United Health Services Trauma Conference

17 April 2010

LTC John T Groves

Lessons Learned in Baghdad
The Worthiest of Missions
Objectives

1. Describe lessons learned on the battlefield that can be translated and used in a civilian trauma center
2. Outline key concepts in team training to manage multiple patients with traumatic injuries
3. Identify principles for successful training of emergency personnel in a Mas Casualty event
Memorable Quotes

“It will be the best and worst times of your life”

CPT Tara Hayden
31st Combat support Hospital
• What is a Combat Support Hospital?
• What is the ER Staff made up of?
• Where is Ibn Sina?
• How did we prepare?
The mission of the 10th Combat Support Hospital (CSH)

- Not the front line
- Most patients via MEDEVAC Helicopter
- Personnel
BUILDING A TEAM

- 243 personnel from O-6 to E-1
- 27 different Locations
Who are these guys?
ER Staffing: Civilian vs Military

Average Age of Nurse

<table>
<thead>
<tr>
<th>Years</th>
<th>Civilian</th>
<th>Military</th>
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</thead>
<tbody>
<tr>
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<td>43</td>
<td>24</td>
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Average Years of Experience

<table>
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<th>Years</th>
<th>Civilian</th>
<th>Military</th>
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<tbody>
<tr>
<td>0-17</td>
<td>17</td>
<td>&lt;1</td>
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ATTC staff

10th CSH EMT staff
“Other armies have brave people, other armies have smart people, the difference between us and other armies is the way we train”

Surgeon General
Clinical Challenges

- Unprecedented Volume and acuity
- Unique Physiology
- Poly Trauma Challenges
- Inexperienced staff
High Volume Trauma

Total Trauma Patients
October 2005 - November 2006

Average/Month
Baghdad – 289
Balad – 234
Tikrit – 40
Mosul – 59
EMT Patient Disposition

- RTD: 48%
- ICW: 21%
- OR: 20%
- ICU: 5%
- SDU: 4%
- Transfer: 2%
- Morgue: 0%

31% admission rate
MEDEVAC Transport Data

86th CSH
10th CSH
28th CSH
399th CSH

Patients
Flights
How sick are these patients?
Clinical Challenges

• Poly Trauma
  – Pre-hospital care
  – Coagulopathy (Factor VII, Mass Transfusion, plasma)
  – Hypotensive resuscitation

• Neuro Trauma
• Pediatric Trauma
• Burns

• Evacuation
IED’s
Wounding Patterns

- Protective Gear - extremity
- Types of ammunitions - IEDs
- Point of impact - buttocks
- Vehicle position – retroperitoneal injuries
<table>
<thead>
<tr>
<th>Bed</th>
<th>Patient Name/Number</th>
<th>Condition</th>
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<td>8924</td>
<td>GSW ABD</td>
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<td>8927</td>
<td>GSW HIP</td>
</tr>
<tr>
<td>3</td>
<td>8928</td>
<td>GSW Buttocks</td>
</tr>
<tr>
<td>4</td>
<td>8923</td>
<td>GSW ABD</td>
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<td>5</td>
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<td>8925</td>
<td>GSW Buttocks</td>
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<tr>
<td>8</td>
<td>Harrison</td>
<td>Throat Swely/Airway</td>
</tr>
<tr>
<td>9</td>
<td>Kazak</td>
<td>ABD Pain</td>
</tr>
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</table>

"Big trauma stuff happens here." Dr. Mazur says.
Historical KIA rates

- WWII – 22.8%
- Vietnam – 16%
- OIF/OEF – 8.8%

94%-97% survival rate at IBN Sina
Pre-deployment Field Training Exercises
Field Training Exercises (FTX’s) helped ID some key leaders

Biography sheet

Initial counseling “oh my God…..”

Raise your hand if….
Education classes

- ABLS and TNCC classes taught by experts.
- Case Studies taught by us
- ER needed more train up – Skill stations
Assessing personnel

• The “Comfortable Test”
• Early strengths and later weaknesses:
  • Invest in your best and brightest (they may be the most inexperienced)
• Set expectations early
Team Model Development

- Special Operation Forces community
- Army Trauma Training Center - Miami/Forward Surgical Team Lessons learned
- Alternate role identification for resuscitation Models
- New Technology (i.e. ISTAT/Ultra Sound/Access issues)
The birth of “Egoless Medicine”

“How do you do what you do here?”

Everyone is expected to contribute

Physician buy in

Senior clinical nursing leadership

Based on mutual respect
Physician buy-in
Physician Leadership
The “Backbone” of the Army
“Tell me what you see”

“Who is the sickest patient in the room?”
No “Saving Private Ryan” moments allowed in medicine

It’s not “our” Emergency...
Provide “Top Cover”

- Minimizing distracters permits faster time to proficiency
- People want to play on a winning team
- Gulliani Lessons
- Fair and consistent
- Keep teams together
Leadership Challenges

- What core skills did most have?
- What core skills did they need?
- Leadership Books (Jim Collins)
- Egoless Medicine filled in the gaps quick
Leadership Lessons

- Arrogance Vs Ignorance test
- Behavioral and clinical
- The team will never suffer for the actions of one
- Keep it in the ‘fairway’
Fail safe procedures

- Prefilled syringes
- Standard blood replacement
- Pre-set Ventilators
- Bellmont infuser
- EZ IO
- Central line access
- End Points of Resuscitation parameters
- Charts thrown in the trash
“I learned today that when you start CPR not everyone dies”

2LT Riane Nelson

Valentines Day
1. Command Physician
2. Primary Resuscitator
3. Anesthetist
4. Assistant Surgeon
5. Trauma Nurse
6. Recorder
7. Respiratory Technician
8. X-Ray Technician
9. Lab Technician
1. Command Physician
2. Trauma Nurse
3. Medic
4. X-ray Technician
Nurse/Medic role expectations

- Quick exposure, VS, peripheral access, Femoral arterial blood sample, Ventilator management
- Rapid infuser, Airway assistance, Tourniquets
  Rapid sequence intubation medications
- Central access, coordination for diagnostics/OR
- Rapid blood release and administration with Factor VII
- Sedation and paralytic management
Advanced Skill Sets

- Vascular Access (IO and Central)
- Fast Exams
- Chest Tube placement
- Airway management
- Rapid Blood infusion
- Arterial lines
- End points of resuscitation BE, INR, HGB
- Critical Care skills (Ventilators, RSI)
Procedures from 01Apr06-01Jun06

- **Types of procedures**
  - Intubation
  - Central Line
  - A-Line
  - Chest tube

- **# of times procedures performed**
  - RN
  - MEDIC
  - Total

- **Graph**
  - Intubation: 10 RN, 12 MEDIC, 18 Total
  - Central Line: 10 RN, 12 MEDIC, 18 Total
  - A-Line: 10 RN, 12 MEDIC, 18 Total
  - Chest tube: 10 RN, 12 MEDIC, 18 Total

- **Bar chart**
  - Intubation: Blue (RN), Red (MEDIC), Yellow (Total)
  - Central Line: Blue (RN), Red (MEDIC), Yellow (Total)
  - A-Line: Blue (RN), Red (MEDIC), Yellow (Total)
  - Chest tube: Blue (RN), Red (MEDIC), Yellow (Total)
Watershed moments
Continuous education opportunities
Changing resuscitative models
Feb 2007 J EN, 1LT Matt Bowe
Watershed moments

- Halloween
- Christmas Day
- Valentines Day
- Memorial Day
Changing resuscitative models

- Weekly After action reviews
- Morbidity and Mortality reviews
- “That works lets do more of that”
  
  Col Don Jenkins
Tourniquets save lives
Personal Challenges

- Like watching your child learn to walk
- When to let them fly
- They don’t know what they don’t know
- Minimize distracters – Hard won battles
- “Hey someone put an “N” on your uniform
“We are saving a lot of lives ma’am”

“This is not normal”

LTC John Groves
4 Jan 06
31 Casualties
Treated in 2 hours
Disposition
- 5 to OR
- 18 to ICU/ICW
- 2 Urgent Evac
- 3 Fatality
- 3 RTD
Mass Cal injuries

- Fragments Bilat Upper ext
- Frags to legs and arms
- Left hand amputation
- CHI
- Left Tension, R Femur Fx
- Abd hemorrhage
- R Pneumo, L elbow fx
- Left leg amputation, R tension
- Right Tib/Fib Fx
- GSW to back

- Lower Ext fragments
- Left Tension, left lower ext fragments
- LOC, Tib.Fib Fx
- R tension, fragments to hip
- L Scapular Fx
- Knife to right leg
- Right leg fragments
- Blunt abd injury unstable
- Subdural hematoma
- Fragments to head and left elbow
Case Study

Pulseless double amputee
November 29, 2005
24 y/o AD soldier presents to EMT pulse less with RUE and LLE amputations
CPR in progress, medic states “we just lost a pulse as we landed”
Tourniquets applied in the field appeared to be effective S/P IED
Initial Assessment

Physical Exam

- **HEENT**: Skin pale and cool
- **Neck**: flat neck veins
- **CV**: pulse less
- **Lungs**: after intubation, bilateral breath sounds
- **Abdomen**: soft, non-tender, non-distended
- **FAST** Negative
- **Ext**: extensive soft tissue damage to both amputations and obvious deformity to RLE
- **Neuro**: Unresponsive GCS 3
Initial Intervention

**Medic**
- Assists with Emergency Intubation
- Femoral artery stick for ISTAT
- After initial 2 units of blood
- Requiring clamping of spurting blood vessels
- Foley

**RN**
- Right Femoral Artery cannulated during CPR
- 6 units of PRBC’s given via Belmont rapid infuser
- Continue to monitor ABC’s
Diagnostic Results

**ABG:**
- Ph 6.87
- BE -26
- Hbg 7.5
- Hct 22
Hospital Course

- Patient received 8 units of PRBC’s and 1 Liter of crystalloid
- Factor VII
- Rapid Sequence Intubation meds given
- After intubation and first 2 units of blood patients pulses returned
- 26 min later taken to OR for completion of amputations ORIF of left humerus, radius and ulna and Right leg faciotomy, right ankle fracture, fractured spleen and pelvic fracture with large retroperitoneal hematoma
Follow up

- Report from field patient thrown 80 meters from explosion that killed three other occupants of the vehicle.
- Remained critically ill for several days with coagulopathic issues.
- Transferred to Germany and Walter Reed where on the 18 of Feb was released on pass with his wife.
Scene of IED
CPT (ret) Ryan Kuhles and family
Mascal Lessons learned

- Don’t change key people
- Train like you fight
- Practice on every patient like it’s a Mascal
- 12 Mascal
Battlefield Lessons Learned

- High volume and acuity drive this model
- Young soldiers are up to the challenge
- Make tough personnel decisions early
- Share this training philosophy
Battlefield Lessons Learned

- Must have key leader buy in
- Minimizing distracters permits faster time to proficiency
- Very high survival rates can be achieved with inexperienced staff
- Recruiting challenge - bring on the kids
- Invest in your best and brightest
This Generation’s “Best”

- 94% survival rate
- Over 7,000 Patients treated
- 12 Mascal - 200 patients
- 109 successful flights
- PI of MEDEVAC
- 7 CEN’s
- 8 articles published
“this is the best job in the world...not because of all the cool trauma we get to do...but because of who we are taking care of...”

1Lt Matt Bowe
Questions

- AEJN July-Sept 2007
- CNN Combat Hospital
- JEN Feb 2007
- National Geographic Dec 2006
- www.caringbridge.org (Ryankules)

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What it’s all about