

Headquarters U.S. Air Force

Integrity - Service - Excellence

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

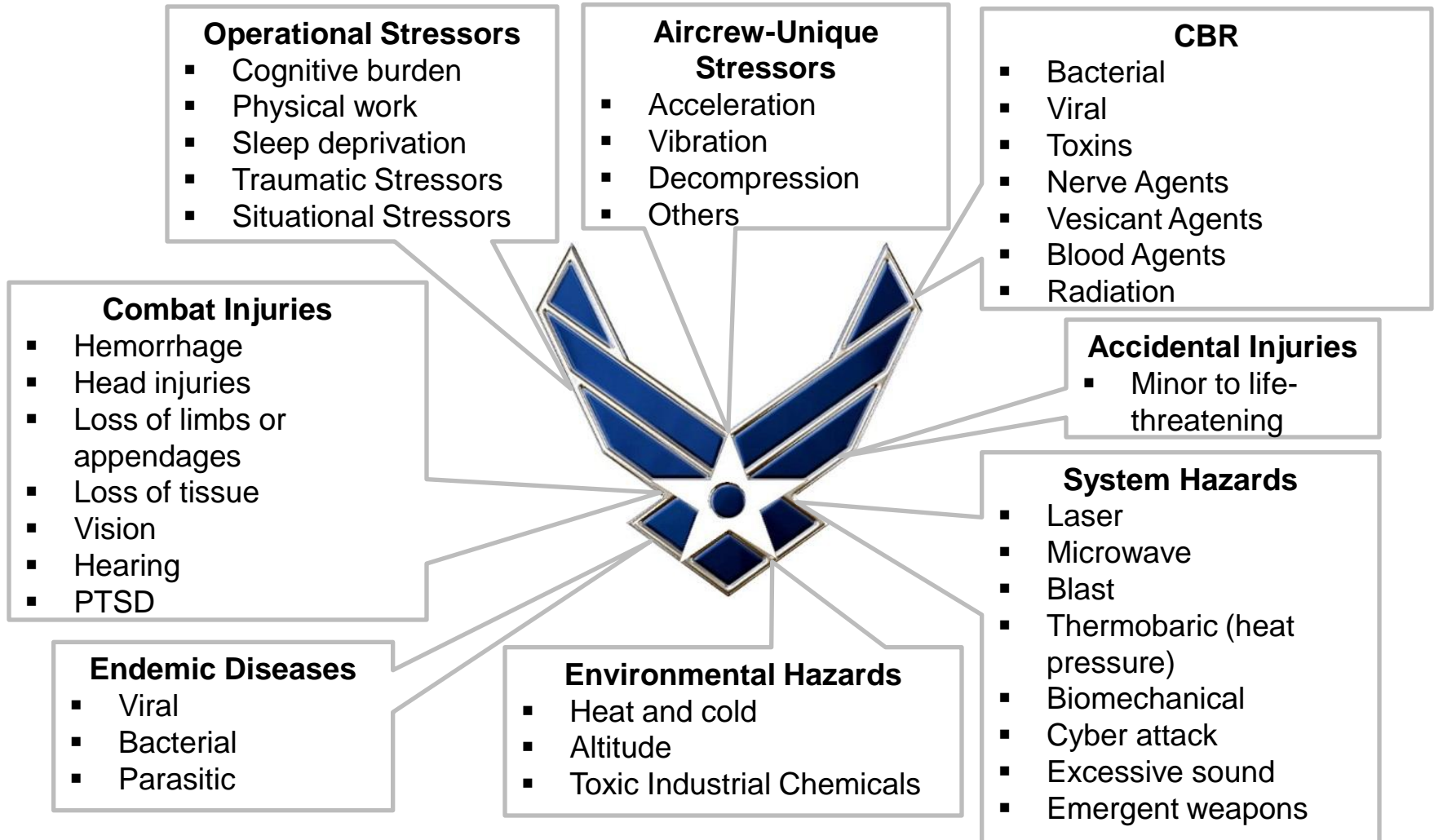


Brig Gen James McClain
Commander, Air Force Medical
Support Agency

20 April 2016



A Complex Medical Environment





U.S. AIR FORCE

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**



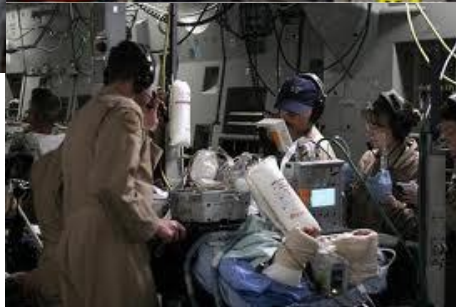
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En Route Care in Complex Environments

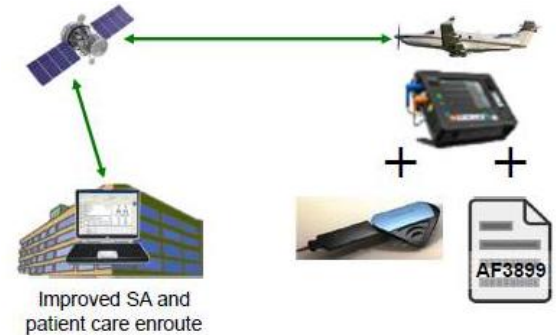
Multi-Channel NPWT



Assessment of Pain in AE



Tempus Pro



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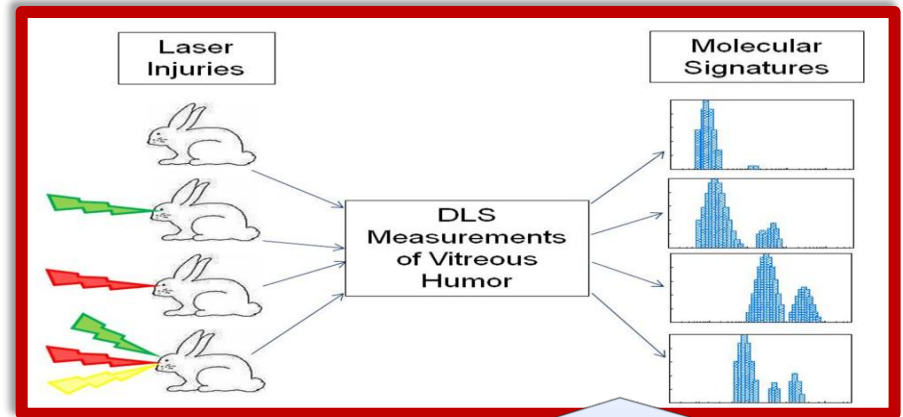


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Expeditionary Medicine in Complex Environments



Rugged Ozon Sterilization System (ROSS)



Non-invasive detection of unique molecular signatures in laser-induced retinal injuries



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Force Health Protection in Complex Environments

OCCUPATIONAL HAZARDS



Laser



Laser Eye Protection

Burn Pits

Chemical Releases



Airborne Laser Sensor (prototype)



Handheld Retinal Camera

Remote Sensing



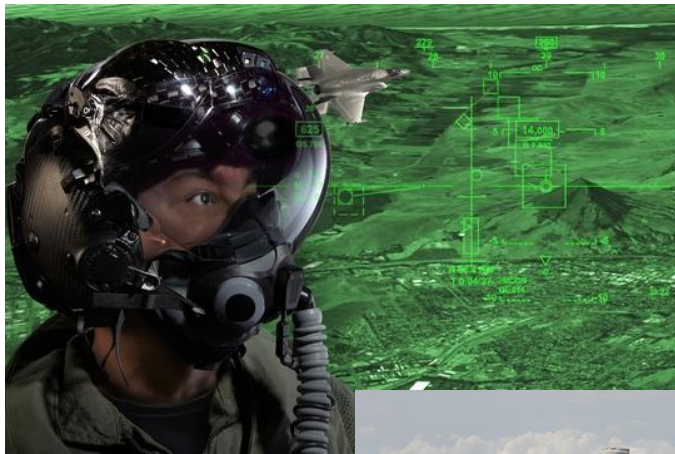
HAPSITE ER



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Human Performance in Complex Environments

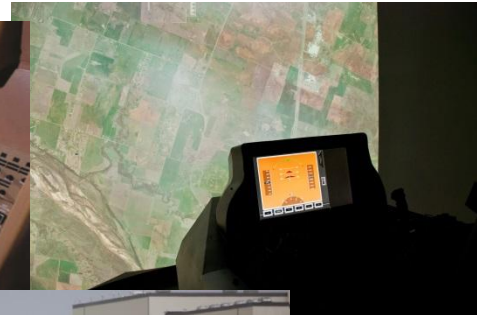
High-Altitude U-2 Operations



F-35 Helmet-Mounted Display



KC-46 Remote Vision System



Operationally Based Vision Assessment





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Operational Medicine in Complex Environments

Chronic Pain & Substance Abuse

Complex Environments

Omics-Personalized Medicine

DEPLOYMENT
post-DEPLOYMENT

Influence

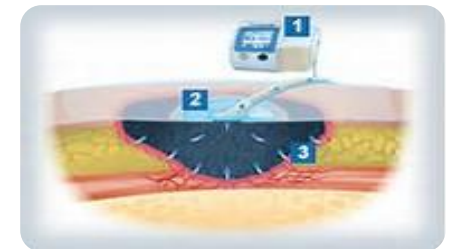
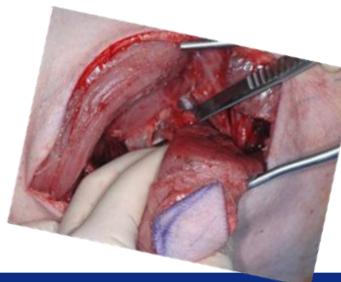
"Pyrosequencing to Reduce Time to Detection of Human Sepsis"



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

Regenerative / Restorative / Reconstructive Medicine

"Bioabsorbable/Biointegratable Negative Pressure Wound Therapy Sponge for Composite Tissue Loss"



Military Family Health & Resilience

"Biomarkers for Mental Illness and Recovery Using Sleep as a Mediator"



"Rescue From Spice Intoxication"





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

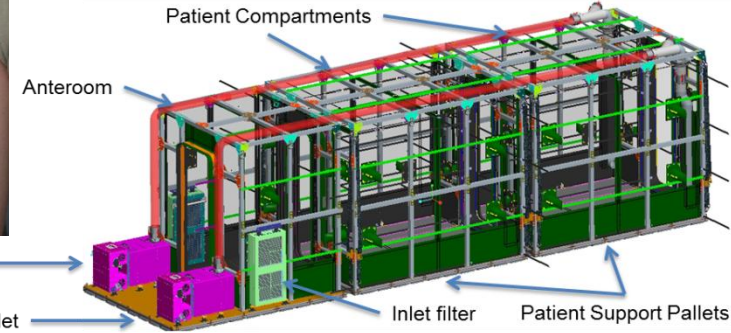
Next Generation Diagnostic System (NGDS)



Infectious Patient Transport



Medical Counter-Measures



Common Analytical Laboratory System (CALS)



Emerging Threats & Terrorism



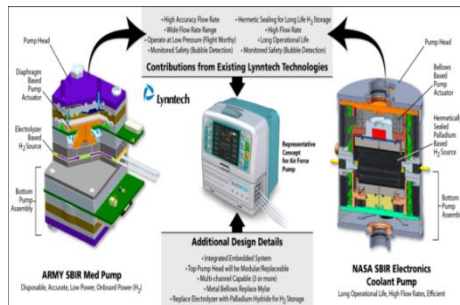
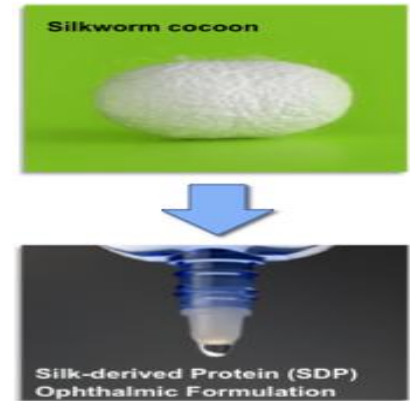


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Small Business Innovation Research (SBIR) in Complex Environments

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





U.S. AIR FORCE

Office of Research and Technology Applications

Air Force Activities



Strategic Partnerships with Industry and Academia





Better Health

Better Care

Ready

Best Value

TRUSTED CARE ANYWHERE

A central circular collage divided into four quadrants. The top-left shows a soccer player in a white jersey kicking a ball on a grass field. The top-right shows a medical professional in a green uniform using a handheld device. The bottom-left shows a soldier in camouflage uniform standing in a field. The bottom-right shows a doctor in a white coat examining a patient in a clinical setting.