

USAMRMC

U.S. ARMY MEDICAL RESEARCH AND MATERIEL COMMAND

Major 2012 Command Accomplishments

USAMRMC Vision: A trusted partner for leading biomedical research and materiel innovation for global health.

USAMRMC Headquarters at Fort Detrick, Maryland, supports 12 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 agreements (CRADAs) provide additional S&T capabilities by the leading research and development (R&D) organizations in the civilian sector. The remaining subordinate commands perform medical materiel advanced development, strategic and operational medical logistics, and contracting support to complete the life-cycle management of medical materiel. Additionally, six executive agencies focus on DoD priorities such as blast injury, investigational new drug products and protocols, global health surveillance, psychological health and traumatic brain injury, comprehensive forensic capabilities and identification, and military medical history and resources. USAMRMC's expertise in all of these critical areas has led to numerous accomplishments in 2012:



- ◆ USAISR studied the use of tranexamic acid (TXA) in severely wounded service members who required massive blood transfusions and found that those who received TXA, an antifibrinolytic drug that reduces the rate of blood clot breakdown, in addition to blood had a better chance of surviving than those who received only blood.

- ◆ TATRC managed the development of COMETS (Combat Medic Training System), an autonomous training manikin that simulates a fully armored 170 pound casualty, which was commercialized by CAE Healthcare for sales worldwide.



- ◆ MIDRP developed and fielded the Rift Valley fever virus Arthropod Vector Rapid Detection Device (AV-RDD) and the Dengue Virus Arthropod Vector Rapid Detection Device (DV-AVRDD), making it possible to monitor the spread of disease and more effectively target arthropod control measures.

Protect—Project—Sustain
our Warfighters

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



- ◆ TATRC and KCF Technologies developed a pylon for height adjustment for use with powered prosthetic limbs. The device is commercially available and being utilized by Soldiers and civilians.
- ◆ CRMRP combined the Cancer Centers of Excellence at WRAMC and NNMC to establish the John P. Murtha Cancer Center at Walter Reed National Military Medical Center.
- ◆ CRMRP continued to advance the field of regenerative medicine by selecting a consortium for the Armed Forces Institute of Regenerative Medicine II (AFIRM II). AFIRM II will receive \$75M over a 5-year period to investigate novel techniques and products.
- ◆ CRMRP Pain Center of Excellence (Army) members of the Defense and Veterans Center for Integrative Pain Management, as SMEs on pain, emphasized improvements in communication across the services and Veterans Health Administration and provided protocol oversight and administration.
- ◆ CRMRP made significant investments in the areas of pain management, sensory system traumatic injury, rehabilitation of neuromusculoskeletal injury and prosthetics, and regenerative medicine research.
- ◆ WRAIR, CCCRP, and NMRC completed a joint research trial in Afghanistan to validate diagnostic measures of mild traumatic brain injury (mTBI). This study was the first performed in the operational environment to examine changes in blood markers of mTBI to aid in the development of a blood test for mTBI.
- ◆ Based on preliminary data from a U.S. Military HIV Research Program study, WRAIR halted the use of the rapid diagnostic test to detect hepatitis C in blood and made recommendations to improve its reliability on the battlefield.
- ◆ The Army provided comprehensive care and restoration for more than 50 of the most severely injured warriors from Afghanistan at the new USAISR Burn Center at the San Antonio Military Medical Center.
- ◆ USAISR succeeded in getting freeze-dried plasma to the battlefield, allowing wounded service members to receive potentially life-saving plasma within minutes of wounding.



- ◆ USAISR provided definitive laboratory testing that demonstrated the CROc (Combat-Ready Clamp) by Combat Medical Systems® stops bleeding in body regions in which a traditional tourniquet cannot work.
- ◆ USAISR developed several FDA-regulated clinical trials in the areas of burn repair and scar mitigation and obtained approval for StrataGraft® Skin Tissue (Stratatech Corporation), a skin substitute.
- ◆ USAISR's Joint Trauma System transformed from a U.S. Army OCO-funded ad hoc activity to a tri-service DHP-funded organization and received formal recognition as an enduring tri-service program of record in the DoD.
- ◆ DLA awarded USAMMA a \$25M contract to support the creation of a Federated Enterprise Image Archive. The Universal Clinical Platform will consolidate imaging studies from 39 Army and 23 Navy sites located at military health care facilities across the globe, making clinical content available to every military physician, anytime, anywhere.
- ◆ USAMMA was awarded a contract for \$1.2B through DLA for the Integrated Operating Room Project, which will allow any agency utilizing DLA as its contracting agency to procure endoscopic equipment and integrated operating room equipment at negotiated discounts, resulting in standardization across operating rooms.
- ◆ USAMMA received designation as a research laboratory, which will allow it to enter into CRADAs with various agencies, manufacturers, and universities in support of advanced development efforts on behalf of the Warfighter.
- ◆ USAMMA executed over \$220M in medical materiel and equipment in support of the Army equipping strategy, which included the reset of 27 Brigade Combat Teams, 110 Echelons Above Brigade medical, and the modernization of four 84-bed Combat Support Hospitals in support of the Army Prepositioned Stock program.
- ◆ 6MLMC Soldiers deployed to Joint Base Dix-McGuire to support Hurricane Sandy federal relief efforts.



- ◆ USAMMA conducted joint MEDEX 2012 with the 18th MEDCOM and the 325th Combat Support Hospital, leading to the successful establishment of an 84-bed Army Prepositioned Stock hospital.
- ◆ 6MLMC hosted a lecture on U.S. national security, featuring guest speaker Mr. Charles "Cully" Stimson, former Deputy Assistant Secretary of Defense for Detainee Affairs and current Chief of Staff and Senior Legal Fellow at the Heritage Foundation, a large think tank based out of Washington, DC.
- ◆ 6MLMC's MAJ Peter A. Ramos copublished an article with LTC David L. Sloniker in the November–December 2012 issue of *Sustainment* magazine, entitled "Medical Logistics Support to Iraq: The End of an Era."
- ◆ USAARL completed the analysis of an in-theater prospective study of the Automated Neuropsychological Assessment Metric (ANAM) as a concussion assessment tool, finding that the instrument had suboptimal sensitivity and specificity for the diagnosis of TBI.
- ◆ Using a battery of tests called the Automated Binocular Vision Tester, USAARL vision researchers were able to detect subtle impairments of visual performance and physiology in mTBI patients, compared to a control group without mTBI.
- ◆ Using data from operational Soldiers before and after combat deployment, USAARL psychologists found that Soldiers returning from combat operations were more likely to engage in risky behaviors than before deployment.
- ◆ JPC-1 and TATRC supported and managed, respectively, the University of Minnesota-led Combat Casualty Training Consortium, which made significant accomplishments in addressing current gaps between the use of animals and current simulation systems intended for military medical training.
- ◆ USAMRAA provided contracting oversight of AFIRM's Cooperative Agreements with Rutgers University and Wake Forest University.
- ◆ USAMRAA awarded 793 new assistance agreements for medical R&D in the amount of \$630M.



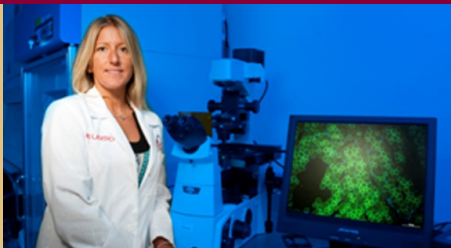
- ◆ USAMRAA supported contracts for the procurement, assembling, and fielding of medical sets, kits, and outfits (SKOs) to over 100 customers worldwide. These SKOs include medical and non-medical material and equipment components and are issued to military and civilian organizations and foreign nations.
- ◆ USACEHR researchers completed a retrospective study of pulmonary diseases/disorders in military personnel diagnosed between January 2005 and December 2009 post-OIF/OEF deployments.
- ◆ With assistance from USAMMDA, under AFIRM Cooperative Agreements, Neodyne® completed enrollment for one clinical trial, seven clinical trials continued enrollment including Stratagraft® and ReCell®, and one new clinical trial was initiated.
- ◆ USAMMDA assisted in the first of four randomized clinical trials being conducted by a DoD/VA consortium to evaluate the potential for hyperbaric oxygen in the treatment of TBI.
- ◆ Through the CCCRP, USAMRMC awarded over 60 combat casualty care research contracts/grants to university and commercial laboratories in areas including resuscitation, hemorrhage, TBI, trauma, and physiological monitoring.
- ◆ USACEHR researchers identified 26 genomic changes that may be used as biological indicators to characterize chronic post-traumatic stress disorder.
- ◆ The CCCRP supported the Afghan TBI biomarker study, a joint effort with the 1st Marine Logistics Group, by developing it, coordinating it through theater and Institutional Review Board approval, and playing a major role in its performance.
- ◆ TATRC's TEMPUS Pro, a physiological monitoring capability, demonstrated transmission of point-of-injury medical data, imagery, and eTCCC card via secure tactical radios to a Battalion Aid Station medical provider.
- ◆ TATRC's ABO/Rh Card provides real-time screening capabilities to determine blood types for prescreening military blood donors. The product is being designed to be stable for up to 12 months at ambient temperatures and at least 6 months at elevated temperatures (37°C–45°C).



- ◆ USAMMC-K completed its ISO recertification.
- ◆ TATRC successfully developed and transitioned the AHLTA Print web services application to the Military Health System for deployment to 101 military treatment facilities worldwide.
- ◆ CRMRP conducted multiagency tri-service scientific steering committee meetings to identify and prioritize capability gaps associated with pain management and neuromusculoskeletal injuries.
- ◆ WRAIR conducted the 8th Joint Mental Health Advisory Team mission to assess the health of forces deployed in Afghanistan.
- ◆ 6MLMC participated in development of TIML-S (TMIP Intermediate Medical Logistics-Supply), representing the FORSCOM units that will be using the system.
- ◆ USAARL completed a study that showed the promise of tactile displays in helping Army pilots hover safely in degraded visual conditions that are frequently encountered in combat operations.
- ◆ USAARL published the "Aviation Common Helmet Display," a set of new design guidelines for helmet-mounted displays in Army aviation that are state-of-the-art and operationally relevant.
- ◆ USACEHR's Environmental Sentinel Biomonitor system moved into advanced development.
- ◆ USACEHR's Coliform Analyzer entered the U.S. EPA's Alternative Test Procedure, an evaluation required for it to be used by personnel to certify Army field water as potable.
- ◆ USACEHR researchers defined heat stress responses in four critical organs (heart, liver, lungs, and kidneys) and identified eight candidate biomarkers of recovery to heat injury.
- ◆ USAMRIID and collaborators developed a combination of mAbs to treat infection with lethal Ebola virus. This work, published in the *Proceedings of the National Academy of Sciences*, demonstrates a promising therapeutic approach to Ebola.
- ◆ USAMRIID obtained an Emergency Use Authorization (EUA) from the FDA for use of the Ebola Zaire diagnostic assay while developing a new approach for pre-positioning critical diagnostic assay data packages for rapid EUAs in the event of an emerging disease or biological threat.



- ◆ USAMRIID completed a landmark study, conducted in a BSL-4 laboratory under GLP conditions, to evaluate candidate therapeutics for Marburg virus.
- ◆ USAMRIID initiated planning for a core test and evaluation capability for conducting GLP studies at BSL-4.
- ◆ USAMRIID established an integrated transition team and generated a master schedule in preparation for its move to a new facility scheduled for completion in November 2014.
- ◆ WRAIR supported influenza vaccine development by the WHO and CDC by conducting surveillance of Department of State personnel overseas in over 80 countries to determine the respiratory viruses affecting personnel in each area.
- ◆ WRAIR completed a pivotal Phase 3 efficacy trial of a paromomycin/gentamicin cream for the treatment of cutaneous leishmaniasis. This trial constitutes an important step forward for this product to complete all clinical studies in preparation for a New Drug Application in FY15.
- ◆ WRAIR's Vector Pathogen Detection Integrated Product Team fielded three rapid test kits to detect dengue, leishmania, and Rift Valley fever virus in infected vectors, allowing deployed entomologists to generate real-time data to inform commanders of localized risk of the priority infectious disease threats.
- ◆ USAISR found that topical imipenem resulted in mitigating over 99% of the viability of *Klebsiella* biofilms as demonstrated in an animal wound model and identified an agent effective in disrupting *Pseudomonas* biofilm structure essential for establishing and maintaining biofilm wound infections.
- ◆ USAMRAA contracted with Barr Laboratories for the delivery of adenovirus types 4 and 7 vaccine to immunize all DoD (and U.S. Coast Guard) trainees through 2014.
- ◆ USAMMDA assisted in the fielding of the adenovirus vaccine, which prevented over 15,000 adenovirus-associated cases of upper respiratory infections in basic training recruits across all five services.
- ◆ MIDRP transitioned the dengue rapid human diagnostic device to advanced development.



Awards...

- ♦ USARIEM researcher Dr. Maria Urso received the Presidential Early Career Award for Scientists and Engineers.
- ♦ USAISR received the Committee on Tactical Combat Casualty Care Award for Excellence.
- ♦ USAISR researcher Dr. Heather Pidcock received the 2012 Endocrine Specialty Award from The Society of Critical Care Medicine.
- ♦ USAMRIID researcher Dr. Les Dupuy and colleagues at EpiVax, Inc., of Providence, Rhode Island received a poster award at the 2011 Chemical and Biological Defense Science and Technology Conference sponsored by the Defense Threat Reduction Agency.
- ♦ USAMRIID Senior Scientist Dr. Arthur M. Friedlander was named a finalist for the Samuel J. Heyman Service to America Medal, sponsored by the nonprofit Partnership for Public Service.
- ♦ USAMRICD scientist Dr. Shane Kasten along with Takwen Kajih, Tom Rusek, Douglas Cerasoli, and Sean Hodgins, received an award for best presentation from the Joint Science and Technology Office of the Defense Threat Reduction Agency.
- ♦ USAMRICD employees were recognized by the Baltimore Federal Executive Board's 2012 Excellence in Federal Career Awards Program. Gold award recipients were Lt. Col. Timothy Byrne, Sgt. 1st Class John Evans (retired), Spc. Leslie Greenway, and Dr. John H. McDonough; silver award recipients were: Dr. David Lenz and Erin Sarricks; silver team award recipients were: Robyn Lee and Pauletta Adkins (IACUC team) and Tracey Hamilton, John Hengemihle, James Hughes, Kathy Holmes, Erin Sarricks, Denise Kniffin, and Erin O'Keefe (Comparative Pathology Support Team); and bronze award recipients were: Kathie L. King, Cristin C. Rothwell, Karen K. Clemens, Louis Gizara, and Lt. Col. Shannon Stutler.

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

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

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.usaistr.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.usammmda.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>

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*

