Telemedicine & Advanced Technology Research Center (TATRC)

TATRC Overview: Research Shaped to Meet Military Needs

Connecting People, Activist Management, Problem Solving
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Fulfilling the Vision Thru R&D

Mission
Explore science and engineering technologies ahead of programmed research, leveraging other programs to maximize benefits to military medicine

Vision
Be the DoD model of government enablement of technology transfer to use
TATRC is an organization within the headquarters of the US Army Medical Research and Materiel Command with three key functions:

- Bring together engineering and physical and life sciences (“convergence”) to solve problems in military medicine
- Medical science and technology scouts for the DoD
- Medical research innovation in the DoD with transition to programs of record

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<th>Time Horizon:</th>
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<th>TATRC</th>
<th>Program of Record</th>
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Warfighter Impact:
Convergence is the ongoing merger of life, physical and engineering sciences, involving a new integrated approach for achieving advances.

Examples are bioinformatics, synthetic biology, tissue engineering, biomaterials, computational biology ("nano-bio-info" convergence).

Convergence is a blueprint for innovation necessary for accessible, personalized, affordable healthcare.

Convergence is embedded in the DoD through TATRC and its external partners (e.g., CIMIT).
Fulfilling the Vision Thru R&D

**MEDICINE IN AUSTERE ENVIRONMENTS**
- Robotic rescue & evacuation
- Shelf stable diagnostics & vaccines
- Blood products & blood safety

**E-HEALTH**
- Health information portal unified EHR
- Research data cube/medical outcomes
- Pharmacovigilance

**DIGITAL WARRIOR**
- Virtual environments
- Computational models & tools
- Human/soldier phenome
- Performance & injury prediction models

**HOSPITAL OF THE FUTURE**
- Natural orifice transluminal endoscopic surgery
- Advanced medical imaging
- Distance medical training & simulation

**INTEGRATIVE MEDICINE**
- Operating room of the future
- Prosthetics and human performance
- Regenerative medicine & biomaterials

**KEY TATRC INITIATIVES**
- Cell phone-based systems
- Remote biomonitoring
- Global Biosurveillance

- Optimal healing environments
- Advanced pain management
- Complementary and alternative medicine
- Neuroplasticity/resilience
- Genomics/personalized medicine
Representative Centers and Consortium Programs

- **CIMIT** - Center for Integration of Medicine & Innovative Technology, Boston, MA
- **NCIRE** – The Veterans Health Research Institute, San Francisco VAMC, CA
- **Ernest Gallo Clinic & Research Center** – Emeryville, CA
- **Samueli Institute** – Alexandria, VA
- **NETPR** - Neurotoxin Exposure Treatment Parkinson’s Research
- **VRP** - Vision Research Program
- **HFHCN** - Hawaii Federal Health Care Network, Honolulu, HI
- **NFGC** - National Functional Genomics Center, Moffitt Cancer Center, FL
- **CASIT** - Center for Advanced Surgical and Interventional Technology, UCLA, CA
- **CeMBR** - Center for Military Biomaterials Research, Rutgers, NJ
- **DREAMS** - Disaster Relief and Emergency Medical Services, UT-Houston, TX

- **AAMTI** - AMEDD Advanced Medicine Technology Initiative
- **SBIR / STTR** - Small Business Innovation Research / Small Business Technology Transfer
Recent Program Accomplishments

Next Generation Medical Training Manikin

Cone Breast CT Imaging - Koning Corp, NY

Active Thermal Resuscitation
U of Texas Houston

mCare - Mobile Phone Messaging Application for the Case Management of Wounded Warriors, TATRC-South

Composite Tissue Allotransplantation
Jewish Hospital Foundation, KY

Powered Leg Prosthesis
Dr. Hugh Herr, MIT

Nationwide Health Information Network (NHIN, TATRC)
TATRC Funding History

Support to Research

Key Sources: CSI, AAMTI(P8), SBIR/STTR, Reimb./OPM

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TATRC Convergence & Subject Matter Expertise

The New Alignment with the New Fiscal Reality

- Human Performance Optimization
- Integrative Health & Personalized Medicine
- Resilience & Behavioral Health
- Pain Management
- Advanced Prosthetics & Neural Engineering
- Neurological Protection Technologies
- Medical Simulations & Training Research
- Health Information Technologies Research
- Computational Biology & Biomonitoring Research
- Functional Restoration & Enhancement of Sensory Systems
- Blood Products, Diagnostic & Surgical Technologies
- Medical Imaging Technologies
- Telemedicine & Mobile Health Research
- Medical Robotics & Casualty Evacuation
- Discoveries & Enabling Bioengineering Technologies
TATRC Product Lines & Core Competencies

- Medical Robotics
- Human Performance Technologies / Prosthetics
- Medical Imaging Technologies
- Health Information Technologies
- Neurosciences
- Tissue Engineering, Biomaterials, and Nanomedicine
- Computational Biology
- Simulation and Training Technology
- Computational Biology
Joint Technical Coordination Group 1 (JTCG1) Program

MED SIM

- Combat Casualty Training Consortium
- Medical Practice Initiative
- Patient Focused Initiative
- Developer Tools for Medical Education

HEALTH IT

- Mobile Health
- Medical Device Interoperability
- Open EHR Way Ahead

MODELING

- Virtual Prototyping Tools
- Sensor Data Fusion
- Research Modeling and Tools

CONVERGENCE SCIENCE AND INNOVATION

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TATRC Program Sustainment

Key Funding Streams
- Congressional Special Interest programs
- Small Business Innovative Research (SBIR)
- AMEDD Advances in Medical Technology Initiative (P8)
- Operational Telemedicine (P8)
- Execution of eDHP Medical Research Program
- Reimbursables (DARPA, OASD(HA), OTSG, JPC1, ONR)

FY11 Congressional Special Interest Programs
- Neurotoxin Exposure Treatment (Parkinson’s) Research
- Peer Reviewed Alzheimer’s Research Program
- Peer Reviewed Vision Research Program
- Substance and Alcohol Abuse Research
- Pain Management Program

Other Funding
- Medical Research Innovation/Convergence Program
Ongoing Experiments in Product Transition

- **FirstLink (PIN)** – Ongoing Market Overview Analysis (MOA): 15 completed
- **CAP-Larta Institute** (Industry Sr. Exec. Membership) – 25 initial assessments > invited 10 companies to participate in commercialization assistance program
- **JHU Carey Business School (CBS)** – Discovery to market – selected 7 TATRC partners as pilot for the CBS curriculum for commercialization consulting services
- **StarTech Foundation**, San Antonio – PIA to review DoD venture programs and recommend a model/prototype program to accelerate commercialization
- Waiver for Foreign Manufacture for licensed CIMIT/DoD product: COMETS
- **Proof of Concept Institute (PCI)**, Von Liebig Center nonprofit spin-off, San Diego (Funded PIA) – develop internet web-based content for TATRC commercialization training guide
- **National Association of Seed and Venture Funds (NASVF) (Funded PIA)** – commercializing technologies from a federal lab (TATRC)
- **University of Nebraska Technology Transfer (UNeMED) (PIA)** – 8-10 May Midwest Medical Technology Transfer Symposium in Omaha, NE
- **Hawaii Fed Healthcare** commercialization assistance team visits – planned for later in 2011
Why TATRC is Successful

• Agility that comes from not being constrained by the RDT&E programming and planning cycle

• We don’t jump off our best horses in the middle of the race (i.e., not just a grants program distributing funding, we want to cross the finish line to solve relevant military medical problems)

• Known entity for revolutionary investigators to seek support for unconventional ideas and to connect to each other

• “Deputy for Advanced Medical Technology” reports directly to CG, USAMRMC, without bureaucratic layers