ASBREM Profile

• ASBREM created in 1981 as a model for DoD Reliance 21
• Includes both S&T and Advanced Development enabling streamline transition coordination and planning
• DoD is the lead government agency for trauma research
• DHA IOC October 2013 created RDA Director in April 2014
• RDA Director dual hats as the ASBREM COI Chair
• Aligned with US FDA regulatory processes to develop medical products for the warfighter
• Government / University / Industry collaboration
ASBREM Organization

ASD(RE) \hspace{1cm} ASD(HA)

S&T EXCOM

ASBREM

Senior Leader Advisory Group (SLAG)

S&T Advisory Group (STAG) \hspace{1cm} Advanced Development Advisory Group (ADAG)

ASBREM Secretariat

Joint Technology Coordinating Groups (JTCG)
ASBREM COI Membership

ASBREM COI STEERING LEADERSHIP

Dr Sean Biggerstaff – Interim Chair ASBREM COI and SLAG
Dr. Terry Allard – Chair ASBRAM STAG
Dr. Kenneth Bertram – Chair ASBREM ADAG

JOINT TECHNOLOGY COORDINATING GROUPS (JTCGs)

JTCG-1
Biomedical Informatics & Health Info Systems and Technology
Dr. Jan Harris

JTCG-2
Military Infectious Disease
COL Michael Kozar

JTCG-5
Military Operational Medicine
LTC Dennis McGurk

JTCG-6
Combat Casualty Care
COL Todd Rasmussen

JTCG-7
Medical Radiological Defense
Dr. Robert Hartzman

JTCG-8
Clinical Medicine and Rehabilitation
LTC Teresa Brininger

JTCG-9
Medical Chem Bio Defense
Dr Kimberly LeButt

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Integration of DoD 5000 and FDA Regulation Process

DoD Acquisition
- Research
- Materiel Solution Analysis
- Tech Maturation & Risk Reduction
- Eng & Manufacturing Development
- Production & Deployment
- Operations & Support

FDA Regulated Development
- Discovery
- Preclinical Testing
- Proof of Concept Clinical
- Clinical Testing
- Marketing & Production
- Sustainment

Funding
- IND/IDE
- Marketing Application
- FDA Approval

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Scope of Military Medical R&D

“Discovery to Delivery”

Diagnosis → Treatment → Rehabilitation → Recovery

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### JTCG Portfolio Taxonomies (Tier I and II)

<table>
<thead>
<tr>
<th>JTCG – 1</th>
<th>Biomedical Informatics &amp; Health Info Systems and Technology</th>
</tr>
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</table>
| • Medical Simulation and Training  
• Health Information Technology and Informatics |

<table>
<thead>
<tr>
<th>JTCG – 2</th>
<th>Military Infectious Disease</th>
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</thead>
</table>
| • Parasitic Infectious Disease  
• Bacterial and Fungal Infectious Disease  
• Viral Infectious Disease  
• Diagnostics, Insect Vectors and Research Support |

<table>
<thead>
<tr>
<th>JTCG – 5</th>
<th>Military Operational Medicine</th>
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</table>
| • Injury Prevention and Reduction  
• Psychological Health and Resilience  
• Physiological Health and Performance  
• Environmental Health and Protection |

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<thead>
<tr>
<th>JTCG – 6</th>
<th>Combat Casualty Care</th>
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</table>
| • Diagnosis and Treatment of Brain Injury  
• Devices and Therapeutics for Hemorrhage Control & Resuscitation and Blood Products  
• Enroute Care  
• Forward Surgical/Intensive Critical Care (including Advanced Monitoring)  
• Treatments for Extremity Trauma, Tissue Injury, Cranio-maxillofacial Injury, Lung Injury, and Burns  
• Military Medical Photonics |

<table>
<thead>
<tr>
<th>JTCG – 7</th>
<th>Medical Radiological Defense</th>
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</thead>
</table>
| • Radiation Countermeasures: Prophylaxis and Therapeutics  
• Biodosimetry  
• Low-Level, Delayed, and Chronic Radiation Effects  
• Radiation Combined Injury  
• Internal Contamination |

<table>
<thead>
<tr>
<th>JTCG – 8</th>
<th>Clinical and Rehabilitative Medicine</th>
</tr>
</thead>
</table>
| • Neuro-musculoskeletal Injury Rehabilitation  
• Pain Management (Acute/Chronic/Battlefield)  
• Regenerative Medicine and Transplants  
• Sensory Systems (Visual, Auditory and Vestibular) |

<table>
<thead>
<tr>
<th>JTCG – 9</th>
<th>Medical Chem Bio Defense</th>
</tr>
</thead>
</table>
| • Biological Therapeutics  
• Chemical Therapeutics  
• Toxin Therapeutics  
• Biological Prophylaxis  
• Chemical Prophylaxis  
• Toxin Prophylaxis  
• CB Diagnostics |

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JTCG-1: Biomedical Informatics/Health Info Systems Technology

Portfolio Overview
JTCG-1: Level II Taxonomy

- Medical Simulation & Training
  - Combat Casualty Training
  - Medical Readiness

- Health Information Technology & Informatics
  - Theater/Operational Medicine
  - Military Health Care Services
  - Information Technology Infrastructure and Data Management
  - Medical Resourcing

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Medical Simulation & Training
Current Roadmap Goals

• A Platform which allows for scaling a standardized system to a “fidelity appropriate” training tool, utilizing future commercial upgrades, as available

• Appropriate Fidelity Responsive Tissue Behaviors incorporated into Medical Simulation Systems

• Effective Team Training with emphasis on working under stressful scenarios throughout the entire continuum of care

• Evidence-based training methodologies & technologies to accelerate skill acquisition and sustenance

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Portfolio Overview

JTCG-2: Level II Taxonomy

• Bacterial and Fungal Infectious Diseases
• Viral Infectious Diseases
• Parasitic Infectious Diseases
• Diagnostics, Insect Vectors and Research Support
Parasitic Infectious Diseases
Current Roadmap Goals

- Drugs for prevention and treatment of malaria
- Vaccine for the prevention of malaria
- Topical drug to treat cutaneous leishmaniasis
JTCG-5: Military Operational Medicine

Portfolio Overview

JTCG-5: Level II Taxonomy

- Environmental Health & Protection
  - Heat, Cold & Terrestrial Attitude
  - Environmental Toxicant Exposure
  - Warfighter Physical Performance

- Injury Prevention & Reduction
  - Musculoskeletal Injury
  - Sensory Performance, Injury & Protection
  - Aircrew Health & Performance

- Physiological Health & Performance
  - Blunt, Blast & Acceleration Injury
  - Brain Health & Performance Risk
  - Cognitive Health & Performance
  - Nutrition & Weight Balance

- Psychological Health & Resilience
  - Psychiatry & Clinical Psychology Disorders
  - Behavioral Health, Wellness & Resilience
  - Millennium Cohort

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Environmental Health & Protection
Current Roadmap Goals

• Identify and validate biomarkers for both internal dosimetry and evaluation of Warfighters’ exposure to military relevant chemicals

• Develop and validate models for protecting health and performance against combined environmental threats

• Deliver validated medical standards, predictive models, and countermeasures to prevent or mitigate the effects of extreme environments
Injury Prevention & Reduction
Current Roadmap Goals

• Deliver validated injury prevention models, musculoskeletal health assessment tools, and published standards

• Deliver validated injury criteria and medical performance standards for devices protecting against hearing loss, and vestibular, ocular and facial injury

• Deliver validated standards for aeromedical support systems; validated hypoxia assessment tools and mitigation systems
Physiological Health & Performance
Current Roadmap Goals

• Validate new assessments and interventions for mild to moderate TBI in the operational and training environments

• Prevent or mitigate the effects of fatigue and/or sleep restriction on cognitive performance

• Develop physiological resilience in Service members to prevent/mitigate the negative effects of operational stressors on performance through identification and measurement of biomarkers

• Optimize nutrition-based personalized strategies to maintain physical and mental performance, to promote recovery from injury, and to maintain overall health
Psychological Health & Resilience
Current Roadmap Goals

• Deliver validated interventions for the prevention, assessment and treatment of Posttraumatic Stress Disorder (PTSD) and co-morbid mental health disorders

• Assess the impact of military service on acute and chronic physical and mental health across the military lifecycle

• Deliver evidence-based individual and group interventions and tools to build psychological resilience and better prevent, diagnose, and treat mental health issues, such as suicide and substance abuse
JTCG-6: Combat Casualty Care

Portfolio Overview
JTCG-6 Level II Taxonomy

- Diagnosis and Treatment of Brain Injury
- Devices and Therapeutics for Hemorrhage Control & Resuscitation and Blood Products
- Enroute Care
- Forward Surgical/Intensive
- Critical Care (incl. Advanced Monitoring)
- Treatments for Extremity Trauma, Tissue Injury, Cranio-maxillofacial Injury, Lung Injury, and Burns
- Military Medical Photonics

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Hemorrhage & Resuscitation Capability
Current ROADMAP Goals

• Validated Clinical Practice Guidelines for hemorrhage control and resuscitation
• Devices and drugs for control of severe bleeding in the pre-hospital environment
• Improved understanding of the impact of storage time on RBC function
• Improved safety and logistics for life saving blood products stable for use far-forward
• Validated Clinical Practice Guidelines for life-saving interventions by medics in the field using Transemic Acid and Freeze Dried Plasma
• Validated Clinical Practice Guidelines to allow prolonged field and transport care by non-physicians
• Understanding the mechanism of “Acute Coagulopathy of Trauma” and clinical practices which can avoid or treat impaired blood clotting
• Therapeutics which improve survival in casualties with severe blood loss from combat trauma

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JTCG-7: Medical Radiological Defense

Portfolio Overview
JTCG-7: Level II Taxonomy

- Radiation Countermeasures: Prophylaxis and Therapeutics
- Biodosimetry
- Low-Level, Delayed, and Chronic Radiation Effects
- Radiation Combined Injury
- Internal Contamination
Radiation Countermeasures
Current Roadmap Goals

• Validated treatment systems for complete recovery of each casualty's endogenous hematopoiesis

• Validated replacement based recovery systems of each casualty's endogenous hematopoiesis

• Validated means of replacement of inadequate hematopoietic and non-hematopoietic capacity with modified autologous cells
JTCG-8: Clinical and Rehabilitative Medicine

Portfolio Overview

JTCG-8: Level II Taxonomy

- NEUROMUSCULOSKELETAL INJURY REHABILITATION
  - Prosthetics, orthotics, spinal cord injury, and orthopedic injury rehabilitation

- PAIN MANAGEMENT
  - Management of pain ranging from the point of injury to chronic pain management

- REGENERATIVE MEDICINE & TRANSPLANTS
  - Extremity and craniomaxillofacial injuries, burns and scarless wound healing, hand and face transplants, genitourinary lower abdominal reconstruction

- SENSORY SYSTEMS
  - Visual, auditory, and vestibular dysfunction associated with traumatic injury

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Neuromusculoskeletal Injury
Current Roadmap Goals

• Reintegration and support strategies following NMS injury
• Assistive technologies towards replacement of function following NMS injury
• Predict and mitigate secondary health deficits following NMS injury
• Optimize rehabilitation strategies following NMS injury
• Validated metrics to assess rehabilitation following NMS injury
Pain Management
Current Roadmap Goals

• Alternatives to IM Morphine

• Therapeutics to alleviate pain without adverse side effects

• Knowledge products to inform a comprehensive pain management strategy
Regenerative Medicine
Current Roadmap Goals

• Regenerate functional vascularization
• Regenerate and integrate functional muscle units
• Regenerate and replace functional and aesthetic skin
• Generate and integrate functional composite tissues
• Regenerate functional neural pathways
• Regenerate functional bone tissue
Sensory Systems
Current Roadmap Goals

• Understand vision dysfunction

• Treat, rehabilitate and restore vision

• Diagnostics, treatment and rehabilitation strategies for tinnitus and hearing dysfunction

• Treatment and rehabilitation strategies to restore balance to those with traumatic vestibular dysfunction
Thank you

Questions