Institute of Medicine

Joint Trauma System

18 May 2015

Kirby Gross COL MC US Army
Disclaimer

The opinions or assertions contained herein are the private views of the author and are not to be construed as official or as reflecting the views of the Department of the Army or the Department of Defense.
Agenda

• History
• Structure
• Personnel
• Functional means by which the Joint Trauma System has an impact
• Collaborating organizations
• JTS as a High Reliability Organization
Operational Cycle

TRAIUMA CARE DELIVERY

BEST PRACTICE GUIDELINES

DATA ABSTRACTION

PERFORMANCE IMPROVEMENT

DATA ANALYSIS

DOD TRAUMA REGISTRY
Functional Efforts to Improve Outcomes

• Clinical Practice Guidelines
• Performance Improvement projects
• Concurrent Reports
• Special Reports
• Communication Avenue
• Meetings / Conferences
Impact of critical care-trained flight paramedics on casualty survival during helicopter evacuation in the current war in Afghanistan

Robert L. Mabry, MD, MC, Amy Apodaca, MS, Jason Penrod, PharmD, Jean A. Orman, ScD, MPH, Robert T. Gerhardt, MD, MPH and Warran C. Dorlac, MD, Fort Sam Houston, Texas

These findings demonstrate that using an air ambulance system based on modern civilian helicopter EMS practice was associated with a lower estimated risk of 47-hour mortality among severely injured patients in a combat setting.

Number of Role 3 DoDTR Admissions: OEF 15 Month Patient Workload

All Role III Admissions (Including KIA & DOA), N = 2,331

DOA (20)
KIA (34)
ALIVE (2,275)

* 2 Patients do not have initial discharge annotated.

Right Patient, Right Care, Right Place, Right Time
OEF Massive Transfusion Statistics:
Average Monthly Component Therapy Usage

Mean Units to Massive Transfusion Pts admitted to a Role III, n = 12
for April 2014

FFP-RBC Ratio = 0.7:1

Age Includes Role 2/3 Blood
Ventilator-associated pneumonia rates at major trauma centers compared with the national benchmark: A multi-institutional study of the AAST

Christopher P. Michetti, MD, Samir M. Fakhry, MD, Pamela L. Ferguson, PhD, Alan Cook, MD, Forrest O. Moore, MD, Ronald Gross, MD and the AAST Ventilator-Associated Pneumonia Investigators, Falls Church, Virginia

J Trauma Acute Care Surgery 2012, vol 72;1165-1173
VAP Rates per 1000 vent days OEF

N - 1186

NHSN mean
JTS Conferences

• Combat Casualty Care Curriculum
  – 200 participants per week
  – Enduring CME, now CNE
• Combat Medic Conference
• Armed Forces Medical Examiner System – Joint Trauma System Mortality Conference
Agenda

• History
• Structure
• Personnel
• Functional means by which the Joint Trauma System has an impact
• Collaborating organizations
• JTS as a High Reliability Organization
Military’s Continuously Learning Trauma System
Collaborating Organizations

• Armed Forces Medical Examiner System
• Joint Trauma Analysis and Prevention of Injury in Combat
• Trauma Infectious Disease Outcomes Study Group
• Naval Health Research Center
• Civilian Partnerships
High Reliability Organizations
Effectively manage high risk environments with excellent safety record.

1. Sensitive to operations
2. Reluctant to accept simple explanations
3. Preoccupation with failure
4. Defer to expertise
5. Resilient
High Reliability Organizations

1. Sensitive to operations
   All members of organization need to be aware of how processes and systems affect the organization.

2. Reluctant to accept simple explanations

3. Pre occupation with failure

4. Defer to expertise

5. Resilient
FIGURE 4. Core Functions and Essential Services

[Diagram showing core functions and essential services related to trauma and emergency health.]
High Reliability Organizations

1. Sensitive to operations
2. Reluctant to accept simple explanations
   Stuff doesn’t just happen.
3. Pre occupation with failure

4. Defer to expertise

5. Resilient
The use of rigid eye shields (Fox shields) at the point of injury for ocular trauma in Afghanistan


RESULTS:

Overall, 39% of eye injuries received a shield at the point of injury (61% failure), ranging from 0% to 50% between diagnostic subgroups. Subset analysis revealed that only 4.2% of injuries were successfully mitigated at the point of injury (95.8% failure).

CONCLUSION:

In one of the few studies documenting the use of eye shields after ocular trauma, anecdotal reports of poor, inadequate, or incorrect compliance with basic recommendations were substantiated. Several factors may account for these findings. Corrective efforts should include enhanced educational emphasis and increased shield availability. (J Trauma Acute Care Surg. 2014;77:S156-S162)
Pre-hospital Care in Operation Enduring FREEDOM viewed by a DOTMLPF capability assessment and case study.

Presented to the Committee on Tactical Combat Casualty Care
4-5 February 2014
By
Samual W. Sauer, MD, MPH
Colonel, United States Army
D-O-T-M-L-P-F

• Doctrine – clinical guidance not consistent with best clinical practice
• Organization
• Training
• Materiel – units equipped with materiel inconsistent with best clinical practice
• Leadership – compliance issues not viewed as a systems issue
• Personnel
• Facilities
High Reliability Organizations

1. Sensitive to operations

2. Reluctant to accept simple explanations

3. Pre occupation with failure
   ‘shared attentiveness’

4. Defer to expertise

5. Resilient
Organizational Maturity

• Assessment
• Strengthening Systems
• Identifying Unsafe Conditions
• Accountability
• Trust
High Reliability Organizations

1. Sensitive to operations

2. Reluctant to accept simple explanations

3. Preoccupation with failure

4. Defer to expertise
   Lincoln’s walkabouts

5. Resilient
Saving Lives on the Battlefield
I (2012) and II (2013)

• Surveys of prehospital care in Afghanistan
• Combined Joint Trauma System/USCENTCOM team
• Directed interviews with hundreds of physicians, PAs, and combat medical personnel in combat units
• COL Russ Kotwal (I)
• COL Samual Sauer (II)
High Reliability Organizations

1. Sensitive to operations
2. Reluctant to accept simple explanations
3. Preoccupation with failure
4. Defer to expertise
5. Resilient
   Relentless
Agenda

• History
• Structure
• Personnel
• Functional means by which the Joint Trauma System has an impact
• Collaborating organizations
• JTS as a High Reliability Organization
OEF CUMULATIVE ROLLING MONTHLY AVERAGES: %KIA, % CFR AND AVG. mISS, 1 NOV 2003 – 30 Jun 2014

Produced by the Joint Trauma System
Data Source: DoDTR v.3.2 data extracted is supplemented by data provided by DMDC Statistical Analysis Division and US Pentagon OSD
The graph shows the Case Fatality Rate and Injury Severity Score for Afghanistan from 2005 to 2013. The line for Case Fatality Rate is depicted in black, and the line for Injury Severity Score is shown in gray. In 2005, the Case Fatality Rate was at 16%, and by 2013, it had decreased to less than 10%. The Injury Severity Score shows a gradual increase over the years, peaking in 2013.
WWII – Vietnam – OEF – Operation NEXT ONE

Case Fatality Rate

0% 10% 20%

WWII Vietnam OEF
WWII – Vietnam – OEF – Operation NEXT ONE

[Graph showing the decrease in case fatality rate from WWII to Vietnam to OEF, with a prediction for NEXT ONE.]
WWII – Vietnam – OEF – Operation NEXT ONE

Case Fatality Rate

10%

20%

0%

WWII Vietnam OEF NEXT ONE