

# ***Aeromedical Evacuation Enroute Care Support: Today and Tomorrow***



***Maj Gen Douglas J. Robb  
Command Surgeon  
HQ Air Mobility Command  
August 2009***

**UNCLASSIFIED**



# OVERVIEW



- **AMC/SG Business**
- **Aeromedical Evacuation:**
  - Today
  - Tomorrow
  - Over the Horizon



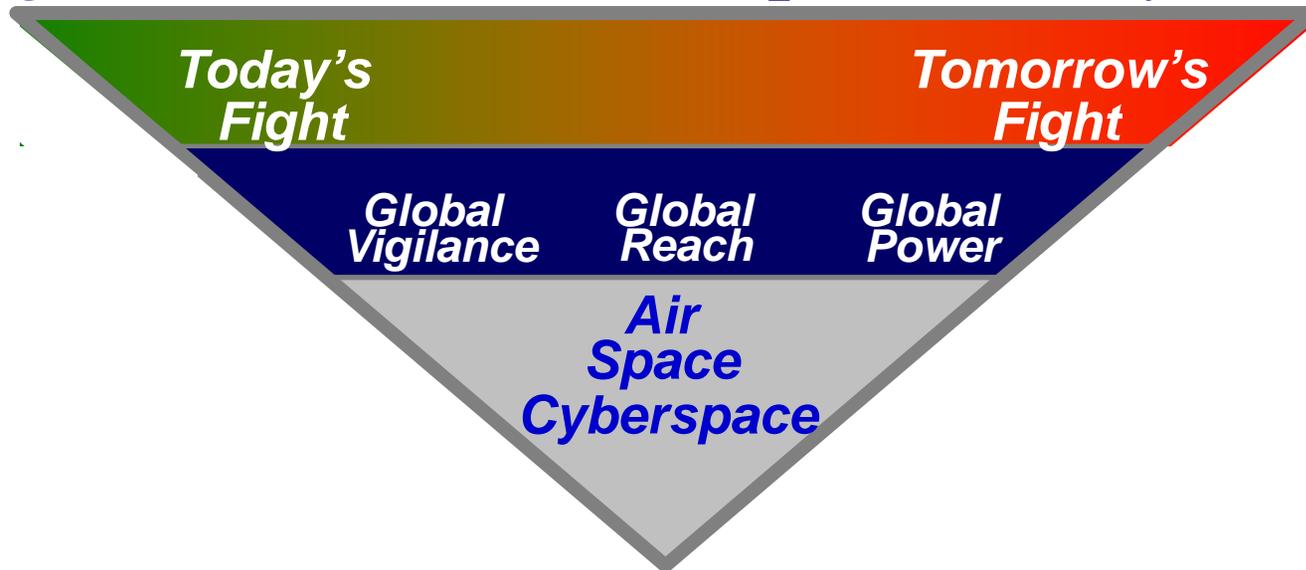
*Unrivaled Global Reach for America ... ALWAYS!*



# USAF MISSION



*“The mission of the United States Air Force is to fly, fight and win...in air, space and cyberspace.”*



*Unrivaled Global Reach for America ... ALWAYS!*



# AIR MOBILITY COMMAND



## *Mission*

*Provide Global Air Mobility ... Right Effects, Right Place, Right Time*

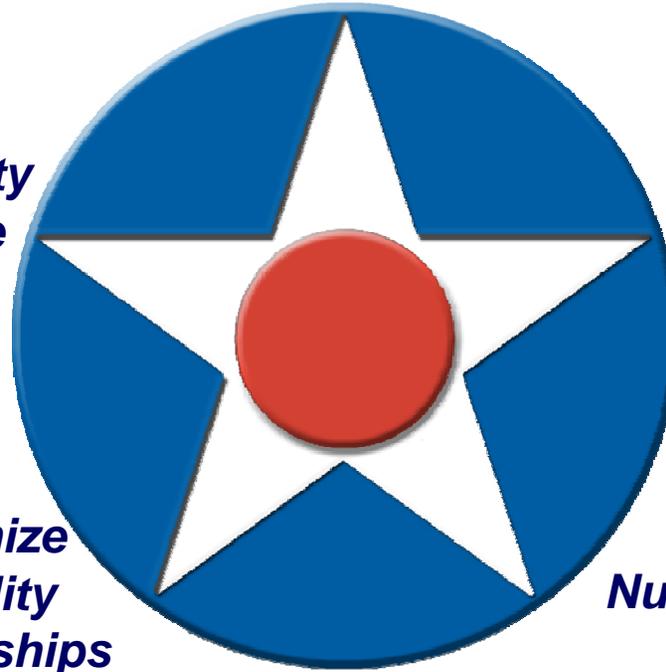
*Win Today's Fight as Part of  
the Joint/Coalition Force*

*Prepare Mobility  
Forces for the  
Future*

*Develop & Care  
for Our Airmen &  
Families*

*Optimize  
Mobility  
Partnerships*

*Enhance  
Nuclear Mission  
Support*



## *Vision*

*Unrivaled Global Reach for America ... ALWAYS!*

*Unrivaled Global Reach for America ... ALWAYS!*



# AMC/SG RESPONSIBILITIES



- **Deployment Readiness**
  - 12 Medical Treatment Facilities (MTF)
  - 5,969 Medical Personnel
- **25 Personnel Unit Type Codes (UTCs)**
  - 553 Total UTCs Postured
  - 6,500+ Personnel Authorized
- **36 Equipment UTCs**
  - 1,197 total UTCs postured
  - 2,013 pallets/vehicles
- **Clinical Oversight of**
  - 7 Aeromedical Evacuation (AE) Personnel UTCs (A3 Executes)
  - 685 Total UTCs Postured
  - 3,000+ Personnel Authorized

*Unrivaled Global Reach for America ... ALWAYS!*



---

***So what will  do for you today...  
or yesterday for that matter?***

---

***Unrivaled Global Reach for America ... ALWAYS!***



# AEROMEDICAL EVACUATION: AMC CORE CAPABILITY



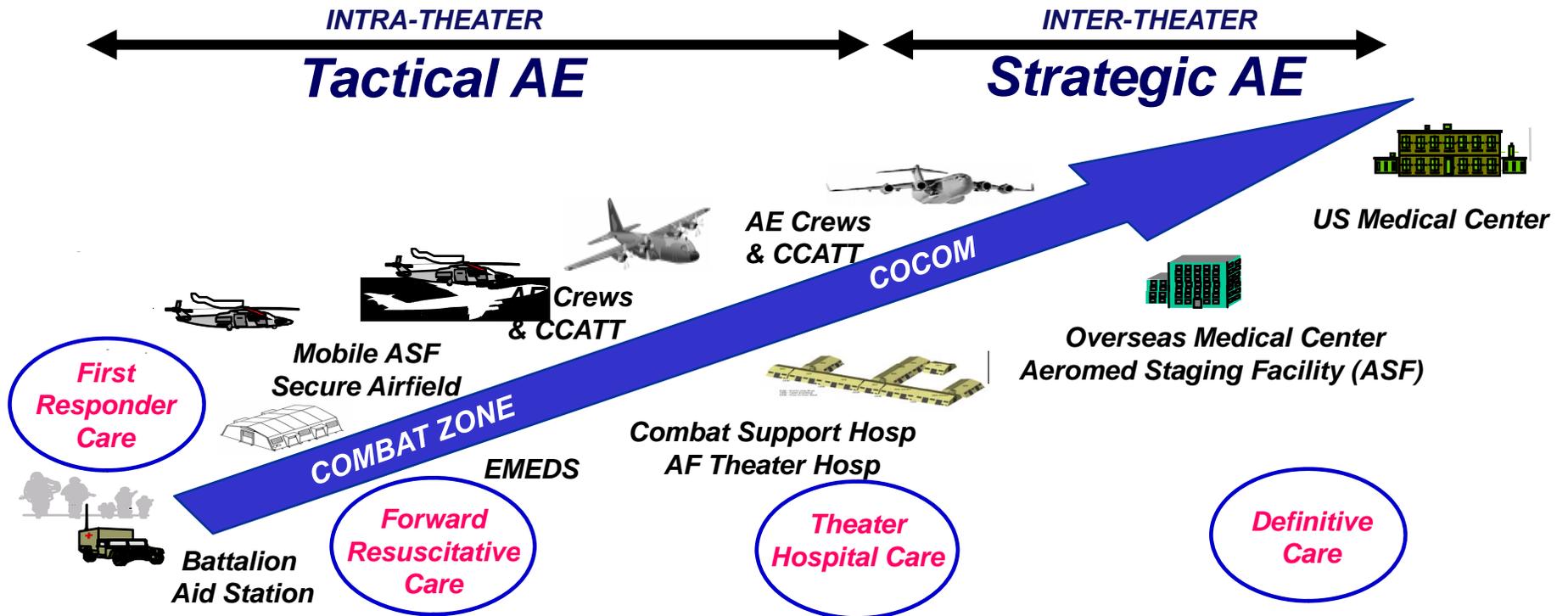
***Priority cargo... questions... none!***

***Unrivaled Global Reach for America ... ALWAYS!***



# ENROUTE MEDICAL CARE SYSTEM:

*AE Provides a Vital Link in the System*



*Unrivaled Global Reach for America ... ALWAYS!*



**AMC/SG**



---

***Today***

---

*Unrivaled Global Reach for America ... ALWAYS!*



# NEXT GENERATION SPINAL IMMOBILIZATION DEVICE



- Full Body Vacuum Spinal Immobilization
- Fast Tracked into Theater
- Initial Purchase: 42 Units
  - Staged at: WHMC, Brooks, CSTARS-Cinci, Al Udeid, Balad, Bagram, As Saliyah, Kandahar, Ramstein, Scott



***Fielded Into Theater June 09***

*Unrivaled Global Reach for America ... ALWAYS!*



# AIRBORNE WIRELESS INTERCOM SYSTEM (AWIS)



- Wireless Communication between AE Crew, CCATT, & ground support
- Intercom capability to multiple users with simultaneous contact, or separate channels



- Bose active noise reduction headsets
- 3 Per CCATT Kit
- 7 Per AE In-Flight Kit
- 5 Per MASF

**FOC: June 09**

*Unrivaled Global Reach for America ... ALWAYS!*



# AE POWER ON KC-135



- **Phase 1**
  - Verified 30 Amps available to AE via frequency converter
  - FCIF issued 1 July 09
- **Phase 2**
  - Addition of 3 outlets to KC-135
  - TCTO, STF, OT&E and FCIF being processed and will provide guidance for aircraft modification and use
  - Anticipate coordination Oct 09 then move with aircraft mods



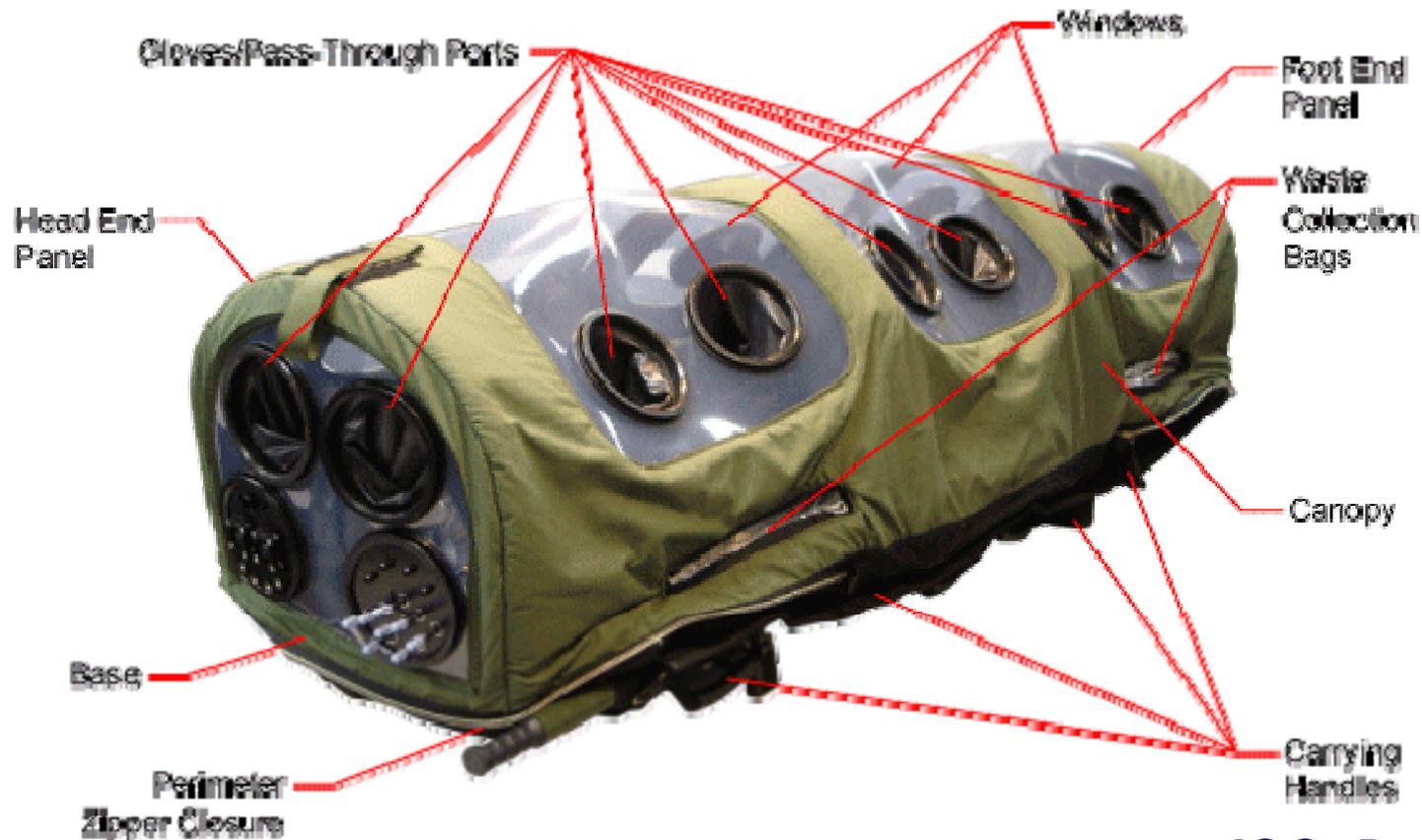
*Unrivaled Global Reach for America ... ALWAYS!*



# INFECTIOUS PATIENT MOVEMENT



## Patient Isolation Unit (PIU) in Final Development/Testing



**IOC: Dec 09**

*Unrivaled Global Reach for America ... ALWAYS!*



# MOBILE OXYGEN STORAGE TANK (MOST)



- Compressed gas O<sub>2</sub>
- Replaces PTLOX
  - OEF/OIF: PTLOX not operationally feasible
  - Indefinite storage time – no leakage or LOX boil off losses
- Capable of driving multiple ventilators: 150 Lpm at 50 psi via 3 outlets



***Back into field: Dec 09***

*Unrivaled Global Reach for America ... ALWAYS!*



# HYDROGEN FUEL CELL



- Eliminates dependence on aircraft & generator power
- Power supply can move with patient
- 12x the life of batteries
- Reduce carry weight by up to 110 lbs



***IOC: June 2010***

*Unrivaled Global Reach for America ... ALWAYS!*



**AMC/SG**



---

***Tomorrow***

---

*Unrivaled Global Reach for America ... ALWAYS!*

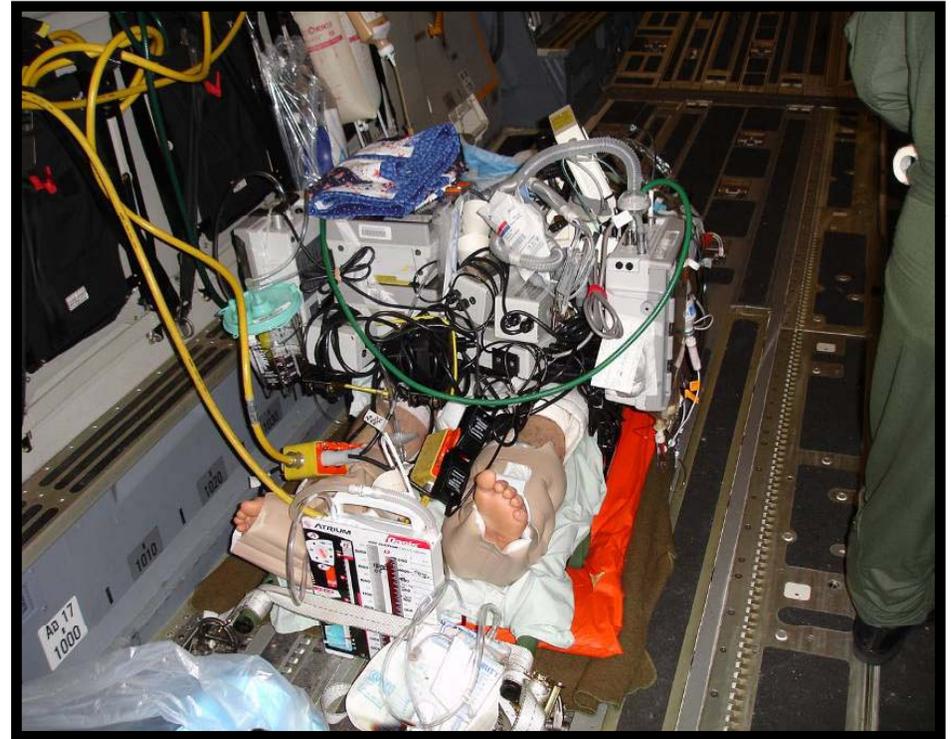


# ENROUTE CRITICAL CARE SYSTEM



***Current: 66+ lbs***

- One device to provide:
  - Advanced ventilation
    - Closed loop
    - Algorithm-based
  - Monitoring
  - IV control
  - Peripheral medical device integration



***Target: 25 lbs!***

***Prototype down select: Sep 2010***

*Unrivaled Global Reach for America ... ALWAYS!*



# ELECTRONIC HEALTH RECORD



*Care In the Air*

*GAP: No Electronic Documentation*

**TMIP**



**Deployed**



**AHLTA** 



**Back Home**

**...closing the gap in electronically capturing medical data in the patient care continuum!**

*Unrivaled Global Reach for America ... ALWAYS!*



**AMC/SG**



---

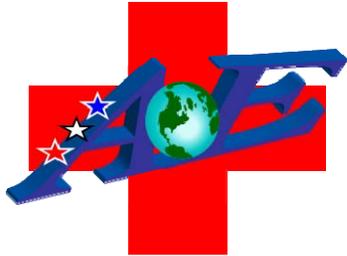
# *Over the Horizon*

---

*Unrivaled Global Reach for America ... ALWAYS!*



# BUILDING TOMORROW'S CAPABILITIES



*Unrivaled Global Reach for America ... ALWAYS!*



# EXPECTATIONS



- **Increased:**
  - **Humanitarian & Contingency Operations**
  - **Use of Medical & AE in Security Engagements, Nation-Building, and Ambassadorship**
- **Continuing AMC Operations in a Future Threat Environment**
- **Care-in-the-Air Keeping Pace With/Lead the Standard of Care**



*Unrivaled Global Reach for America ... ALWAYS!*



# AE: VISION FOR THE FUTURE



- **Match Care-in-the-Air with State-of-the-Art Ground Medicine**
  - Equal Standard of Care
  - No Degradation of Care
- **Advance Understanding of and Negate Stresses of Flight on Patients**
- **Expand the Range of Patients Served by AE**
  - Raise the Ceiling for Types of Patients Able to Move Safely on AE
- **Provide Interoperable Medical Items Across the Continuum of Care**



*Unrivaled Global Reach for America ... ALWAYS!*



# AE: MATERIAL INTERESTS



- **Non-Invasive Compartment Syndrome Detection Device**
- **Non-Invasive Intracranial Pressure Monitoring Device**
- **Communications in a High Noise Environment**
  - **Medical Crew ↔ Patient**
  - **Medical Equipment ↔ Medical Crew**
- **In-Transit Medical Reach Back**
- **Airborne Friendly Medical Devices - Stethoscope**
- **Enhanced Clinical Training**
- **Extended Portable Electronic Power for AE**
- **Hyper/Hypo-Thermia Unit**
- **Proning Device (Next Generation Stryker Frame)**
- **Electronic Medical Reference Library**



*Unrivaled Global Reach for America ... ALWAYS!*



# AE: RESEARCH INTERESTS



- **Better Understanding of Effects of Flight on Patients**
  - Altitude, Temperature, Humidity, Vibration, Noise, etc.
- **Extremity Compartment Syndrome**
- **AE Heat Moisture Exchanger Effectiveness**
- **Transport of the Very Seriously Injured Casualty**
- **Minimizing Secondary Insults Following Traumatic Brain Injury**
- **Strategies to Protect Ventilator Patients on Cabin Air**
- **Transfusion Requirements**



*Unrivaled Global Reach for America ... ALWAYS!*



# ATACCC INTERESTS

---



?

---

*Unrivaled Global Reach for America ... ALWAYS!*



**AMC/SG**



---

# ***Future Capabilities***

---

*Unrivaled Global Reach for America ... ALWAYS!*



# AMC STRATEGIC JOINT CARGO AIRCRAFT C-27J



## ■ AE Capabilities

- 18 Integral Litters
- Electrical Power to Support Medical Equipment
- Therapeutic Oxygen
- Cabin Environmental Temperature Control
- Adequate Cabin Lighting



*Unrivaled Global Reach for America ... ALWAYS!*



# ***AMC Strategic Modernization Future Tanker Aircraft (KC-X)***



Airbus 330



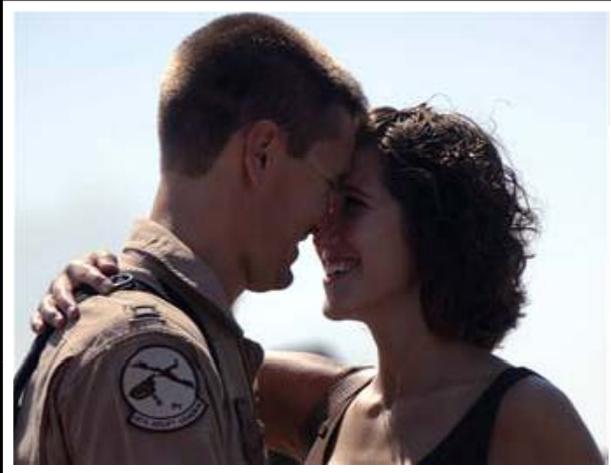
Boeing 767

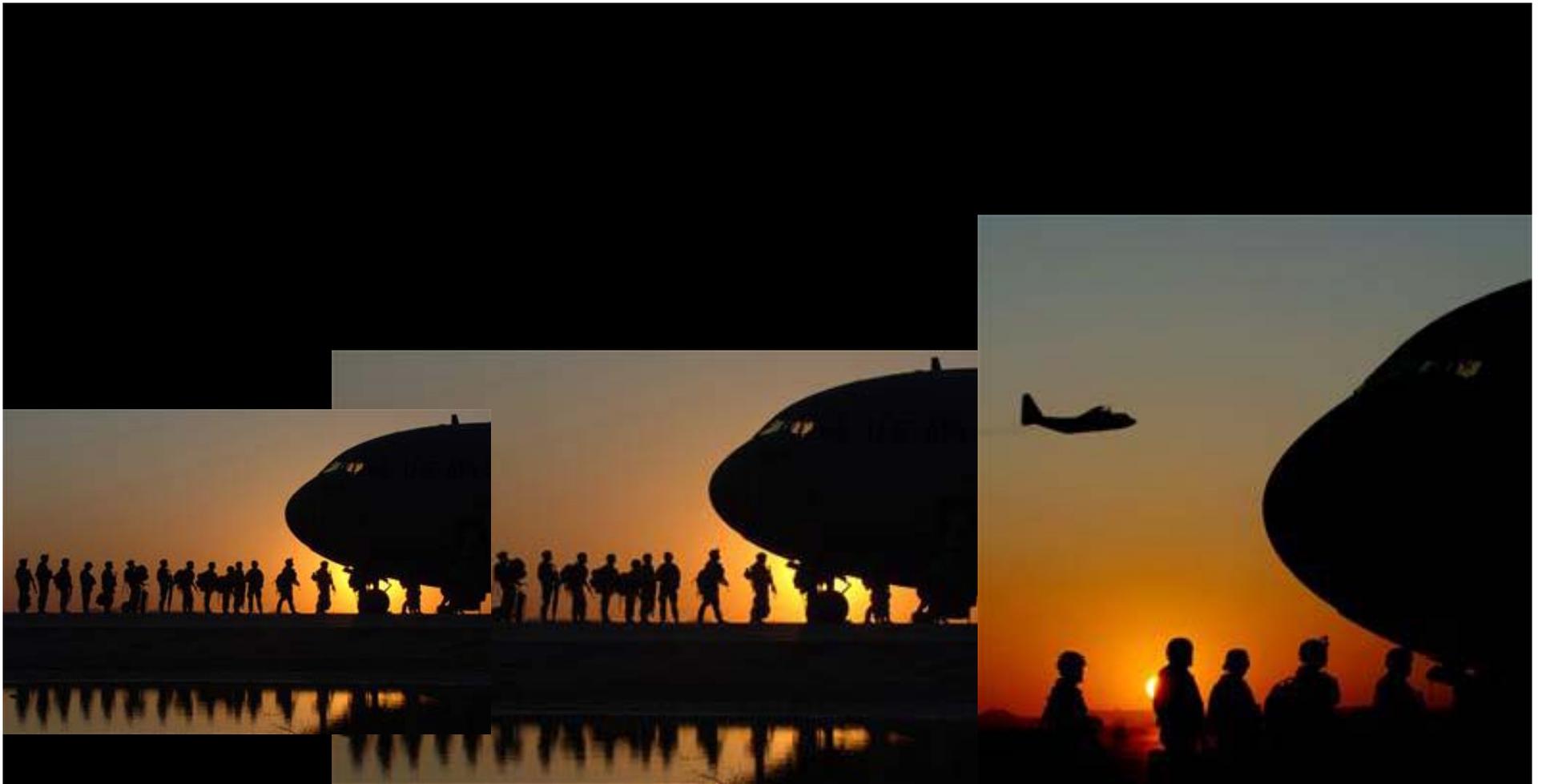
## **AE Capabilities**

- **PSP and/or Litter Support Augmentation System, 50 pts (16 litter/34 ambulatory)**
- **Integral Litter Stands for Six Patients**
- **Electrical Power Throughout Cabin**
- **Therapeutic O2 Throughout Cabin**
- **Cabin Environmental Temp Control**
- **Optimal Cabin Lighting**

*Unrivaled Global Reach for America ... ALWAYS!*

# ***WHY WE FLY & FIGHT... and WIN”***





***Questions...***