

Lessons Learned: Civilian to Military

Challenges and Best Practices: A Systems Approach
Achieving Zero Preventable Deaths
Bethesda, Maryland
April 19, 2017

**Advancing the science and practice of trauma care
*together...***

Winds of WAR on medicine...

- Turn to surgery and care of the injured.....

History shows there is no greater stimulus to the advancement of the care of the injured than *war...*

Hippocrates, Pare, Larrey, Billroth.....

....Churchill, DeBakey, Hughes, Rich...

...Pruitt, Trunkey, Carlton...

WWII, Korea, Viet Nam, Iraq & Afghanistan....

each responding to more devastating weapons, different types of war and conditions of care for the combat soldier *...advanced medicine forever!*

And together!!!!

Objectives

Civilian to military...

- Explore the history** of military-civilian collaborations in the US (readiness).
 - Trauma: Systems, Centers and People
 - Some key innovations, treatments, and approaches translated from the civilian sector...
 - ...Minimal Acceptable Care at Intervals...*
 - Lessons of 1:1 teaching, mentoring, and always
 - ...“just a phone call away”...*

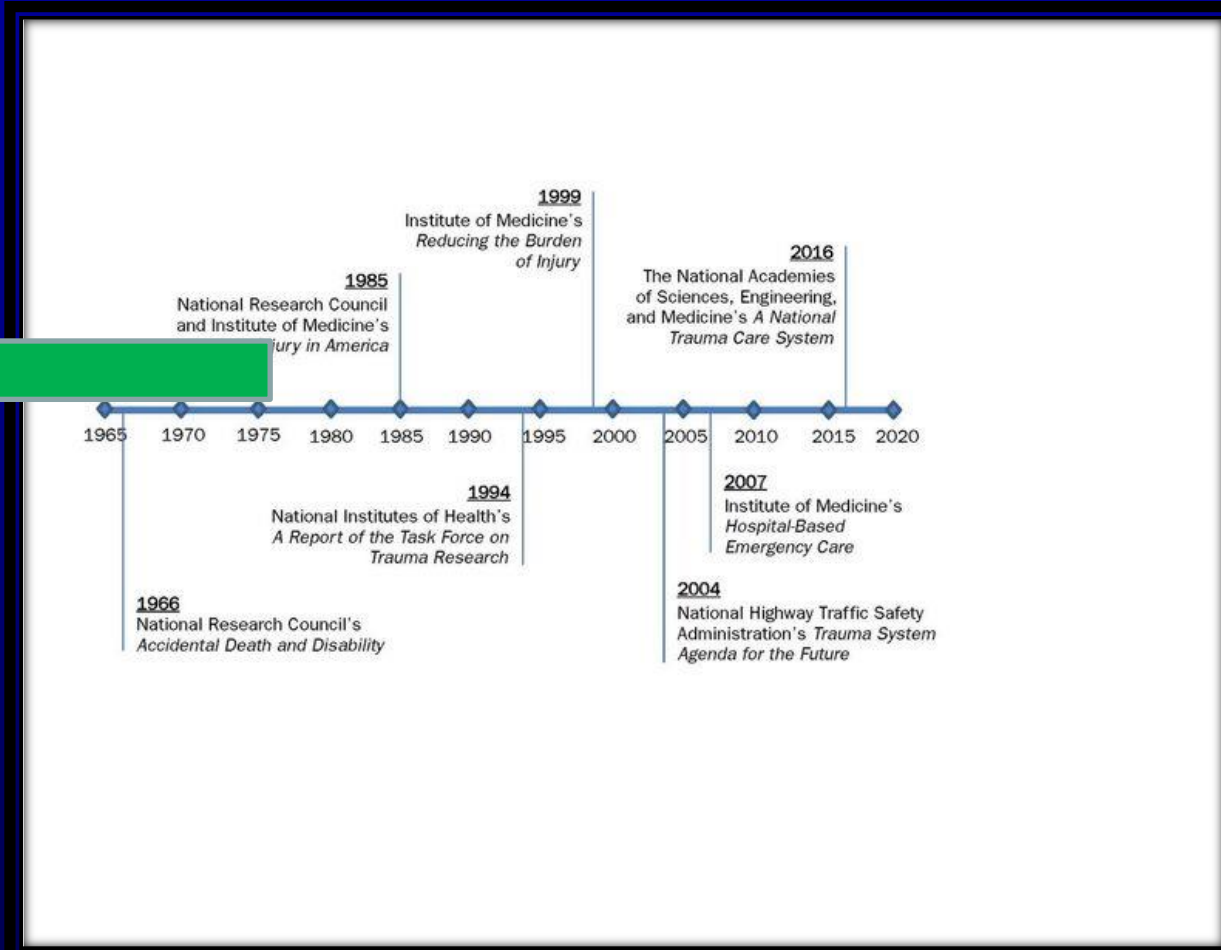
Time Periods

1775---1975

Post Viet Nam

1991-1996

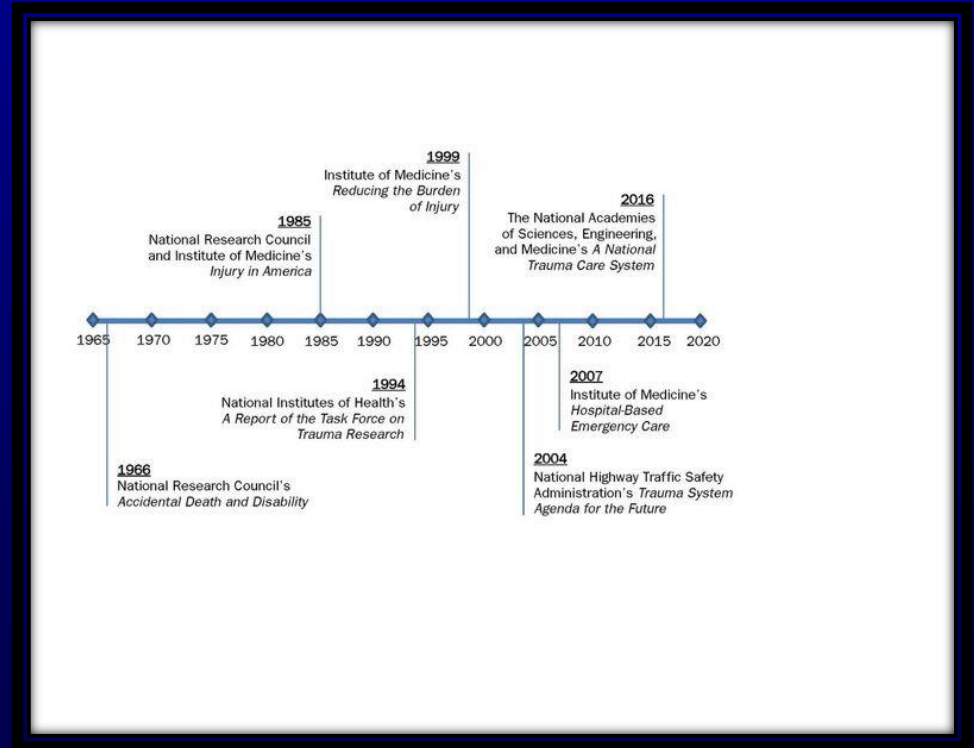
2001-2003



- Expertise 1942 –1975*civilian to military (consultants, reservists, and visionaries)

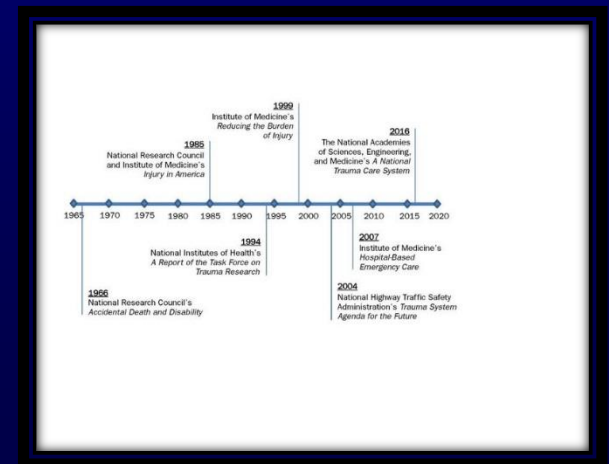
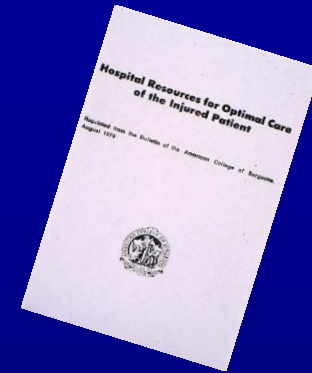
History: military medical readiness

- *VN bidirectional flow ends*
(Barry plan and draft)
- Kuwait & Somalia
 - Trunkey Arch Surg 1993; 2008*
 - GAO 92, 93 and 96 reports
 - Pilot program Houston*
 - DOD assigns (gs) to civilian TCs
 - Fellowships—incubation of leaders
 - Mil-Civ Trauma Training Centers
- September 11, 2001.



History: civilian trauma readiness

- 1970-99 ACS-COT “resource documents” - definitions, standards, policy
 - Refinements: data-MTOS, tra registries, QA-QI-PI, ATLS, state based designation, *leaders emerge*, *NTDB*
 - Systems literature, Regionalization
- 1989--? Urban Firearm War
 - Different weapons
 - High death tolls
 - Conventional approaches poor
 - DOD Fellows “at the table”, in the classrooms & at centers.
- 2003 DOD “fellows” deploy.
- 2006 SVS (consultants)



TRAUMA CENTER

Trauma Center

A specialized hospital facility distinguished by the immediate availability of specialized surgeons, physician specialists, anesthesiologists, nurses, and resuscitation and life support equipment on a 24-hour basis to care for severely injured patients or those at risk for severe injury

ACS Resources for optimal care of the injured patient, 1999



COMPONENTS OF AN INCLUSIVE TRAUMA CARE SYSTEM

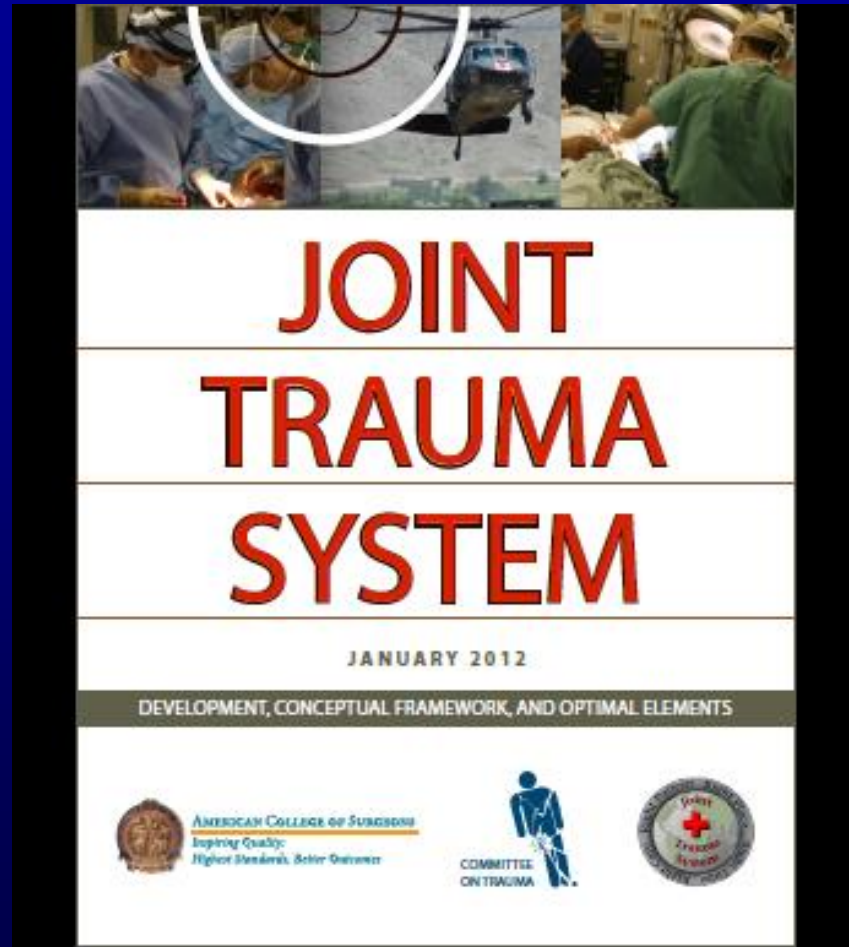


TRAUMA SYSTEMS AND TRAUMA TRIAGE ALGORITHMS Antonio Pepe, Antonio Marttos, Mauricio Lynn, and Jeffrey A. Augenstein

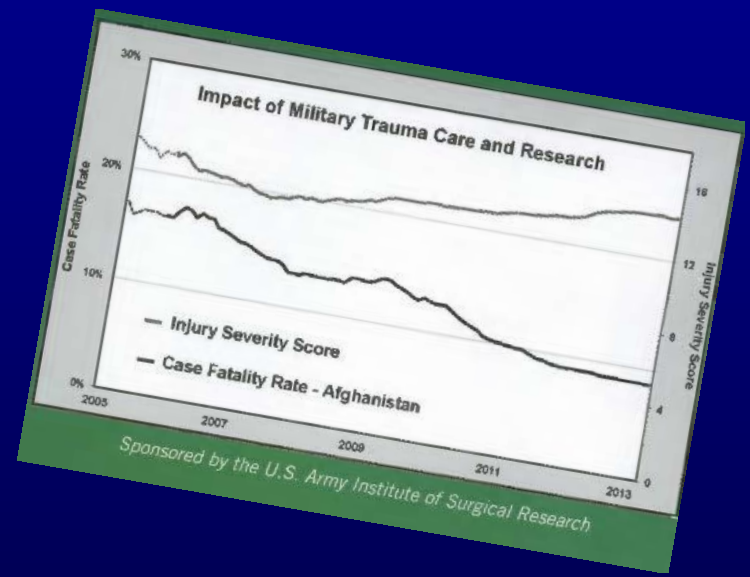
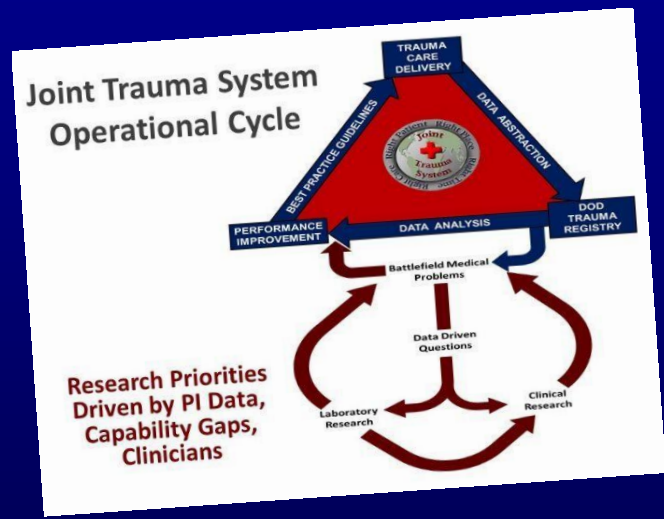
Figure 2 Components of an inclusive trauma care system. The components in this model are based on the components described in several trauma care resources. (Adapted from *Trauma Care Systems*, a position paper from the Third National Injury Control Conference, "Setting the National Agenda for Injury Control in the 1990's," p. 388.)



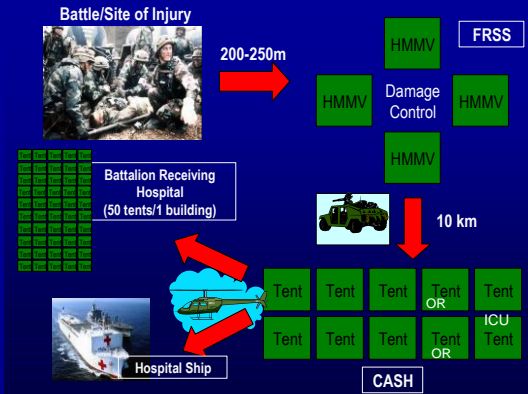
Trauma Systems, Centers and Surgeons



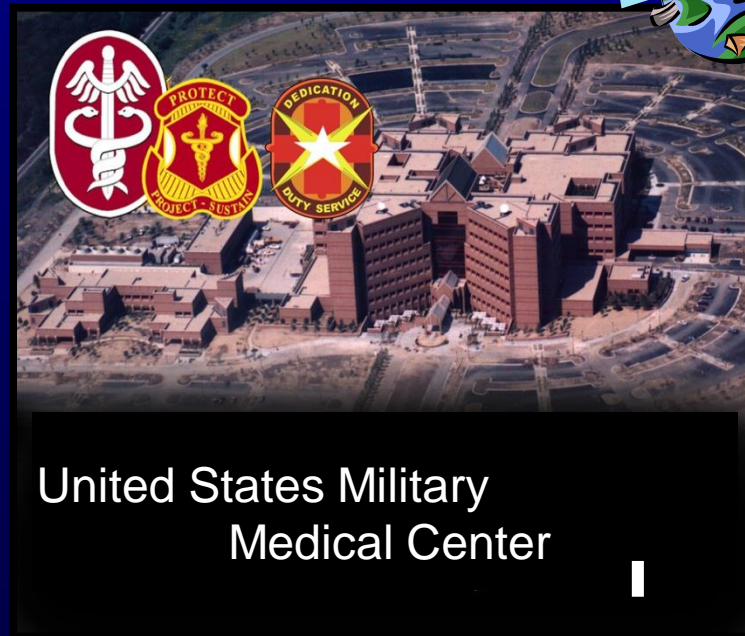
2014...13 years of war, they created a continuous learning system designed from the civilian model, identified the gaps and recrafted to fit a battle space with remarkable results
delivering critical care across the globe.



Military Medical Forces became THE EXPERTS ...



Combat
causality
back in US
with family
average 4
days



**WORLD
WIDE
TRAUMA
SYSTEM**

2nd US Revision NATO Emergency War Surgery Handbook (Two key concepts introduced)

ICU Care

Introduction

Each battlefield ICU should have a *dedicated intensive care physician*, due to the severity and lethality of blast and high-velocity wounds, and the need for ongoing resuscitation of casualties requiring *damage control*.

Damage control is the initial control of hemorrhage and contamination followed by intraperitoneal packing and rapid closure, then resuscitation to normal physiology in the intensive care unit and subsequent definitive re-exploration. This places large logistic requirements on the *ICU*. This may include rewarming, large volume resuscitation, blood products, vasoactive drugs, and mechanical ventilation.

Damage Control:

- **1992-2002: conditions, surgery, *philosophy*...**
 - **Control of bleeding and contamination**
 - **abbreviated & staged surgical procedures**
 - **ICU care, ACS, open abdomen,**
 - **Delayed definitive repair**
 - **Complex abdominal wall reconstruction**



At the table, in the classrooms, at the *center!*

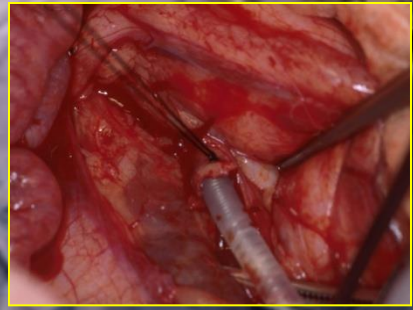


Whole Blood, VIIa
TEG?



DAMAGE CONTROL...
Shunt artery, vein, pack get out

Haemostatic?

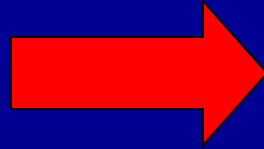


Hemostatic Efficacy of Two Advanced Dressings in an Aortic Hemorrhage Model in Swine.
Bijan S. Kheirabadi, PhD; Eric M. Acheson, MD; Rudolfo Deguzman, MS; Jill L. Sondeen, PhD; Kathy L. Ryan, PhD; Angel Delgado, PhD; Edward J. Dick Jr, DVM; John B. Holcomb, MD
JTRAUMA, Volume 59:1 25-35 July 2005

Battle/Site of Injury



1000m



HMMV

FST

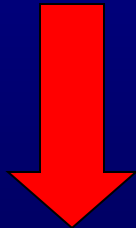
HMMV

Damage Control

HMMV

HMMV

10 km



Tent	Tent	Tent	Tent	Tent
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Battalion Receiving Hospital
(50 tents/1 building)

ICU

ORs



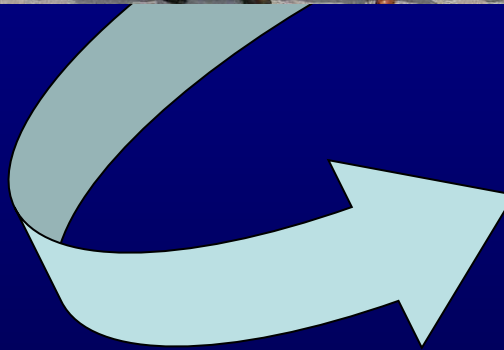
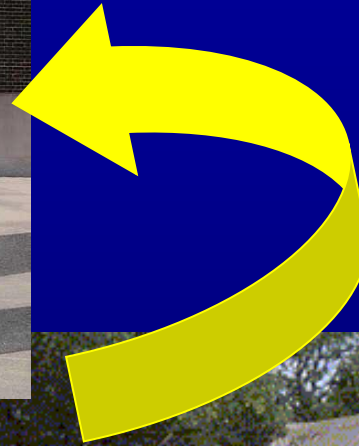
Tent	Tent	Tent	Tent OR	Tent
Tent	Tent	Tent	Tent OR	ICU Tent

CSH

Damage Control:

- **1992-2002: *conditions, surgery***
 - **Control of bleeding and contamination**
 - **abbreviated & staged surgical procedures**
 - **ICU care, ACS, open abdomen, reconstruction**
- **2003-2015: *pathophysiology, system response***
 - Resuscitation strategies and “pro-coagulants”
 - **Validation on the battlefield**
 - “System” wide applications
 - Civilian disaster application

Assignment of military surgeons “at the table”



*Civilian-Military
Partnerships...Trauma and SCC
Fellowships*

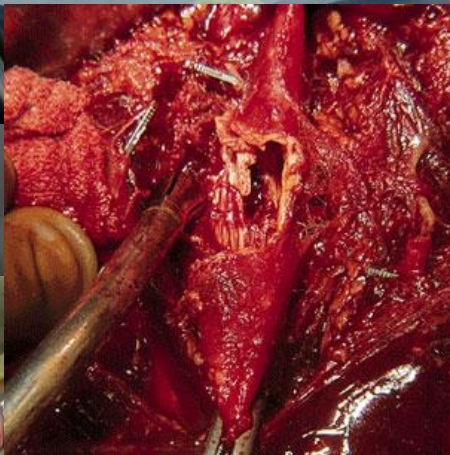
THREE Military Civilian Training Centers ...*created 1998*

Interviews, visits and literature...

Personal commitments of the combined staffs and leaders.....**OMG!!!!**

- Ongoing & shared sense of mission.
- Large numbers
 - > 10000 AD, R, NG
 - Physician, Nurse & AHP teams and individual trainees
- Positive impact (subjective)
- Best practices emerged
- Mutual benefit
- Cross pollination: clinical & scholastic
- DOD research potential
- MIL group (Trainers) are honed for READINESS response...
 - Deployed and Homeland
- Use: not well coordinated: who goes, interval with deployment
- No common curriculum
- Lack rigor of academic program
- No external assessment
- Best practices informally shared
- Convoluted command structure
- MIL Leaders change
- Uncommon TEAM to take call together
- Cycle of trainer deployment

Schwab JACS 2015



“Priceless” ...

Imagine Military Training Trauma Centers

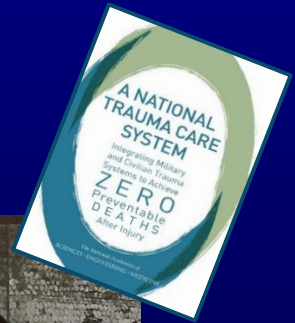
● 2500 Admissions &
175 GSW; Burn
Center and
Pediatric Hospital



The sacrifices made by the men and women of the U.S. Armed Forces deserve the profound gratitude of our Nation. For all those who served and gave so much, we thank you.

Medical history has been made with the delivery of clinical care under conditions and in environments that few of us can imagine.

We must now honor the sacrifices of a generation by ensuring that the lessons learned over the longest period of armed conflict in the history of the United States are not lost.



In the past, military medical leaders—such as Walter Reed, Leonard Heaton, Robert Brown, and Basil Pruitt—freely sought help from their civilian counterparts, and the likes of Evarts Graham, Edward Churchill, Isidore Ravdin, Michael DeBakey, and Tom Shires regularly responded with helpful largess. However, this fruitful civilian–military, collegial medical relationship eventually eroded—not by design, but by simple neglect. This is a propitious moment for both parties to renew the spirit of the past and harvest their joint potential for meeting the widely varying demands that all know are a part of the game, and the think tank should be an ideal venue for restoring this relationship. The issues that merit “out of the box” thinking have been given just a light touch here. Each potential solution has substantive pros and cons that require in-depth and expeditious exploration for the immediate need, but the nature of the issues is such that they will also engender worthy clinical research projects. We are convinced that

Eiseman, B., & Chandler, J. G. (2006). Military medical surge capacity in times of war and natural disaster. *Journal of Trauma and Acute Care Surgery*, 60(1), 237-239.