

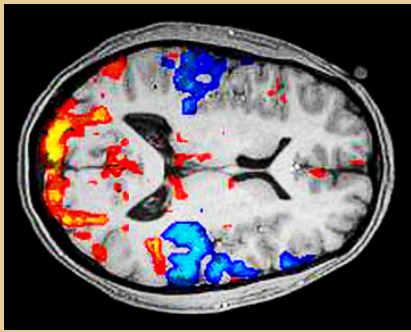
USAMRMC

U.S. ARMY MEDICAL RESEARCH AND MATERIEL COMMAND

Major 2010 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 life cycle management of medical materiel. USAMRMC's expertise in these critical areas has led to numerous accomplishments in 2010:



- ◆ USAMRMC won the U.S. Army's Research and Development Laboratory of the Year award.
- ◆ Based on the discovery of serum biomarkers associated exclusively with traumatic brain injury (TBI), USAMRMC contracted with Banyan Biomarkers to develop an assay diagnostic system to detect levels of bound biomarkers in serum to develop a point-of-care device that will provide the first gold standard in the diagnosis of TBI.

- ◆ USAMMA's Technology Assessment and Requirements Analysis (TARA) program produced \$26.4M in cost savings in FY10 for AMEDD while inserting digital mammography, pharmacy radiofrequency identification, and robotic dispensing solutions across AMEDD. The program identified and validated more than \$145M in DHP-OP/OM equipment technology solutions that will enhance both patient and provider satisfaction.



- ◆ TATRC-funded COMETS (Combat Medic Training System) was licensed by CAE Healthcare and marketed as the Caesar™ Trauma Patient Simulator. Caesar is designed to enhance initial and sustainment training of Soldier medics and the training of tactical law enforcement medics, search and rescue teams, and any organization involved in the care of trauma patients at "point of injury."

our Warfighters
Protect—Project—Sustain

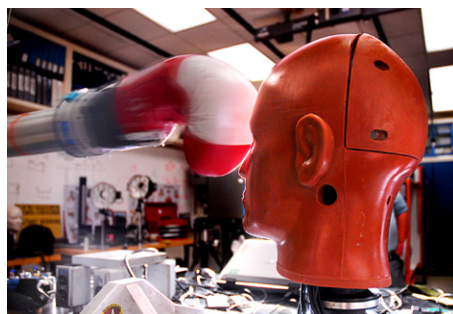
Program Outcomes Protect, Project, and Sustain



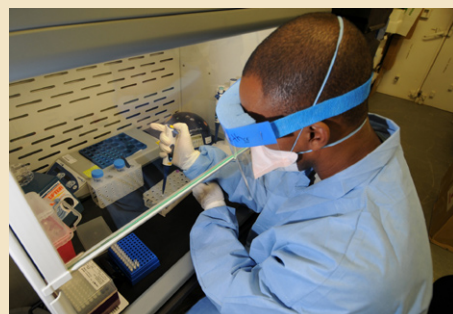
- ◆ FDA approved the ABORh Card™, a point-of-care test that determines blood type with no lab instrumentation, and was a collaborative effort between TATRC and Micronics, Inc.
- ◆ USAARL tested and evaluated the performance of 20 medical systems for use during en route care, ensuring safe interaction among the vehicle, medical systems, patients, and care providers. Six additional medical systems were tested for hospital use.
- ◆ WRAIR characterized blast-induced brain injury under the DARPA Prevent Program.
- ◆ USAMMA integrated a new state-of-the-art anesthesia system into Combat Support Hospitals, significantly reducing weight and cube and providing a simple design that allows for full setup within 15 minutes without tools.
- ◆ USAISR moved into the new research complex known as the Battlefield Health and Trauma Research Institute.
- ◆ The Combat Casualty Care element of WRAIR, the U.S. Army Dental and Trauma Research Detachment, and the U.S. Army Medical Research Detachment were integrated into USAISR.
- ◆ TATRC-funded Otto Bock X3, or Genium prosthetic knee, was officially demonstrated as ready for deployed military and other high-functionality use when a former Paralympic swimmer walked into the ocean without it shorting out, locking up, or malfunctioning; it combines precedent-setting operational characteristics with the ability to go from casual dry land walking to harsh environments without changing knees.



- ◆ TATRC managed a multiyear effort by MIT researchers to develop the Powerfoot BiOM Prosthesis, drastically reducing lower back pain and the amount of effort required to walk and improving the quality of life of amputees.
- ◆ A DoD Center Alliance for Dietary Supplement Research was established between USARIEM/Military Nutrition Division and the Uniformed Services University of the Health Sciences (USUHS).
- ◆ USAARL injury analyses on Stryker and MRAP accidents led to improvements to combat vehicle Soldier restraint.
- ◆ USARIEM collaborated with NSRDEC to evaluate a new body armor/backpack load configuration for use in Afghanistan that involved biomechanics, physiological measurements, human factor assessments, cognitive function, and marksmanship.
- ◆ USAARL published an American National Standards Institute/Acoustical Society of America (ANSI/ASA) standard that defines methods to measure the hearing protection of devices designed to protect against impulsive noise.
- ◆ USARIEM received a U.S. Patent on "Body Thermoregulation Using Skin Temperature Feedback."
- ◆ USARIEM demonstrated that a novel pharmacological treatment involving adenosine A3 receptor stimulation reduced skeletal muscle injury in an animal model in response to blunt trauma.
- ◆ USAARL developed algorithms for the FOCUS head form (a face/eye injury assessment manikin) allowing researchers to assess effectiveness of face/eyewear to protect against serious injury.



- ◆ Findings from a USAARL study on dextro-amphetamine and modafinil enabled the approval of the use of modafinil by U.S. Army aviation forces.
- ◆ USARIEM invented a new evaporatively cooled protective clothing ensemble (patent pending) that should reduce overheating and heat illness hazards.
- ◆ USAMMDA provided new lots of the antimalarial drug, intravenous artesunate (under development for licensure) for compassionate use by the CDC and the Canadian Malaria Network for last line, lifesaving treatment of severe and complicated malaria. Approximately 80 cases were treated in 2010.
- ◆ The Tropical Medicine Course for Medical Personnel was re-established at USUHS (WRAIR/USUHS partnership).
- ◆ WRAIR played an integral part of the CDC Laboratory Response Network for H1N1 and characterized hundreds of flu isolates.
- ◆ Two USAMRIID vaccine candidates for filoviruses were selected by CBMS for advanced development.
- ◆ Three therapeutic candidates for filoviruses, involving USAMRIID and industry partners, were funded for further development by DTRA's Transformational Medical Technologies program.
- ◆ USAMMDA awarded a Low-Rate Initial Production Contract to Barr Pharmaceuticals for Adenovirus Vaccine (Types 4 and 7) to ensure immediate availability for U.S. military recruits on licensure (anticipated Spring 2011).
- ◆ USAMMDA received FDA clearance for an influenza diagnostic assay for use on the JBAIDS instrument.



the Health and Safety of the Force



- ◆ USAMRIID submitted more than 70 diagnostic assays to FDA for Emergency Use Authorization.
- ◆ WRAIR completed MHAT-VII flu vaccine surveillance for Asia and Africa for the annual flu vaccine.
- ◆ FDA approved the IND application for the USAMRIID ricin vaccine candidate, paving the way for a Phase 1 clinical trial.
- ◆ The Unified Culture Collection maintained at USAMRIID (which serves the entire DoD) was accredited by the American Association for Laboratory Accreditation (A2LA).
- ◆ USAMMDA developed and executed regulatory training for approximately 200 attendees from the Army, Navy, DoD, collaborators, and the French Military Medical Service to improve understanding of the regulatory process, allow direct interaction with FDA staff, and improve our developers' knowledge of FDA-regulated product development in support of the Warfighter.
- ◆ USAMRICD Chemical Casualty Care Division:
 - » Initiated distance learning via Adobe Connect to project its medical training in chemical defense by webinar format
 - » Provided unit-level training to the 115th Combat Support Hospital as a prelude to the successful conduct of the Follow-On Test and Evaluation of the 84-Bed Hospital Company Chemically Protected Deployable Medical Systems.
- ◆ USAMRICD demonstrated that a catalytic bioscavenger can protect animals from otherwise lethal exposures to a broad spectrum of different nerve agents without any indication of behavioral impairment or nerve agent-induced toxicity.



- ◆ USAMRICD submitted reports to CBMS on two Phase 4 studies in support of the Soman Nerve Agent Pretreatment, Pyridostigmine Program. Data will be used to allow for an informed review of the currently used dose of PB with respect to adequacy to provide protection against soman poisoning and will be part of the final report that CBMS submits to FDA for continued approval.
- ◆ USAMMA played a key role in the expansion of the CBRN Consequence Management Response Force Program to ensure CONUS preparedness in conjunction with DHS, MEDCOM, and NORTHCOM. It outfitted more than 14 forward sites with CBRN capability to ensure rapid deployment to multiple, near-simultaneous CBRN events.
- ◆ USAMMA provided medical materiel and equipment to return 25 Brigade Combat Teams, 15 Enabling Brigades, and 49 Echelon Above Brigade medical units to fully deployable status.
- ◆ USAMMA's depot-level maintenance operations provided the Army a cost avoidance of over \$2M by refurbishing more than 600 items of medical equipment.
- ◆ Under a TATRC SBIR Project, Piasecki Aircraft Corporation and Carnegie Mellon Robotics Institute conducted a fully autonomous, man-rated aircraft flight demonstration. The objective of this SBIR is to adapt, integrate, or develop unmanned aircraft system team member technologies to enable autonomous take-off, navigation, obstacle avoidance, landing site selection, and landing in urban and wooded terrains for the purpose of conducting eventual autonomous medical resupply and casualty evacuation missions.



Awards...

- ◆ USAMMDA's Medical Support Systems team was named the winner of the National Security and International Affairs Medal at the Service to America Medals.
- ◆ U.S. Army Center for Environmental Health Research is Service to America Medals award finalists.
- ◆ Dr. Tracy Rupp, WRAIR, named 2010 Sleep Research Society Young Investigator based on scientific excellence as reflected in a recent publication.
- ◆ JTAPIC and COL Bob Vandre won the Letterman Award for Medical Excellence in recognition of their inspiring and pioneering spirit in the field of military medicine.
- ◆ CPT Richard E. Wood, WRAIR, receives the General Douglas MacArthur Leadership Award for 2009 that recognizes Company-grade officers who demonstrate MacArthur's ideals—Duty, Honor, Country—and promote and sustain effective junior officer leadership in the Army.
- ◆ COL Nelson Michael, WRAIR, to be appointed to Presidential Commission for the Study of Bioethical Issues.
- ◆ USAMRICD scientists awarded an Army R&D Achievement Award for demonstrating that mouse embryonic stem cell-derived neurons are a highly sensitive, genetically tractable, biologically relevant cell culture platform for botulinum neurotoxin research and drug discovery. This model will enable the identification/validation of novel therapeutic targets and medical countermeasures.
- ◆ WRAIR recognized as the Federal Library and Information Center Committee's 2009 Small Library of the Year.
- ◆ Dr. Jaques Reifman, TATRC, has been selected to receive the prestigious Presidential Rank Award that honors high-performing, senior career employees for sustained extraordinary accomplishments.

For more information, please visit:

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

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medical solutions*

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

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USAMRMC Subordinate Commands

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>

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>

