



USAMRMC

STRATEGIC COMMUNICATION PLAN

U.S. ARMY MEDICAL RESEARCH AND MATERIEL COMMAND



Clinical and Rehabilitative Medicine Research Program (CRM RP)

Mission: The Clinical and Rehabilitative Medicine Research Program focuses on definitive and rehabilitative care innovations to reset wounded warriors, in terms of duty performance and quality of life.

Background

Three-fourths of all U.S. military casualties in Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) are caused by explosive weaponry. Due to advances in trauma care, increasing numbers of service members are surviving with extreme trauma to the extremities and head. Casualties include traumatic brain injury (TBI), blast injury, amputations, trauma of the eye or ear, and post-traumatic stress disorder. These injuries are driving changes in health care needs and, in turn, changes in research and development. In recognition of the need to expand the USAMRMC's traditional research focus to include definitive and rehabilitative care innovations required to "reset" the terms of duty performance and quality of life of wounded Soldiers, USAMRMC created CRM RP in September 2008. CRM RP focuses on accelerating restorative and rehabilitative research. Program emphasis is working on developing products in the areas of burn repair; compartment syndrome treatments; wound healing without scarring; limb reconstruction, regeneration, or transplantation; rehabilitation and pain management; and vision.

The program has multiple initiatives to achieve its goals, including improving prosthetic function, enhancing self-regenerative capacity, improving limb/organ transplant success, creating full functioning limbs/organs, improving pain management, enhancing rehabilitative care, repairing damaged eyes, and treating visual dysfunction following injury. Eye injury accounts for nearly 13 percent of all Warfighter injuries. USAMRMC and CRM RP manage research on vision restoration and rehabilitation through CRM RP, as well as the Congressionally Directed Medical Research Programs (CDMRP) and the Telemedicine and Advanced Technology Research Center (TATRC). CRM RP products will aid in decreasing the ultimate debilitation, disfigurement, and disability of injured Soldiers. Benefits include rapid return to duty, fewer losses of personnel to permanent disability, a decrease in costs for long-term care of wounded personnel, and an increase in Warfighter morale.

CRM RP provides policy and process oversight for all clinical and rehabilitative medicine congressional programs managed by TATRC and CDMRP. CRM RP is the lead for program development and oversight of the Armed Forces Institute of Regenerative Medicine (AFIRM). In addition, CRM RP leverages research efforts in other federal laboratories, universities, and industry.

Key Themes & Messages

- CRM RP plans, coordinates, and monitors a research and development program, which focuses on developing definitive and rehabilitative care to provide the best medical solutions and latest technologies to wounded warriors.

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Clinical and Rehabilitative Medicine Research Program (CRM RP)

- CRM RP manages a core research program conducted internally at DoD labs and medical centers and externally by organizations such as universities and industry partners.
- CRM RP coordinates efforts with the National Institutes of Health (NIH) and the Department of Veterans Affairs (VA). These efforts include AFIRM as well as advanced prosthetics research.

Q & A

Q: What are CRM RP's chief accomplishments?

A: CRM RP is the lead for program development and oversight of AFIRM, which is an impressive multi-institutional, interdisciplinary network that has led to the initiation of 14 regenerative medicine clinical trials for severely wounded service members. CRM RP also more tightly links the USAMRMC research and development community with the clinical investigations community of the U.S. Army Medical Command and the Military Health System. For example, work with the VA is advancing on developing upper and lower prosthetics that will permit wounded service members to not only maintain or regain function but to also return to active military service.

Q: What products does CRM RP hope to play a role in developing?

A: CRM RP anticipates developing products in the following areas:

- Burn repair: Engineering skin products, bioprinting skin in the field, and repairing with stem cells derived from amniotic fluid.
- Compartment syndrome treatments: Reducing the inflammation after surgery that can lead to increased pressure, impaired blood flow, nerve damage, and muscle death.
- Wound healing without scarring: Reducing functional detriments associated with severe wound scars as well as improving cosmetic appearance.
- Limb reconstruction and regeneration: Building on advancements in neural interfaces, nanotechnology, and prosthetic design to improve foot and knee prosthetics, control, and tactile feedback; applying neural interfaces to limb prosthetics; and engineering tissue and scaffolds for rebuilding lost tissues and bone.
- Limb transplantation: Improving drugs and protocols to control transplant rejection in patients.
- Rehabilitation and pain management: Developing exercise and fitness systems and strategies for amputee and neuromusculoskeletal injury rehabilitation and developing new technologies and improved strategies for managing acute and chronic pain.
- Vision: Improving methods for diagnosing and treating eye injuries, developing treatments for vision dysfunction due to TBI or other injuries, developing retinal and prosthetic devices to restore vision, and developing vision rehabilitation technologies.

Q: Has CRM RP identified any capability gaps?

A: Yes. Gaps include:

- Repair of extremity, craniomaxillofacial, and genitourinary injuries
- Ability to control immunomodulation (a substance to regulate immune function and promote healing and limit injury)





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- Long-term success of implants
- Rehabilitative strategies for spinal injuries
- Guidelines and standards of care
- Psychosocial aspects of rehabilitative care
- Pain management
- Models of health care delivery and related costs

Q: Does CRM RP partner with the Military Amputee Research Program (MARP)?

A: The MARP ended in FY10. CRM RP coordinates the same MARP-related research via the Center for the Intrepid, located at Brooke Army Medical Center in San Antonio, and the Traumatic Extremity Injuries and Amputations Center of Excellence (EACE). The EACE is actually a system of all major rehabilitation facilities within DoD and the Veterans Health Administration and includes seven VA Regional Amputee Care Centers.

Q: TATRC conducts research in prosthetics, among other projects. What role does CRM RP play in that effort?

A: CRM RP provides integration and process oversight for all clinical and rehabilitative medicine congressional programs managed by TATRC, such as prosthetics. TATRC's website is www.tatrc.org.

Q: Does CRM RP and its partners abide by animal use guidelines in its research?

A: All animal research is conducted in accordance with the Animal Welfare Act Regulations, DoD Instruction 3216.01, and procedures described in the *Guide for the Care and Use of Laboratory Animals*. All intramural facilities are fully accredited by the Association for Assessment and Accreditation of Laboratory Animal Care International (AAALAC). Extramural facilities are not required to be AAALAC accredited, but in the absence of accreditation, they are required to either hold a Public Health Service Assurance or provide written assurance that all DoD-sponsored animal studies will be conducted in accordance with the Guide, which is the basis for AAALAC accreditation.

Q: Do civilians or military personnel participate as subjects in CRM RP's research?

A: CRM RP does have human subjects participating in CRM RP-sponsored research projects, and their participation abides by the regulations and laws for human subject research project participation.

Q: What organizations does CRM RP partner with?

A: CRM RP partners with NIH, the VA, the AFIRM (approximately 30 different academic institutions), and the Bridging Advanced Developments for Exceptional Rehabilitation (BADER) Consortium (four military treatment facilities and 14 academic and industry partners). BADER is the newest CRM RP-related consortium whose overarching goal is to establish evidence-based orthopaedic rehabilitation care that results in optimal functional outcomes of combat and combat-related musculoskeletal injuries.

Q: How do the programs at NIH and the VA work in coordination with this program?

A: In addition to being stakeholders in and providing funding for AFIRM, VA is also heavily involved in the CRM RP prosthetics and amputee rehabilitation research efforts.





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Q: Does CRM RP's research involve the use of stem cells?

A: Some CRM RP research projects use stem cells from amniotic fluid to repair burns.

Q: Is CRM RP's research transparent or publicly available?

A: Research efforts funded through the AFIRM can be viewed at www.afirm.mil.

Q: Where does CRM RP receive its funding? How much will it receive in 2012?

A: Historically, CRM RP's research funding was provided through the U.S. Army and the Defense Health Program (DHP). In the past year (and the upcoming year), a majority of CRM RP's funding will come from DHP research monies. The funding amount for FY12 will depend on the medical research allocations in the budget.

Q: What's on the horizon for CRM RP?

A: CRM RP will continue its current research strategy focused on restoring and resetting wounded warriors. Additional emphasis will be placed on advancing battlefield pain management, transplantation science, and continuing the AFIRM's tremendous work.



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