MEDICAL SUPPORT TO THE WARFIGHTER: FROM BATTLEFIELD TO TERTIARY CARE

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CCOM Class of ‘84
April 2015
“Continuum of Care”

- Enroute Patient Care from: Force Health Protection to Combat Casualty Care to Forward Resuscitative Care to Theater Hospital Care to Definitive Care

- Integrated “Joint/Coalition” System of Systems

- Concept is to maintain equal or greater level/quality of care with each level of movement

- Destination: World Class NATO/Military/VA Healthcare System
TODAY’S AGENDA
We’ve Got to Be Ready
Combatant Commanders’ Areas Of Responsibility

Northern Command

European Command

Central Command

Pacific Command

Southern Command

Africa Command

Special Operations Command

Joint Forces Command

Strategic Command

Transportation Command

Africa Command
Full Spectrum Healthcare

- Force Health Protection
- Tactical Combat Causality Care (TCCC)
- CASEVAC/MEDEVAC
- Forward Surgical Care
- MEDEVAC
- Expeditionary Theater Hospital Care
- Aeromedical Evacuation (AE)
- Critical Care Air Transport Teams (CCATT)
- “Joint Theater Support Teams”
  - Joint Theater Trauma System
  - Joint Theater Medical Information Program/Electronic Health Record
  - Telemedicine/Teleradiology
  - Joint Logistics
  - Joint Blood Program
- Destination: World Class Military/VA Healthcare System
Translates To...

• Lowest Disease Non-Battle Injury (DNBI) rates in recent recorded conflict

• Lowest Lethality Rates in recorded conflict
  • WWII 30%
  • Vietnam/Gulf War 24%
  • OEF/OIF <10%
AIR & SEA DISTANCES

AIR
7,000 MI
24 HOURS

SEA
8,600 MI
20+ DAYS

SEA
12,000 MI
26+ DAYS
Continuous En-route Care
Historical Route From Injury to Definitive Care

CASUALTY EVAC - Evac Policy - 1 Day
TACTICAL EVAC - Evac Policy - 7 Days
Field Hospital “Level 2”
In Theater Hospital “Level 3”
Definitive Care “Level 4”

Evac Policy
- 1 Day
- 7 Days
- 15 Days
Continuous En-route Care: Stabilized… Stabilizing

INTRA-THEATER

Tactical AE

CASEVAC/MEDEVAC
1 Hour

TACTICAL MEDEVAC/AE
1-24 Hours

MASF RCCET & CCATT minus

AE Crews & CCATT

COMBAT ZONE

INTER-THEATER

Strategic AE

TACTICAL/STRATEGIC AE
24-72 Hours

AE Crews & CCATT

COCOM

US Medical Center

Overseas Medical Center
ASF

Definitive Care

Theater Hospital Care

Continuous En-route Care:
Stabilized… Stabilizing

First Responder Care

Forward Resuscitative Care

Battalion Aid Station

Theater Hospital CASF

EMEDS MASF

TACTICAL MEDEVAC/AE
1-24 Hours

AE Crews & CCATT

COCOM

US Medical Center

Overseas Medical Center
ASF

First Responder Care

Forward Resuscitative Care

Battalion Aid Station

Theater Hospital CASF

Continuous En-route Care:
Stabilized… Stabilizing

First Responder Care

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Theater Hospital CASF

Continuous En-route Care:
Stabilized… Stabilizing

First Responder Care

Forward Resuscitative Care

Battalion Aid Station

Theater Hospital CASF
Force Health Protection Begins BEFORE You Step to the Jet!

• Deployment Medical Guidance

• Deployment Health Assessments
  • Pre and Post
  • PDHRA after 90 and before 180 days

• Immunizations

• Chemoprophylaxis
  • CBRNE and Vector

• Occupational Environmental Health Surveillance
  • Air, Water, Soil
  • Food
  • Occupational and Industrial Hygiene
  • CBRNE
- HMMV is struck and disabled
First Responder Care: Tactical Combat Causality Care

“Correct Intervention At The Correct Time In The Continuum Of Combat Care!”

- Care Under Fire
  - Combat Application Tourniquet (CAT)
  - Hemostatic Dressing
- Tactical Field Care
  - Hypothermia Prevention
  - Combat Pill Pack
    - Antibiotics
    - Pain Control
- Combat Casualty Evac Care

- Rapid Casualty Assessment (ABCs)
- Control Hemorrhage (CABs)
- Treat penetrating chest trauma
- Maintain airway
- Package casualty for transport
• Taken to Forward Surgical Care/Level II
• Arrival B/P 80 systolic
• Undergoes exploratory laparotomy:
  • Left Nephrectomy
  • Splenectomy
  • Packing of abdomen
  • 8 units PRBC’s
  • B/P 90’s systolic
MEDEVAC Mission

- Army
- Navy/AF/Coalition
Level II: Forward Surgical/Resuscitative Care

Forward Surgical Teams  Shock Trauma Platoons
Fresher Blood is Better

Start of second weekly flight to theater and improved efficiencies

Shipments: N= 92
Highest Average Age: 10.6 Days (03 Nov 2012)
Lowest Average Age: 3.7 Days (19 Apr 2012)
Average Age past 12 Months: 7.5 Days
Most Recent Shipments: 7 Nov 2012 - 8.2 Days 10 Nov 2012 - 6.4 Days

Goal is for RBCs to arrive at the BTC within 7 days of collection

2001: 30-42 Day RBCs, Saline
2013: < 21 day RBCs, plasma, platelets
Blood Lifeline

2001: 14 days
2013: 7.5 days
T+ 03:00

- Arrives LV III Theater Hosp
- Cold
- Coagulopathic
- Acidotic
- Taken straight to OR
Level II/III: Theater Expeditionary Hospitals
Medical Support: Afghanistan

• Combat Casualty Care
• Forward Resuscitative Surgical Care
• Coalition/Theater Hospitals
• MEDEVAC
• Tactical AE Hubs
• Strategic AE Hubs
Injury Cause Trends: Percentage of Total by Cause

- EXPLOSIVE DEVICE: 51.1%
- GSW: 25.0%
- MVC: 8.7%
- OTHER: 15.1%
THE “POWER” OF COALITION MEDICAL!
T+ 03:00 to T + 06:00

- Re-explored
- Packed, surgical control gained
- Urgent blood drive for AB+ blood
- Patient warmed to 38 degrees
• Transported to ICU
• CT scan of spine
• Completion of resuscitation
• “Urgent” evacuation request placed
JOINT THEATER SUPPORT: TELEMEDICINE & TELERADIOLOGY
T+ 10:00

- C-17 arrives from Germany
- Cargo unloaded

- CCATT team alerted
- Patient prepared for transport
Aeromedical Evacuation

Cargo In...

...Patients Out!
**MASF/CASF**

- **Mobile Aeromedical Staging Facility (MASF)**
  - Mobile 24hr staging at tactical airheads
  - Rapid response staging

- **Contingency Aeromedical Staging Facility (CASF)**
  - 24hr staging at strategic airheads
  - Support to Theater Hospital
  - Transport to AE aircraft
Tactical AE:
Intra-theater

Hub & Spoke
• C-130/NATO
• Opportune A/C
## Global Patient Movement

### Patient Movement Requests

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### Regions

- **CENTCOM**
- **EUCOM**
- **NORTHCOM**
- **SOUTHCOM**
- **PACOM**
T+ 10:00

- CCATT arrives at ICU
- CCATT moves patient to AMBUS to flight line
- Patient loaded for flight
Critical Care Air Transport

“FLYING ICUs”
Transforming Combat Casualty Care

Wartime US Lethality Rate (%)

Body Armor/Tactical Combat Casualty Care/
Damage Control Surgery & Resuscitation/CCATT

Rev War
War of 1812
Civil War
WW I
WW II
Korea
Viet Nam
Gulf War I
OEF/OIF

Data from US Joint Trauma System (JTS)
T+ 12:00

- Patient loaded for flight
- 7 hour mission to Germany
- AMBUS transfer to Landstuhl Regional Medical Center, Germany
- Taken to OR
- Re-explored/wash outs
Patient transferred to Walter Reed National Capital Region with CCATT team
"TEAM MEDICS"

VA

DoD

COMMUNITY
“Great Ideas” as a Function of Time

World War I
- IV fluids
- Blood transfusions
- Motorized ambulances
- Topical antisepsis

World War II
- Whole blood/plasma available
- Specialty-specific surgical groups
- Antibiotics
- Fixed wing aeromedical evacuation

Korean Conflict
- Improved fluid resuscitation
- Forward availability of definitive surgery
- Helicopters for patient evac/transport
- Primary repair/grafts for vascular injury

Vietnam
- Improved use of helicopters
- Improved laboratory support
- Portable radiology equipment
- Mechanical ventilators in theater

Desert Shield/Storm
- Burn team augmentation of evacuation hospitals to provide theater-wide burn care
- Intercontinental aeromedical transport of burn patients

GWOT/OCO
- Military trauma system (JTTS/JTTR)
- Improved tourniquets
- Hemostatic agents
- Common use of external fixators
- “Damage control” resuscitation
- “Damage control” surgery
SUMMARY: CONTINUUM OF CARE
INTEGRATED “JOINT/COALITION” SYSTEM of SYSTEMS
The “why”...

...we do what we do!
...the “Why Not”
There’s No Coming Home....
...Without you!

Study hard...focus on the patient... and we’ll see you on the High Ground!