Joint Theater Trauma System and Joint Trauma System Review of Pre-Hospital Trauma Care in Combined Joint Operating Area – Afghanistan (CJOA-A)

Date: 30 May 2014 **Classification:** Unclassified

CENTCOM Commander Brief:

Saving Lives on the Battlefield (Part II) – One Year Later

Introduction

Joint Trauma System:

Reducing Preventable Deaths

- **The U.S. has achieved unprecedented survival rates, as high as 98%, for casualties arriving alive to the combat hospital.**

- **Official briefings and TV documentaries such as CNN Presents *Combat Hospital* highlight the remarkable surgical care taking place overseas.**

Joint Trauma System:

Reducing Preventable Deaths

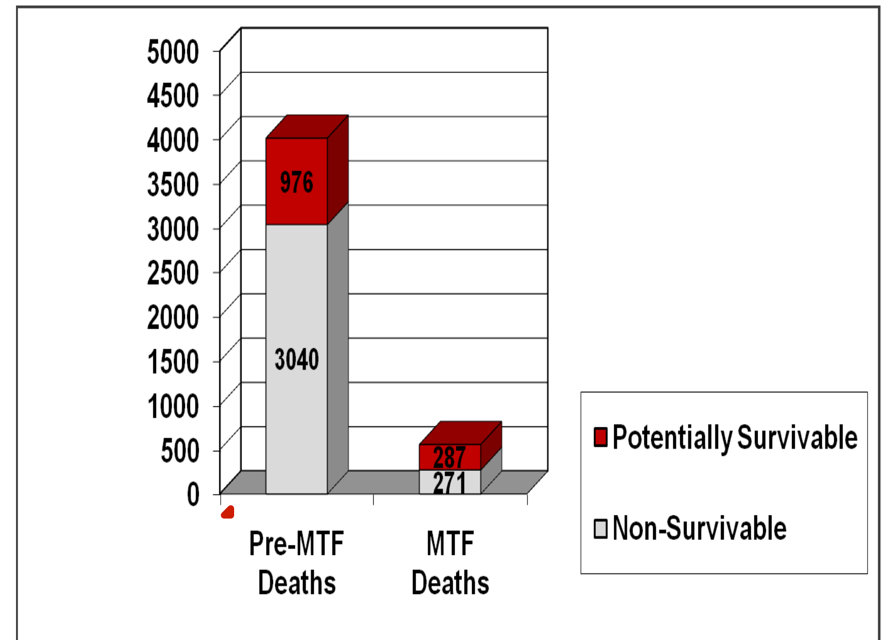
- However, combat casualty care does not begin at the hospital…it begins with pre-hospital care provided at the point of injury and through tactical evacuation.

- This pre-hospital phase of care is the first link in the chain of survival for those injured in combat…the next frontier for significant change in medicine.

Preventable Death on the Battlefield: OEF and OIF

Even with superb in-hospital care, recent evidence suggests up to 25% of deaths on the battlefield are potentially preventable.

- **The vast majority of these deaths happen in the pre-hospital setting.**

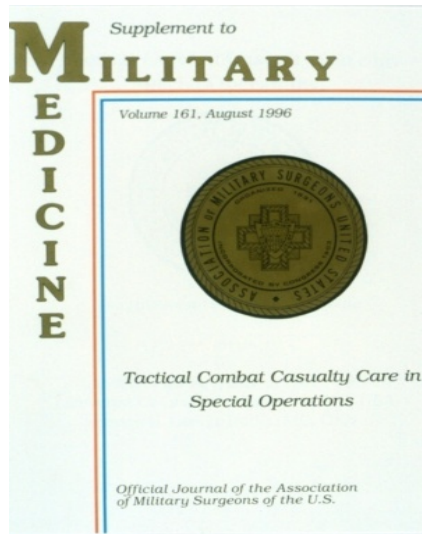


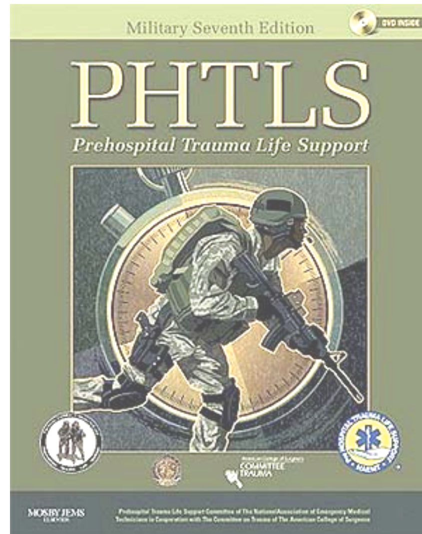
- **Any future meaningful improvement in combat casualty care depends on closing the pre-hospital gap.**

Eastridge BJ, Mabry RL, Seguin PG, et al. Death on the battlefield (2001-2011): implications for the future of combat casualty care. Journal of Trauma 2012, 73(6) Suppl 5: 431-7; and Eastridge BJ, Hardin M, Cantrell J, et al. Died of wounds on the battlefield: causation and implications for improving combat casualty care. Journal of Trauma 2011. 71(Suppl 1):4-8.

Pre-Hospital Battlefield Trauma Care:
Tactical Combat Casualty Care

- **A pre-hospital combat casualty care system based on Tactical Combat Casualty Care (TCCC) Guidelines reduces morbidity and mortality on the battlefield.**





ORIGINAL ARTICLE

ONLINE FIRST

Eliminating Preventable Death on the Battlefield

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ORIGINAL ARTICLE

Death on the battlefield (2001–2011): Implications for the future of combat casualty care

Brian J. Eastridge, MD, Robert L. Mabry, MD, Peter Seguin, MD, Joyce Cantrell, MD, Terrill Tops, MD, Paul Uribe, MD, Olga Mallett, Tamara Zubko, Lynne Oetjen-Gerdes, Todd E. Rasmussen, MD, Frank K. Butler, MD, Russell S. Kotwal, MD, John B. Holcomb, MD, Charles Wade, PhD, Howard Champion, MD, Mimi Lawnick, Leon Moores, MD, *and* Lorne H. Blackbourne, MD

Provides definitive cost-effective solutions to combat casualty care across the DOTMLPF-P spectrum.

Mission and Discussion

Mission

- The initial comprehensive assessment of CJOA-A pre-hospital trauma care was conducted in November 2012.
- This follow-on capabilities based assessment (CBA) of CJOA-A pre-hospital trauma care was conducted by the USCENTCOM Pre-Hospital Care Division of the Joint Theater Trauma System (JTTS) from December 2013 to January 2014.
- The intent was to evaluate pre-hospital trauma care tactics, techniques, and procedures conducted in the pre-hospital battlefield environment as obtained directly from deployed pre-hospital providers, medical leaders, and combatant leaders among the various US military services.
- Recommendations are provided to reduce combat morbidity and mortality among U.S., Coalition, and Afghan forces.

Mission

CJOA-AFGHANISTAN ROLE-1 ASSESSMENT SITES

Airborne	Eredvi	Leatherneck	Shank
Bagram	Frontenac	Lightning	Shukvani
Boldak	Gamberi	Mehtar Lam	Spin Boldak
Clark	Ghazni	Pasab	Tokham
Dwyer	Kandahar	Rushmore	Walton
Ebbert	Lashkar Gah	Sabit Qadam	

Discussion

KEY CAUSAL FACTORS AND FRICTION POINTS

1. Ownership
2. Data and Metrics
3. Pre-Hospital and Trauma Expertise
4. Research and Development
5. Material and Logistics
6. Hospital Culture

Discussion – 1. Ownership

- No single medical leader, agency or command is responsible for the quality of battlefield care delivery – responsibility is distributed to the point where seemingly no one "owns" it.
- Unity of command is not established and thus no single senior military medical leader, directorate, division or command is uniquely focused on battlefield care…the quintessential mission of military medicine.
- Combat arms commanders "own" much of the battlefield casualty care assets, yet they are neither experts in nor do they have the resources to train their medical providers for forward medical care.
- Commanders rely on the Service medical departments to provide the right personnel, training, equipment, and doctrine – while the institutional base trains and equips the combat medical force, it defers the responsibility of battlefield care delivery to line commanders.
- Net effect – line commanders lack expertise and medical leaders lack operational control – "when everyone is responsible, no one is responsible"

Discussion – 1. Ownership

- TCCC evolved to fill the gap for line commanders, creating a framework for treating life threatening battlefield injuries while taking into account tactical considerations.
- While TCCC is sound, its adoption and implementation has been uneven.
- Previous recommendations by ASD (HA) to train all combatants and all physicians in TCCC remain unimplemented throughout the DoD.
- "Guidelines" are different from "standards" – the CoTCCC provides evidence-based guidelines for best practices in battlefield pre-hospital trauma care.
- However, any command at any level can convert TCCC guidelines into requirements, standards, mandates through policy, directives or regulation – the higher the command level, the more ubiquitous the practice.
- Once a requirement is in place, personnel can use this mandate to justify monies and manpower to support training (to include time on the schedule for training), personnel, and equipment efforts and initiatives.

Discussion – 2. Data and Metrics

- “We cannot improve what we cannot measure and we cannot measure without data.”
- A significant and critical challenge over the past 12 years of conflict has been a failure to capture data on care provided at the point of injury.
- Hospital based medical leaders have historically not fully recognized the importance of extending a trauma registry to the pre-hospital environment – however, the importance of data capture must become part of the operational medical leader’s culture.
- The importance of data captured must then also be made by medical leaders to line leaders through near real time analysis, reports, and performance improvement initiatives.
- Once line leaders have been advised that data capture will lead to best practices and improved outcomes for their wounded, they will make data capture a priority.

Discussion – 3. PreHospital & Trauma Expertise

- The Services' medical departments have sporadically and suboptimally informed line leadership of the importance of pre-hospital care.
- We train and release medics to line units to be supervised by licensed providers with variable pre-hospital experience, knowledge and capability.
- This policy induces morbidity and mortality that could be prevented through standardized and evidence-based practices in pre-hospital care.
- If the pre-hospital setting is the area where nearly all potentially preventable deaths occur, then it is likely not coincidentally an area of limited organizational expertise.
- It would be natural to expect the Services, and especially ground forces, to invest heavily in experts in far-forward combat casualty care.
- Paradoxically, the opposite appears true – for example, the Army relies on the Professional Officers Filler System (PROFIS) to provide the bulk of forward medical officers who then serve in operational positions outside their scope of training.

Discussion – 3. PreHospital & Trauma Expertise

- Physicians and PAs trained in civilian-model graduate medical education often lack in-depth training on TCCC principles and techniques.
- If these providers are un-trained and uncomfortable in TCCC techniques, it is unlikely they will enforce adherence to TCCC standards among the medics and corpsmen they supervise.
- We found very few medical leaders who adopted TCCC guidelines and demonstrated a cutting edge attitude for pre-hospital care.
- We must cultivate tactical and operational medical officers, "military medical officers," who recognize and embrace their doctrinal duty and responsibility as the medical director for pre-hospital trauma care.
- Opportunities for formal education in pre-hospital medical directorship and care and must be encouraged.

Discussion – 4. Research & Development

- Current R&D efforts are focused on material "things".

- Current medical combat development efforts are primarily focused on rearranging existing paradigms for doctrine, manpower, and equipment.

- Less attention is paid to training, leadership, and organization, yet the current literature shows these areas have made the most significant documented improvements in survival.

Discussion – 5. Material and Logistics

- **The TCCC Guideline materials are available in the system.**
- **However, we make operational medical leaders justify ordering the materials in order provide TCCC guidelines capability.**
- **They are forced to pull materials instead of being pushed materials.**
- **This is because the TCCC Guideline materials haven't been operationalized by doctrine into the ROLE-1 sets, kits and outfits as authorizations and requirements.**

Discussion – 6. Hospital Culture

- The Services' senior medical leaders are often seasoned through MTF experiences and not operational training or assignments.
- These leaders then are empowered by assignment to affect the delivery of pre-hospital care despite their relative inexperience in this realm of care
- This demonstrable effect was recognizable at all levels of combat medical leadership during this assessment.
- In CJOA-A, multiple senior medical leaders verbalized resistance to full implementation of TCCC Guidelines across material and therapeutic domains – declining to establish the TCCC guidelines as a standard of care.
- These behaviors fundamentally ensured the non-systematic, non-programmatic, unequal, and unpredictable delivery of pre-hospital care.
- Capability then becomes dependent on personalities, individual choice, and personal perception of risk.
- Perceived risk aversion is then achieved at the proven cost of increased preventable death rates.

Discussion – 6. Hospital Culture

- The traditional conceptual framework for some medical leaders starts not at the point of injury but rather in the combat hospital or forward surgical team: **"get the casualty to the hospital and we will take care of them."**
- This is a legacy of the cold war when the combination of massive casualties and limited far-forward capability meant few meaningful interventions were possible until the casualty reached a combat hospital.
- Today, we know the actions or inactions of the ground medic, flight medic, or junior battalion medical officer *can* mean the difference between delivering a salvageable casualty or a corpse to the combat hospital.
- We expect medics to perform life-saving treatment under the most difficult of circumstances but invest minimal institutional effort toward training them to a high level or insisting they train alongside physicians and nurses in our fixed military hospitals during peacetime.
- Historically, the overwhelming pressures of providing beneficiary care in clinics and hospitals have conspired to redirect resources away from maintaining or improving battlefield care skills during peacetime.

Conclusion

Conclusion

Way Forward

- If history is any guide, making significant interwar advancements in battlefield medical care will be very challenging.

- As the current conflicts end, repeating the narrative of low case fatality and high survival rates…without a comprehensive and sober review of both successes and where improvements can be made…risks impeding the ability to truly learn the lessons that will improve the survival of Soldiers, Sailors, Airmen and Marines in the next conflict.

- Lessons learned are not lessons learned unless you learn them.

Conclusion

Way Forward

- Leadership of battlefield care must be established at the most senior level and the Service medical departments held accountable for improving it.
- Data and metrics must be obtained from the point of injury and throughout continuum of care; this information should drive evidence-based decisions.
- Commit to training physician, nursing, and allied health providers to become "combat medical specialists" and place them in key operational or institutional positions to improve training, doctrine, research and development.
- Research efforts should be directed towards solving pre-hospital clinical problems and balanced to include research on training, organization and leadership, not just material solutions.
- TCCC materials should be incorporated into SKOs.

Conclusion

Way Forward

- The current paradigm of military medicine needs to evolve from an organizational culture chiefly focused on full-time beneficiary care in fixed facilities and part-time combat casualty care (the "HMO that goes to war") toward an organizational culture that treats battlefield care delivery as its essential core mission.

- Addressing leadership, strategy, metrics, workforce and patient outcomes is common methodology for promoting excellence in hospital based healthcare – the same methodology should be used to improve care forward of the hospital.

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Questions?