Overview

- Trauma and Injury Subcommittee Membership
- Charge
- Background on the Request
- The Joint Trauma System
- Way Ahead
- Timeline
- Questions
Subcommittee Membership

- James (Jim) Bagian, MD, PE
- CAPT (Ret) Brad Bennett, PhD, NREMT-P, FAWM
- CAPT (Ret) Frank Butler, Jr., MD
- Jeffrey Cain, MD
- David Callaway, MD, MPA
- Norman McSwain, Jr., MD, FACS
- CAPT Edward (Mel) Otten, MD, FACMT, FAWM
- CAPT (Ret) Peter Rhee, MD, MPH

Charge

- The Under Secretary of Defense (Personnel & Readiness) requested that the Board summarize lessons learned in trauma care in Iraq and Afghanistan, and propose a strategy for preserving these lessons in future conflicts.
Background

- November 2011: Dr. Rotondo briefs DHB & CoTCCC
- May 2012: USD(P&R) request received
- August 2012: Tasked to Trauma and Injury Subcommittee
- November 2012: Subcommittee teleconference to plan way ahead

Joint Trauma System

Factors for survival

- Energy Production
  - Aerobic metabolism
  - Fick principle
  - Required for organ survival
- Hemorrhage control
  - Torso hemorrhage
    - Medical facility
    - Clotting factors
  - Extremity Hemorrhage
    - Pressure
    - Tourniquet
Joint Trauma System

Blood

- Oxygen carrying capacity
- Stopping leaks in vessels (Clotting factors)
- Volume retention (Oncotic pressure)
  - Crystalloid is BAD.

- Red Cells transfusion = HEMS & in-hospital
- Plasma
  - FFP = HEMS & in-hospital
  - Liquid = Field, HEMS, In-hospital
  - Lyophilized = not US available

Joint Trauma System

Hemorrhage Control

- Coagulation (clotting system)
  - Intrinsic Factors I - XII
  - Extrinsic
  - Final pathway (Factor XIII)
- Factor XIV
  - Clamp
  - Ligature
Joint Trauma System

US Department of Transportation
National Traffic and Highway Safety Administration
NHTSA

Trauma System Agenda for the Future

Fundamental Components of the Trauma Care System

• Injury Prevention
• Prehospital Care
• Acute Care Facilities
• Post-hospital Care
Joint Trauma System

Trauma System Agenda for the Future

• What Is Trauma System
  • A trauma system is an organized, coordinated effort..... that delivers the full range of care to all injured patients .... True value of a trauma system .....seamless transition between each phase of care, integrating existing resources to achieve improved patient outcomes.
  • Trauma systems
    – regionalized,
    – efficient use of health care resources.
    – based on the unique requirements of the population served,
    – seamless and effective care
    – ability to expand to meet the medical needs of the [military]

US Military Joint Trauma System

Joint Trauma System

Trauma System Agenda for the Future

Conclusion

• Trauma is predictable.
  – It happened yesterday,
  – it is happening today, and
  – It will happen tomorrow
Joint Trauma System
Trauma System Agenda for the Future

Conclusion

...and US Milit...ns.

Efficiency in patient care is solution
• Hemorrhage
• Energy production

……time is truly a life and death matter

Joint Trauma System

Inclusive trauma system
– Cooperative management
– Initial resuscitation
– Immediate hemostasis

Exclusive trauma system
– Transfer to trauma center
– EMT care en route

A. Brent Eastman, MD FACS
President, American College of Surgeons

Scudder Oration 2009
ACS Presidential address 2012
• Trauma Center
• Level I or II

• Exclusive

Inclusive

Continuous En Route Care
Current Route from Injury to Definitive Care

• Surgical Capability
Comparison Battle Casualties
1941-2005

Best in US History

Fatality Rate = Die/Wounded %

Holcomb et al J Trauma 2006

Joint Trauma System

Trauma Center vs Trauma System

- **Trauma Center**
  - Single hospital
  - Full service trauma care
  - Level I, II or III

- **Trauma System**
  - Series of Hospitals
  - Community hospitals
  - Trauma hospitals
    - Appropriate hospital for condition
  - System wide registry
  - Oversight by system director
  - Quality Assurance
  - Inclusive or Exclusive
Joint Trauma System

• Inclusive systems
  – Cooperative management
  – Upward movement of patients as necessary
  – Exchange of medical information
• Exclusive Systems
  – Direct transfer to the trauma
  – EMT care

Dominique-Jean Larrey

• Director of Napoleon’s ambulance service 1797-98
• Not unusual for wounded to be in the field 7-10 days

“At Lemberg…. The remoteness of our ambulances deprived the wounded of the requisite attention…..I was authorized to construct a carriage which I called the flying ambulances”
Dominique-Jean Larrey

- “Flying ambulance”
- Trained medical personnel
- Went into battlefield
- Controlled hemorrhage
- Transported to nearby hospital
- Provided care en route
- Front line hospitals

Joint Trauma System

**Inclusive Trauma System**  **Joint Trauma System (JTS)**

- Organized care
- PreHospital care
- Staged surgical care
- Quality assurance
- Information exchange
- Trauma Registry
- JTS oversight
- TCCC
- Levels I-V
- Missing
- Weekly telecoms
- JTS registry
Joint Trauma System

Trauma System Agenda for the Future

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US Military Joint Trauma System

Inclusive Trauma Systems

As an additional incentive to maintain the Joint Trauma System

15 % reduction in mortality rate
The Joint Trauma System is to the military as the state trauma systems are to the civilian community.

*It is critical to casualty care*

*It cannot be allowed to vanish with force reduction*

**Way Ahead**

- Consolidate lessons learned from The United States Military Joint Trauma System Assessment
- Review American College of Surgeons Joint Trauma System report (recently approved by the Committee on Trauma Executive Committee, and up for review by the ACS Board of Regents in February)
- Brainstorm lessons learned internally among Trauma and Injury Subcommittee members
Timeline

- Late January 2013: T&I Meeting to outline key list of lessons learned
  - Assign leaders to work each key lesson

- February-July 2013: Collate lessons learned and finalize recommendation

- August 2013: Brief findings and proposed recommendation to the Board

Questions? Comments? Paranoid outbreaks?