



U.S. ARMY MEDICAL RESEARCH & MATERIEL COMMAND

Telemedicine & Advanced Technology Research Center (TATRC)

TATRC Overview: Research Shaped to Meet Military Needs



Connecting People, Activist Management, Problem Solving

Report Documentation Page

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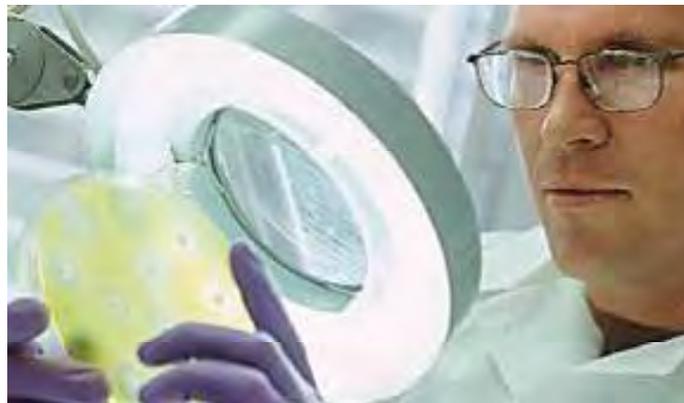


Fulfilling the Vision Thru R&D



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 Purpose and Mission



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





Convergence Science

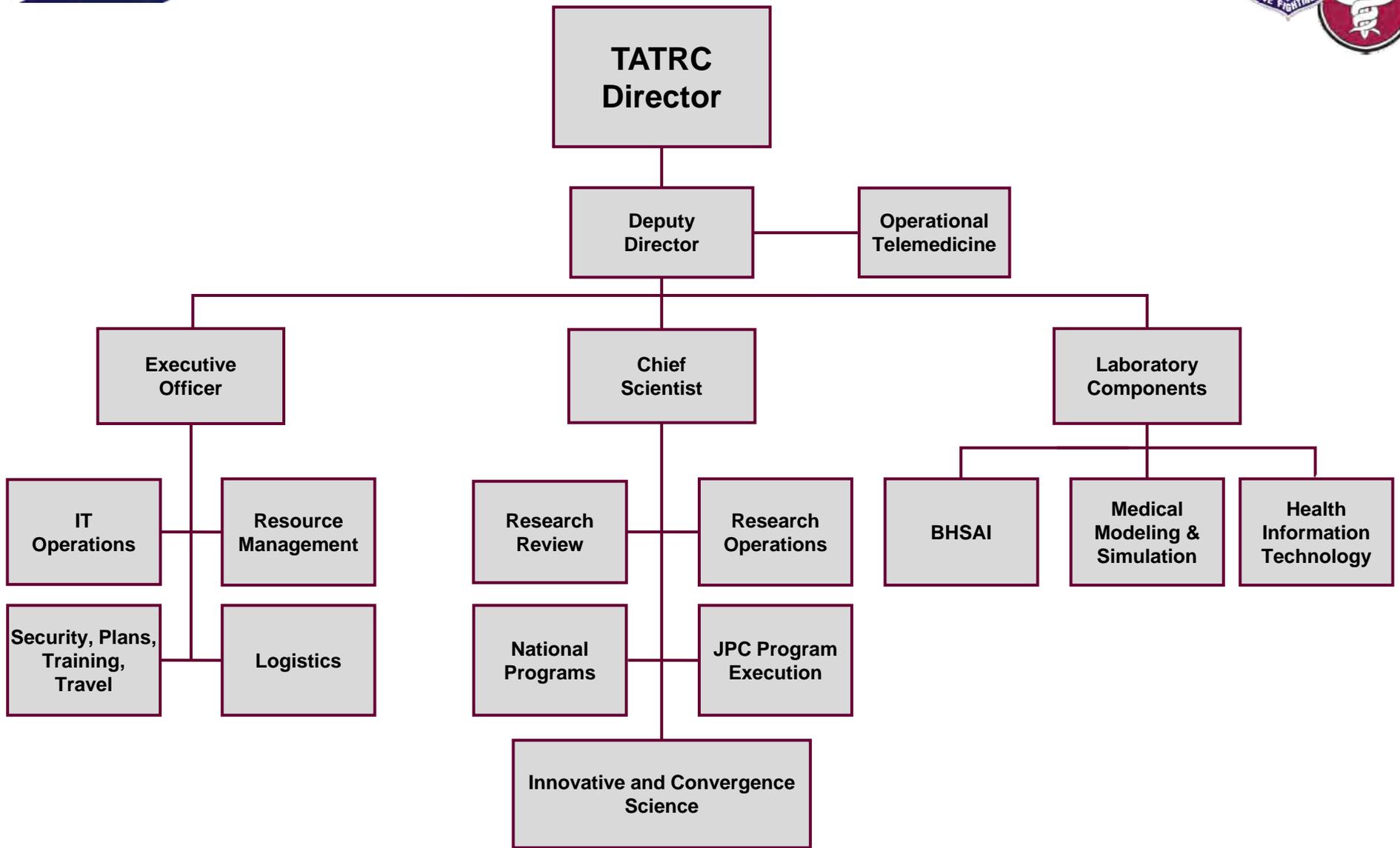


- Convergence is the ongoing merger of life, physical and engineering sciences, involving a new integrated approach for achieving advances
- Examples are bioinformatics, synthetic biology, tissue engineering, biomaterials, computational biology (“nano-bio-info” convergence)
- Convergence is a blueprint for innovation necessary for accessible, personalized, affordable healthcare
- Convergence is embedded in the DoD through TATRC and its external partners (e.g., CIMIT)



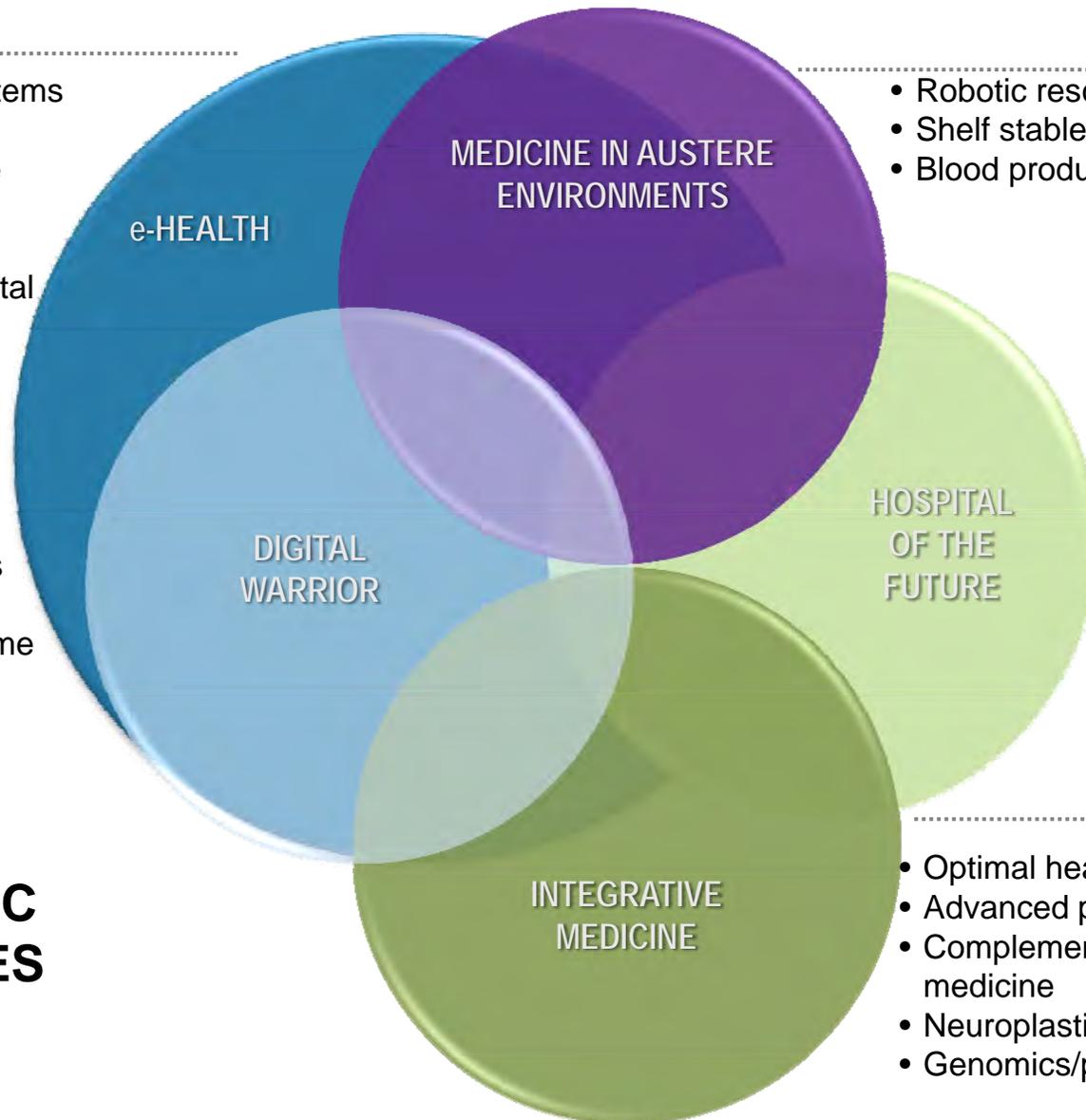


TATRC Organizational Chart





Fulfilling the Vision Thru R&D



- Cell phone-based systems
- Remote biomonitoring
- Global Biosurveillance

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

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

- Robotic rescue & evacuation
- Shelf stable diagnostics & vaccines
- Blood products & blood safety

- Natural orifice transluminal endoscopic surgery
- Advanced medical imaging
- Distance medical training & simulation

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

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

KEY TATRC INITIATIVES



Models of Research Innovation

Technology Development & Transition Models



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

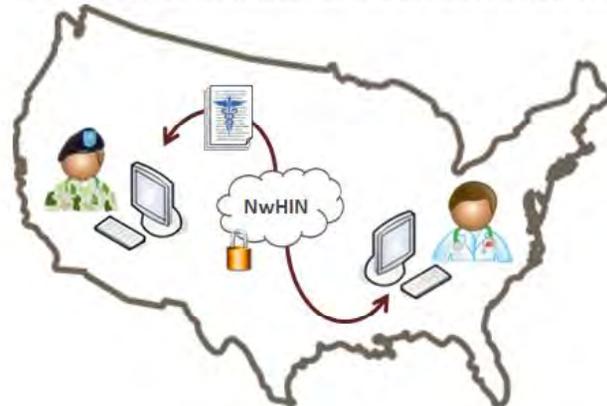


Next Generation Medical Training Manikin



Nationwide Health Information Network

Creating a secure patient controlled national architecture for sharing health information between DoD physicians and those who care for our beneficiaries.



NHIN,
TATRC

Cone Breast CT Imaging - Koning Corp, NY



Active Thermal Resuscitation U of Texas Houston



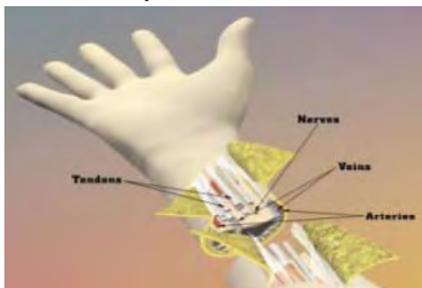
mCare - Mobile Phone Messaging Application for the Case Management of Wounded Warriors, TATRC-South



Powered Leg Prosthesis Dr. Hugh Herr, MIT



Composite Tissue Allotransplantation Jewish Hospital Foundation, KY



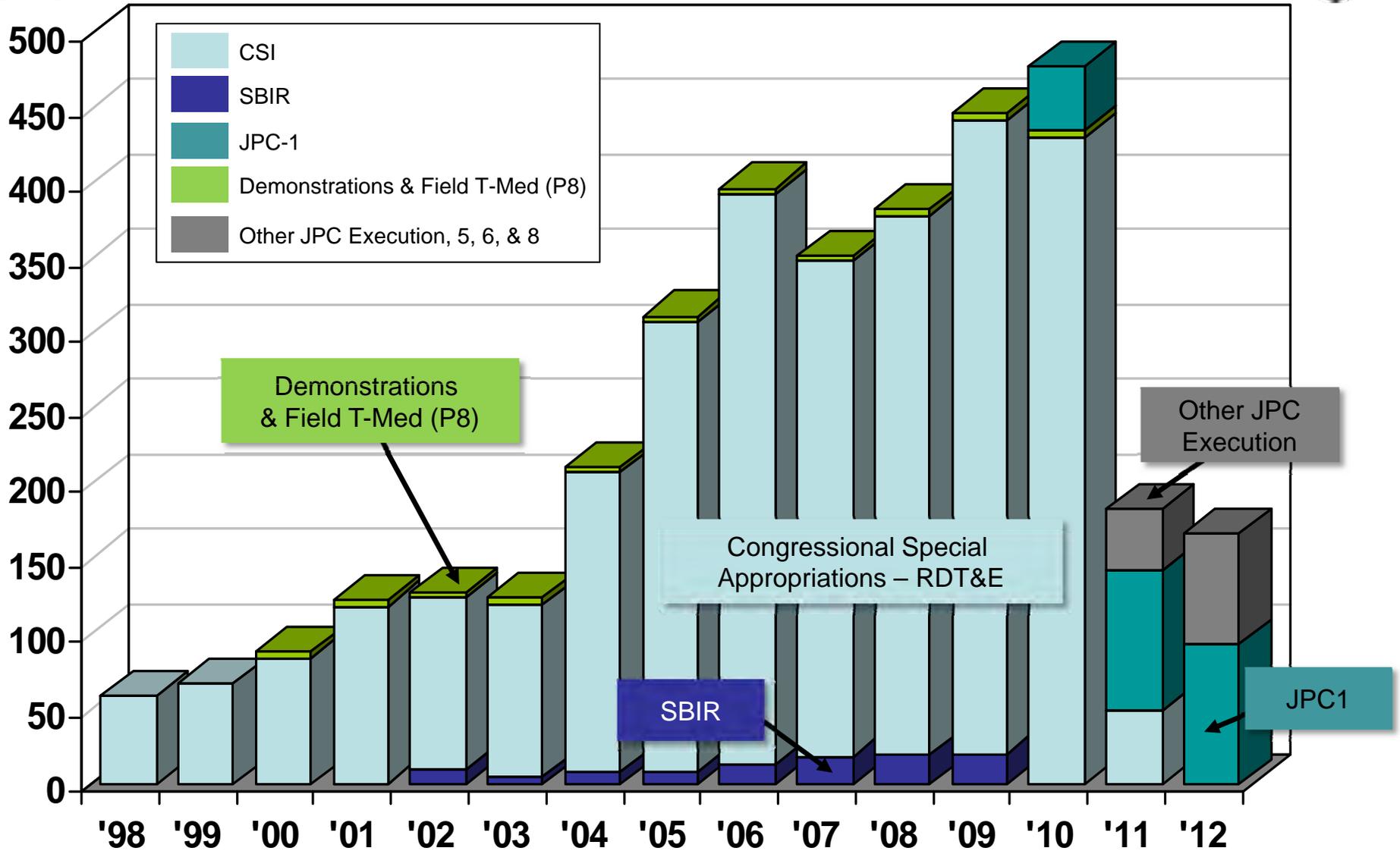


TATRC Funding History



Support to Research

Millions



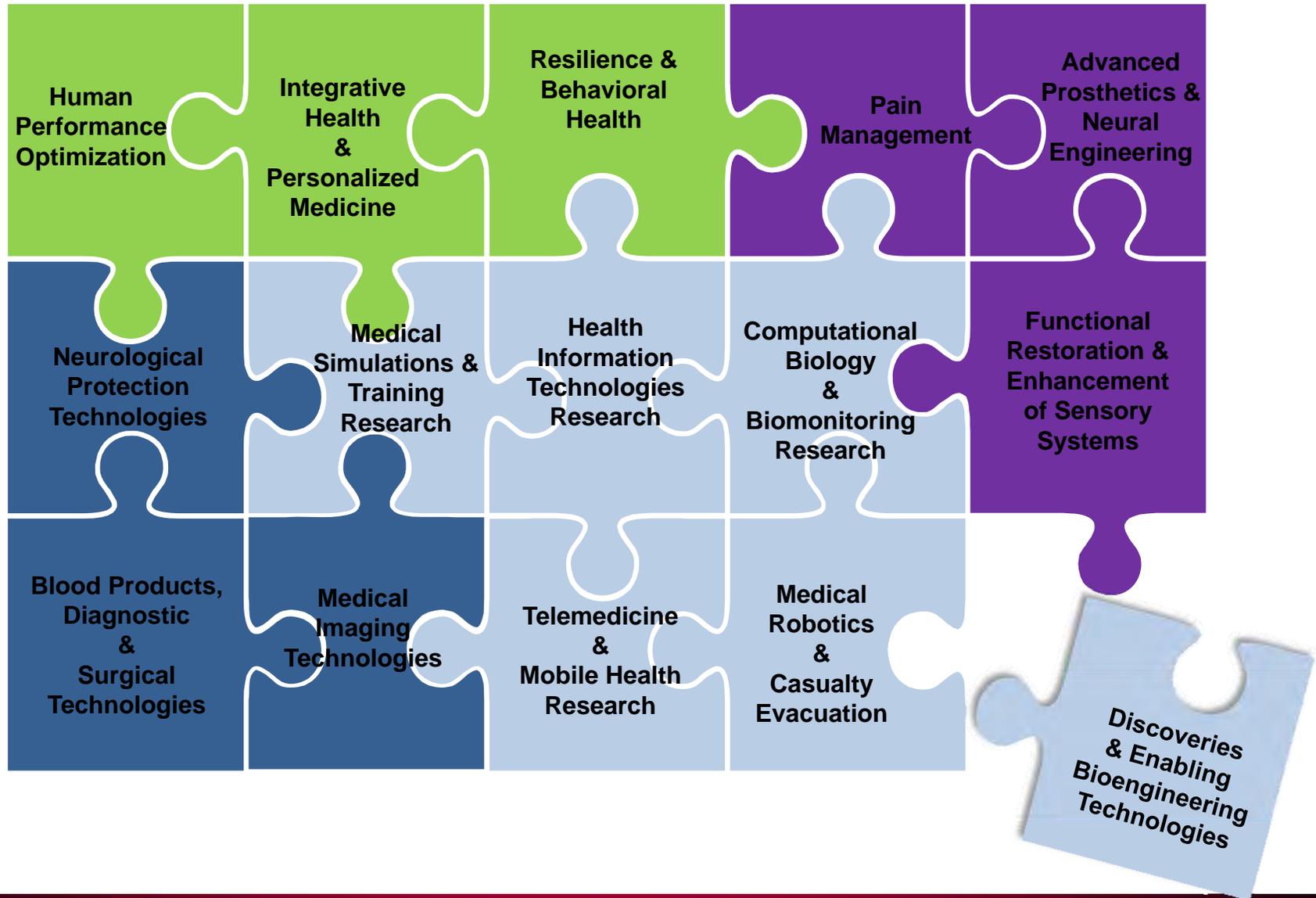
Key Sources: CSI, AAMTI(P8), SBIR/STTR, Reimb./OPM



TATRC Convergence & Subject Matter Expertise



The New Alignment with the New Fiscal Reality





TATRC Product Lines & Core Competencies



TATRC CORE COMPETENCIES

Medical Robotics



Human Performance Technologies / Prosthetics



Medical Imaging Technologies



Health Information Technologies



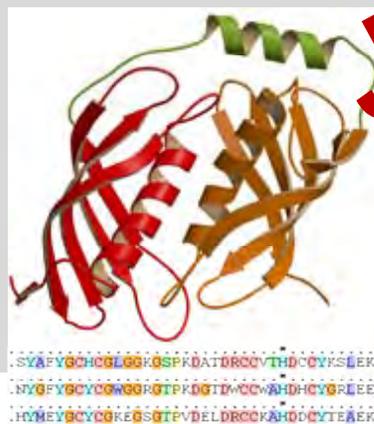
Neurosciences



Tissue Engineering, Biomaterials, and Nanomedicine



Computational Biology



Simulation and Training Technology





Joint Technical Coordination Group 1 (JTTCG1) Program



MED SIM

Combat Casualty Training Consortium



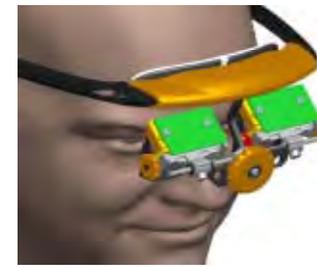
Medical Practice Initiative



Patient Focused Initiative



Developer Tools for Medical Education

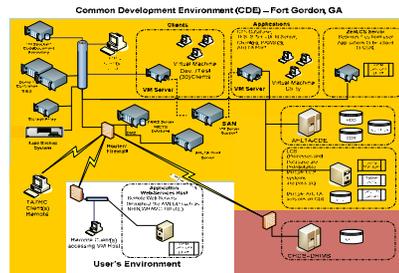


HEALTH IT

Mobile Health



Medical Device Interoperability

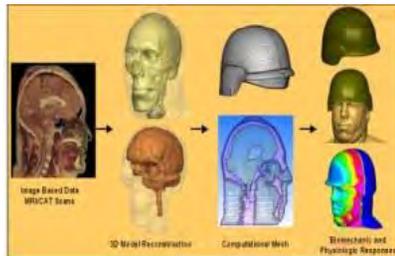


Open EHR Way Ahead

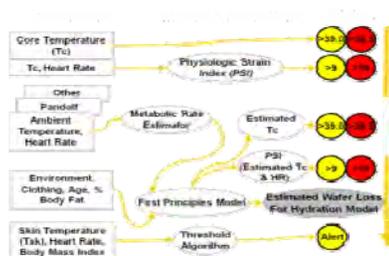


MODELING

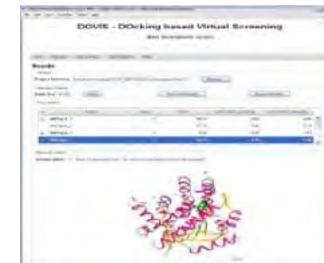
Virtual Prototyping Tools



Sensor Data Fusion



Research Modeling and Tools



CONVERGENCE SCIENCE AND INNOVATION



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