Bringing the ER & OR to the Point of Injury: Overcoming the Tyranny of Distance

Major Daniel Cox
AMC/SGKC
The continual advancement of En Route Care capabilities has revolutionized the ability to deliver care in the deployed setting

- Critical Care Air Transport Team (CCATT)
- Tactical Critical Care Evacuation Team (TCCET)
- Tactical Critical Care Evacuation Team-Enhanced (TCCET-E)
- Developing Austere Surgical Teams
Background

- This development has supported surgical and critical care capability further toward the Point of Injury

- Capability now exists to have ‘flying Role II’
  - Medical/Surgical Nursing Care (AE)
  - Inpatient Critical Care (CCATT)
  - Emergency Room Care (TCCET or AST)
  - Operating Room (TCCET-E→AST)
Tyranny of Distance

- “New Normal” Operations challenge medical assets in different ways than OEF/OIF
- Challenges ability to meet ‘Golden Hour’ target to surgical intervention
- Smaller medical footprint = Less ‘safety-net’
- Requires small, rapidly mobile resuscitative and surgical capability
  - Led to development of TCCET-E and subsequently Austere Surgical Teams
Historic Model of Patient Evacuation

Point of Injury

CASUALTY EVAC
- Evac Policy - 1 Day

TACTICAL EVAC
- Evac Policy - 7 Days

Battalion Aid Station
“Level 1”

Field Hospital
“Level 2”

In Theater Hospital
“Level 3”

Definitive Care
“Level 4”

STRATEGIC EVAC
- Evac Policy - 15 Days

Definitive Care

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What Drove Change?

- Battlefield became more fluid
- Medical care followed the battlefield
  - EMEDS: Expeditionary Medical Support System
  - MFST: Mobile Forward Surgical Team
  - CSH: Combat Support Hospital
  - FST: Forward Surgical Team
  - FRSS: Forward Resuscitative Surgical System
- Limited holding capacity
- Earlier evacuations needed
- Required ability to manage ‘stabilizing’ patients and deliver ICU level of care throughout movement
Critical Care Air Transport Team (CCATT)

- Three member teams of AF medical personnel trained to deliver ICU level care during intra-facility transport
- Designed to function as ICU in the air
- Single team can transport:
  - 3 intubated patients or up to 6 non-intubated patients
- Team consists of:
  - Critical Care Physician
  - Critical Care Nurse
  - Respiratory Therapist

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En Route Care (OEF/OIF)

Point of Injury

Battalion Aid Station
Role 1

CASEVAC

TACTICAL EVAC
1-24 hrs

Forward Surgical Teams
Role 2

Combat Support Hospital/Fleet Hospital
Role 3

Surgical Capability

AF Theater Hospital
Role 3

Note – AF/Joint Theater Hospital as En Route Care hub in OIF and OEF

Definitive Care

STRATEGIC EVAC
Home 72 hrs from injury

Definitive Care
Role 4/5

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CCATT Today

- Supports surgical care being pushed closer to point of injury
- Early transport relieves forward assets of labor and resource intensive ongoing resuscitation
- Allows ongoing stabilization and resuscitation as patients progress through the echelons of care
- Goal is delivery of patient in better condition than when assumed care

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Intra-Theater Critical Care Transport Gap (OIF/OEF)

Level of Care

Continuous Increase in Level of Care Provided

Time

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Tactical Critical Care Evacuation Team (TCCET)

- 3-member team
- Modeled after UK MERT team given their documented success in far forward resuscitations

- ER Physician
- Anesthesia Provider
- Critical Care Nurse

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En Route Care Late OEF

Point of Injury → Definitive Care

Battalion Aid Station Role 1

CASEVAC

Forward Surgical Teams Role 2

TACTICAL EVAC 1-24 hrs

AF Theater Hospital Role 3

Combat Support Hospital/Fleet Hospital Role 3

TCCET

Surgical Capability

STRAEGIC EVAC Home 72 hrs from injury

Note – AF/Joint Theater Hospital as En Route Care hub in OIF and OEF

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What is Driving Change?

- Tyranny of Distance
  - Increasing distance between medical assets
  - Geographic realities
  - Larger “rings” between echelon’s of care

- World Events
  - Benghazi- 9/11/12
  - Algeria- 1/13

- Further data that earlier surgical care equals improved outcomes

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En Route Care (Future)

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Confronting the Tyranny of Distance

- In order to decrease time to OR… bring OR to patient
  - Small, mobile pre-positioned surgical asset when planning allows
  - Small, mobile, flyable surgical asset when events do not allow pre-positioning

- Requirement: A team capable of providing Damage Control Resuscitation and Damage Control Surgery either on the ground or en route to more robust medical capability
Tactical Critical Care Evacuation Team-Enhanced

- 5 member surgical team
- Capable of providing DCS on ground or during transport
- Developed to provide ability to project surgical capability to areas with no medical assets
Development of Austere Surgical Teams

- Seeing need for smaller, more mobile teams- ACC and AMC looked to bridge MFST and TCCET-E
- Standardizing equipment, training and capability
- Final product more agile, better trained teams capable of carrying out ‘new-normal’ mission

- 6 member team
  - Surgeon
  - Critical Care Nurse
  - ED provider
  - OR Technician
  - Anesthesia
  - Medical Planner

- Designed to perform 3 DCS operations with 12 hour hold capacity

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Austere Surgical Team Training Pipeline

**PHASE 1 - Intro to Austere Surgery**
- 2 Weeks
- Focused on UTC Team Capability Training
- Foundational Training of how to function as a small surgical team:
  - Bag-set and Equipment Familiarization
  - Role Responsibilities
  - CPG familiarization
  - Step-wise Scenario Training
    - Crawl → Walk → Run

**PHASE 2 - Capstone Field Exercise**
- 1 Week
- Training Goal is Team Field Exercise using Live Tissue Training
- Field Stress Scenario Training based on 3 ways teams may deploy
  - Stand-Alone
  - Deploy Forward out of EMEDS
  - Fall Back to EMEDS
- Opportunity to Execute and Cement the foundational lessons learned from PHASE 1

**PHASE 3 - En Route Surgery Course**
- 2 Weeks
- Focused on Specific Differences of the En Route Environment
  - Aerospace Physiology
  - Introduction to the AE system
  - PMI Updates
  - Aircraft Setup's
  - Live Flight Training Scenario's

3 Week Training Pipeline for Ground Austere Surgical Teams

5 Week Training Pipeline for Ground + En Route Surgical Teams

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Austere Surgical Capability in Action

- This capability has been employed in support of specific missions utilizing TCCET-E in austere environments
- Team provided ground and en route surgical capability
Equipment Setup

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Equipment Setup

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Equipment Setup

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Team Composition

- OR, ER, ICU and Ward Capabilities Provided
- TCCET-E
- CCATT
- AE
- Medical Planner

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Summary

- The ability to project surgical and critical care capability to ensure rapid access to surgical control requires a flying Role II

- The Austere Surgical Team-built on the evolution of En Route Critical Care teams and on the framework of TCCET-E and MFST will enable the AFMS to rise and meet this challenge
Questions?

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