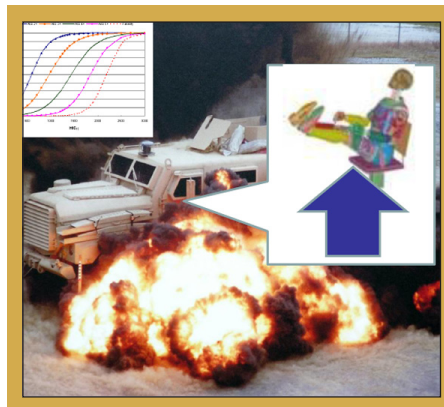
USAMRMC Vision: We are the world's experts and leaders in the military relevant biomedical research and medical materiel communities, delivering the best medical solutions to enhance, protect, treat, and heal our Warfighters.

USAMRMC Headquarters at Fort Detrick, Maryland, supports 14 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. Six USAMRMC subordinate commands perform medical materiel advanced development, strategic and operational medical logistics, and contracting to complete the life cycle management of medical materiel. Two executive agencies focus on comprehensive forensic capabilities, identification, and mortality surveillance, and preserving military medicine historical knowledge and resources. USAMRMC's expertise in these critical areas has led to numerous accomplishments in 2011:



- ◆ USAMMA fielded the dual-mode noise immune stethoscope designed to evaluate heart and lung sounds in the usual electro-mechanical mode and in a Doppler mode for use in higher noise environments.

- ◆ USAARL initiated the Warrior Injury Assessment Manikin (WIAMan) effort, a multi-organization blast injury research partnership aimed at creating a warrior-representative test dummy and associated biomedically validated injury assessment tools.



- ◆ USAISR's Joint Trauma System launched the web-based Joint Theater Trauma Registry, greatly enhancing opportunity for high-quality, evidence-based, and concurrent performance improvement across the continuum of care.

Protect—Project—Sustain
our Warfighters

Program Outcomes Protect, Project, and Sustain



- ◆ The AFIRM Program Management Office provided substantial technical and personnel support to USAISR to successfully initiate FDA-regulated clinical trials; three additional trials are anticipated in 2012.
- ◆ USAARL published evidence of changes in risk propensity and health risk behaviors over the course of a combat development cycle in Soldiers with and without psychological disturbances.
- ◆ USAARL delivered head, neck, and facial injury assessments to NSRDEC that resulted from impacting the FOCUS head form (a face/eye injury assessment manikin) with candidate humanitarian rations traveling at varying velocities. Assessments will be used by NSRDEC to develop a humanitarian ration that can be dropped over populated areas.
- ◆ USAARL tested 21 items of carry-on medical equipment for use aboard all H-series medical evacuation helicopters; 6 items were added to the fleet-wide Airworthiness Release (AWR), 12 items were tested for use aboard the UH-72 Lakota, and 7 items were tested for U.S. Army Special Operation Forces and added to fleet-wide MH-60 and MH-47 AWRs.
- ◆ USAARL collaborated with military, academic, and industry partners to compile and release unclassified live-fire data collected during the underbody blast of a fabricated generic hull vehicle to provide a better understanding of the dynamics of underbody blast.
- ◆ USAARL developed a novel dynamic marksmanship battery based on established clinical vestibular assessments for return-to-duty determinations.
- ◆ USAARL developed military requirements for a tactile situation awareness system for line aviation in part as a result of Defense Steering Oversight Committee sponsorship and guidance.
- ◆ USAARL modified and extended the aviation tactile cueing belt to ground force navigation and communication applications. The new device is undergoing testing in the ground force navigation and communication environment at Fort Benning, Georgia.

- ◆ The USAISR Burn Center provided comprehensive clinical care for the highest number of acute admissions in its history, including 50 admissions from OEF.
- ◆ USAISR developed the institutional capability for FDA-regulated clinical trials.
- ◆ USAISR received funding for FDA-regulated clinical trials for anti-plaque chewing gum.
- ◆ USAISR launched a multi-institutional, fully funded face regeneration project.
- ◆ USAISR collaborated with SOCOM and USAMRMC to achieve regulatory approval for freeze-dried plasma as an expanded-access Investigational New Drug (IND).
- ◆ USAISR conducted a retrospective review of tranexamic acid use in combat casualties in collaboration with the UK Ministry of Defense, which resulted in it being fielded in U.S. hospitals in theater.
- ◆ USAMMA's Technology Assessment and Requirements Analysis (TARA) program produced \$15M in cost savings of MEDCASE/SUPERCEEP monies for the AMEDD.
- ◆ USAMMA's TARA team completed assessment of equipment at the Seth Michaud Expeditionary Medical Facility, Camp Lemonnier, Djibouti, providing the AFRICOM Surgeon with recommendations that greatly enhanced the functionality and effectiveness of medical care in the Horn of Africa.
- ◆ USAMMA's depot-level maintenance operations enabled cost savings in excess of \$16M by refurbishing more than 2,900 items of medical equipment. The Medical Maintenance Management Directorate also received ISO 9001-2008 certification.
- ◆ USAMMA executed \$239M to support the Army equipping strategy, which included the reset of 25 brigade combat teams and 94 echelon above brigade medical units to fully deployable status.
- ◆ USAMMA provided more than 50,000 packages of potassium iodine to the 374th Medical Support Squadron, Yokota AFB, Japan to support disaster relief efforts during the earthquake and tsunami.
- ◆ USAMMDA received FDA clearance for the SMART Leish PCR assay, a test to aid in the diagnosis of individuals with cutaneous leishmaniasis, for marketing.

- ◆ USAMMDA received FDA approval for the adenovirus vaccine, a two-tablet vaccination for types 4 and 7 adenovirus.
- ◆ USAMMDA completed a Phase 3 pivotal trial for the topical antileishmanial drug, paromomycin/gentamicin against Old World leishmaniasis in Tunisia.
- ◆ USAMMDA fielded 300 MRAP CASEVAC kits to OEF, and an additional 1,800 kits were procured via the Space and Naval Warfare Systems Command and assisted the MRAP Joint Program Office with the design, production, and testing of the M-ATV-like ambulance (DASH) with fielding of 250 ambulances to OEF in 2012.
- ◆ USAMMDA assisted in the fielding of the wheeled litter carrier by FareTec, which received a National Stock Number and became available through the Medical/Surgical Prime Vendor Program.
- ◆ USAMMDA fielded various devices in response to RFIs for evaluation in theater, such as a replacement litter, straps, and a hands-free combat stretcher. MSS supported the FAST team with 15 combat ready clamps for an operational test in OEF to support the addition of this device to medical equipment sets.
- ◆ USAMMDA fully integrated the DCoE translation research program for hyperbaric oxygen for post-concussion syndrome and continues to coordinate or execute randomized, placebo-controlled clinical trials.
- ◆ USAMMDA received FDA notification that the SOCOM French Freeze-Dried Plasma IND application was acceptable.
- ◆ USAMMDA supported the advanced development of products to address traumatic brain injury and PTSD by establishing the Neurotrauma and Psychological Health Project Management Office.
- ◆ USAMMDA initiated a collaboration with the VA in excess of \$100M to identify pharmaceuticals for the treatment of combat-related PTSD.
- ◆ USAMRICD developed the Medical Equipment Set Guide and Management Tool, which illustrates and describes UA 0258B and UA 0249B as prescribed in accordance with fielding and usage guidelines.

the Health and Safety of the Force



- ◆ USAMRICD updated its Medical Management of Chemical Casualties: MMCC Supplemental Training Materials DVD (v. 5.2), which contains presentations on various chemical warfare agents, field management and triage, equipment, and terrorism as well as interactive multimedia assessment scenarios, educational courses, a medical supplies database, and handbooks, textbooks, field manuals, reference articles, and self-assessments.
- ◆ Chief scientist of USAMRICD's Collaborative Research Facility, Dr. Neil Jensen, submitted an invention disclosure for "Induction Therapy for Treatment Against Agent Exposure." He is exploring the potential of certain FDA-approved drugs to increase the body's production of key metabolic enzymes two- to fourfold thereby increasing the body's defenses against exposure to chemical warfare agents.
- ◆ USAMRICD's Analytical Toxicology Division opened a new mass spectrometry laboratory housing a state-of-the-art Waters Corporation SYNAPT G2 high-definition mass spectrometer that couples different mass spectrometry techniques into one instrument, making it possible to study the effects of chemical warfare agents molecular mechanisms.
- ◆ USAMRICD chemists Drs. Frank Zydel and Benedict Capacio submitted an invention disclosure for "Laserspray Ionization-Mass Spectrometry-Microscopy (LSI-MS-M)," a technique that utilizes microscopy in conjunction with mass spectrometry for the analysis of biological samples and offers several advantages over traditional microscopy and MALDI-based mass spectrometric techniques.
- ◆ A team of researchers at USAMRICD, led by Dr. Douglas M. Cerasoli, was awarded a 3-year, \$7.5M grant from NIH to develop enzymes for use as antidotes against poisoning by organophosphorus pesticides and nerve agents entitled the "Center for Catalytic Bioscavenger Medical Defense Research II," which is a renewal of a prior 5-year effort led by Dr. David E. Lenz.

- ◆ USAMRICD designed an HM-CBRNE Tabletop Exercise Facilitator's Tool Kit, a reference for creating a tabletop exercise consistent with Hospital Incident Command System structure and application.
- ◆ USARIEM's Military Performance Division released TB MED 592, "Prevention and Control of Musculoskeletal Injuries Associated with Physical Training."
- ◆ USARIEM researcher Dr. Ed Zambraski of the Military Performance Division and Dr. Bruce Liang of the University of Connecticut Health Sciences were awarded a patent for the use of adenosine A3 receptor agonists for the treatment and/or protection of skeletal muscle injury.
- ◆ WRAIR's RTS,S malaria vaccine showed good efficacy in a GSK Phase 3 trial in Africa; its first efficacy was shown at WRAIR, and a portion of the trial was conducted at USAMRU-K.
- ◆ USAMRAA was awarded the first-of-its-kind Initial Outfitting and Transition contract for the BRAC of the Walter Reed Army Medical Center and the migration of health care service operations for tertiary and specialty care to the new Walter Reed National Military Medical Center Bethesda and the new Fort Belvoir Community Hospital.
- ◆ CDMRP Gulf War Illness researcher Dr. Mariana Morris of Wright State University, Dayton, Ohio, identified sarin exposure as one possible cause of the disease and has begun testing some commercially available therapeutics targeting affected nervous systems.
- ◆ CDMRP researcher Dr. Fiona Crawford of the Roskamp Institute, Sarasota, Florida, developed a mouse model of cognitive dysfunction following exposure to Gulf War agents, which will be studied to identify potential treatment targets.
- ◆ Research on virtual reality technology being conducted by CDMRP researchers Dr. Gregory Gahm and Dr. Greg Reger of the Geneva Foundation, Tacoma, Washington, allows participants to revisit a traumatic event in a sensory-rich environment that shows significant improvement over patients with traditional prolonged exposure therapy.

- ◆ CDMRP researcher Dr. M. Tracie Shea of Brown University, Providence, Rhode Island, modified a cognitive-behavioral intervention that has been shown to improve functioning and reduce anger outcome measures in military veterans with PTSD.
- ◆ CDMRP researcher Dr. Wolfgang Fink of the California Institute of Technology, Pasadena, California, is developing a new technology for an advanced web-based system to analyze, characterize, store, and share data to aid in the diagnosis of visual field defects.
- ◆ CDMRP researcher Dr. Raymond Goodrich of CaridianBCT Biotechnologies, Lakewood, Colorado, is developing a portable, disposable device for pathogen reduction in fresh whole blood that may minimize the risk of infectious disease transmission.
- ◆ CDMRP researcher Dr. Mark S. Nash of the Miller School of Medicine, University of Miami, Miami, Florida, is performing a multicenter, randomized clinical trial evaluating a lifestyle intervention aimed at decreasing obesity in persons with spinal cord injury.
- ◆ NMHM relocated to a new facility at the Fort Detrick/Forest Glen Annex in Silver Spring, Maryland.
- ◆ NMHM relocated its National Historic Landmark collection and began a new exhibition program to be unveiled on the 150th anniversary of the museum's founding, scheduled for spring 2012.
- ◆ NMHM celebrated its 12th annual Brain Awareness Week, inviting more than 1,000 elementary and middle school students to interact with working neuroscientists and brain researchers.
- ◆ NMHM initiated its recurring Science Café series, which offers free informal science learning opportunities to the local community.
- ◆ USAMRMC's Gains in the Education of Mathematics and Science (GEMS) program expanded to include programs at Fort Detrick, WRAIR, USAARL, USARIEM, and USAMRICD. More than 1,250 youths participated in the science, technology, engineering, and mathematics (STEM) education program.



To find out more about USAMRMC,
please visit our web site or contact:

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

Awards...

- ◆ USAMRIID scientist Dr. Kathleen Cashman received the prestigious Hilleman Award at the DNA Vaccine Congress for her scientific poster about her work on a Lassa Fever Vaccine.
- ◆ USAMRIID animal care technician Lindsey Schwartz was awarded the 2011 National Capital Area Branch/American Association of Laboratory Animal Science Technician Award, presented by the Scientists Center for Animal Welfare.
- ◆ USARIEM scientists were awarded an Army R&D Achievement Award for developing and writing TBMED 505, "Altitude Acclimatization and Illness Management."
- ◆ USAMRICD investigator Dr. Patrick McNutt won the Outstanding Platform Presentation award for his talk entitled "Clinical and Ultrastructural Aspects of Rabbit Corneal Injury Induced by Sulfur Mustard Vapor: Novel Mechanisms Underlying Development of Chronic Ocular Injury," at the Chemical and Biological Defense Science and Technology conference.
- ◆ USAMRICD scientists Dr. John Azeke and Joseph Boecker were awarded Albert Kligman Young Investigator Scholarships from the U.S. Technical Symposium of the International Society for Biophysics and Imaging of the Skin.
- ◆ USAMRICD scientist Dr. Lindsey Hamilton was recognized by the American Society for Pharmacology and Experimental Therapeutics, and her presentation at the ASPET's annual Experimental Biology meeting won first place in the Division of Behavioral Pharmacology poster competition.
- ◆ USAISR researcher Dr. Joseph C. Wenke was awarded the Department of the Army R&D Award in recognition of scientific and engineering achievement.

USAMRMC Organizations

U.S. Army Aeromedical Research Laboratory (USAARL), (334) 255-6900, <http://www.usaarl.army.mil>

U.S. Army Institute of Surgical Research (USAISR), (210) 916-3219, <http://www.usaisr.amedd.army.mil>

U.S. Army Medical Research Institute of Chemical Defense (USAMRICD), (410) 436-3276, <http://chemdef.apgea.army.mil>

U.S. Army Medical Research Institute of Infectious Diseases (USAMRIID), (301) 619-2285, <http://www.usamriid.army.mil>

U.S. Army Research Institute of Environmental Medicine (USARIEM), (508) 233-4811, <http://www.usariem.army.mil>

Walter Reed Army Institute of Research (WRAIR), (301) 319-9038, <http://www.wrair.army.mil>

U.S. Army Medical Materiel Development Activity (USAMMDA), (301) 619-7643, <http://www.usammda.army.mil>

U.S. Army Medical Materiel Agency (USAMMA), (301) 619-7461, <http://www.usamma.army.mil>

U.S. Army Medical Materiel Center-Europe (USAMMCE), 011-49-633-186-6426, <http://usammce.amedd.army.mil>

U.S. Army Medical Materiel Center-Korea (USAMMCK), 011-82-54-970-8323, <https://mrmc.amedd.army.mil/usammck>

U.S. Army Medical Research Acquisition Activity (USAMRAA), (301) 619-2183, <http://www.usamraa.army.mil>

6th Medical Logistics Management Center (6MLMC), (301) 619-7488, <http://6mlmc.amedd.army.mil>

Armed Forces Medical Examiner System (AFMES), (302) 346-8635, <http://www.afmes.mil>

National Museum of Health and Medicine (NMHM), (301) 319-3300, <http://www.medicalmuseum.mil>

Congressional Programs

Congressionally Directed Medical Research Programs (CDMRP), (301) 619-7071, <http://cdmrp.army.mil>

Telemedicine and Advanced Technology Research Center (TATRC), (301) 619-7927, <http://www.tatrc.org>



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medical solutions
for today and tomorrow*

