Headquarters U.S. Air Force

Integrity - Service - Excellence

Air Force Medical Research, Development and Acquisition in a Complex Environment

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A Complex Medical Environment

Operational Stressors
- Cognitive burden
- Physical work
- Sleep deprivation
- Traumatic Stressors
- Situational Stressors

Aircrew-Unique Stressors
- Acceleration
- Vibration
- Decompression
- Others

Combat Injuries
- Hemorrhage
- Head injuries
- Loss of limbs or appendages
- Loss of tissue
- Vision
- Hearing
- PTSD

Endemic Diseases
- Viral
- Bacterial
- Parasitic

Environmental Hazards
- Heat and cold
- Altitude
- Toxic Industrial Chemicals

CBR
- Bacterial
- Viral
- Toxins
- Nerve Agents
- Viscant Agents
- Blood Agents
- Radiation

Accidental Injuries
- Minor to life-threatening

System Hazards
- Laser
- Microwave
- Blast
- Thermobaric (heat pressure)
- Biomechanical
- Cyber attack
- Excessive sound
- Emergent weapons

Aircrew-Unique Stressors
- Acceleration
- Vibration
- Decompression
- Others

Other Stressors
- Cognitive burden
- Physical work
- Sleep deprivation
- Traumatic Stressors
- Situational Stressors

Environmental Hazards
- Heat and cold
- Altitude
- Toxic Industrial Chemicals
Air Force Medical Service: A Vision of Superior Care

- Our Vision: Our supported population is the healthiest and highest performing segment of the U.S. by 2025

- Goals
  - To sustain a healthy and fit force
  - To prevent illness and injury
  - To restore health
  - To optimize human performance

- Research, development and acquisition are among our primary means to meet our goals in an ever-changing, complex environment
En Route Care in Complex Environments

Multi-Channel NPWT

Assessment of Pain in AE

Tempus Pro

Improved SA and patient care enroute

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Rugged Ozone Sterilization System (ROSS)

Non-invasive detection of unique molecular signatures in laser-induced retinal injuries
Force Health Protection in Complex Environments

OCCUPATIONAL HAZARDS

Laser

Laser Eye Protection

Burn Pits

Remote Sensing

Chemical Releases

Handheld Retinal Camera

Airborne Laser Sensor (prototype)

HAPSITE ER
Human Performance in Complex Environments

High-Altitude U-2 Operations

F-35 Helmet-Mounted Display

KC-46 Remote Vision System

Operationally Based Vision Assessment
Operational Medicine in Complex Environments

Chronic Pain & Substance Abuse
“Rescue From Spice Intoxication”

Complex Environments
DEPLOYMENT
Post-DEPLOYMENT
Influence

Omics-Personalized Medicine
“Pyrosequencing to Reduce Time to Detection of Human Sepsis”

Patient’s DNA may be used to predict the individual’s response to therapeutics

Military Family Health & Resilience
“Biomarkers for Mental Illness and Recovery Using Sleep as a Mediator”

Regenerative / Restorative / Reconstructive Medicine
“Bioabsorbable/Biointegratable Negative Pressure Wound Therapy Sponge for Composite Tissue Loss”

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Chemical, Biological, Radiological and Nuclear (CBRN) Defense in Complex Environments

Next Generation Diagnostic System (NGDS)

Infectious Patient Transport

Medical Counter-Measures

Emerging Threats & Terrorism

Common Analytical Laboratory System (CALS)

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Small Business Innovation Research (SBIR) in Complex Environments

FY16 AFMSA SBIR Topics:

- Value Based Monitoring of Cycles of Care
- Iron Status Determination Point-of-Care Device
- Device to Prevent Retained Hemothorax
- Creating Sterile Water for Injection (SWFI) at/near Point of Injury
- Filtration Technologies for Bridge Dialysis in Austere Medicine
- Selective Aortic Arch Perfusion Technologies for Hemorrhage-induced Cardiac Arrest
Office of Research and Technology Applications

Strategic Partnerships with Industry and Academia

Air Force Activities

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INTEGRITY - SERVICE - EXCELLENCE

QUESTIONS?

BETTER HEALTH

BETTER CARE

REALLY

BEST VALUE

TRUSTED CARE ANYWHERE