

Proceedings of the 2016 Spring/Summer Meeting of the Committee for Tactical Emergency Casualty Care

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Founded in 2011, the Committee for Tactical Emergency Casualty Care (C-TECC) is a standing, independent, nonprofit organization comprising operational and academic medical leaders with a unified mission to develop and maintain best practice guidelines for the provision of high-threat medicine. Translating key lessons learned from its military counterpart, the TECC guidelines promote evidence-based management of casualties during tactical and rescue operations, accounting for differences in civilian environments, resources allocations, patient populations, and responder scopes of practice. The full C-TECC convenes formally twice annually to present scientific advances and emerging technology, and to update TECC guidelines to further enhance the life-saving mission.

The 2016 Spring/Summer C-TECC Full Committee Meeting was held in conjunction with the newly reorganized Special Operations Medical Association Scientific Assembly on 22 May 2016 in Charlotte, North Carolina. The meeting was robustly attended and included participation by leaders, subject matter experts, presenters, and stakeholders from domestic and international law enforcement, emergency medical services, fire/rescue, military, industry, and interested parties.

C-TECC Updates

The American College of Emergency Physicians (ACEP) has established a High-Threat Emergency Casualty Care (HTECC) Task Force to advise the ACEP President and Board of Directors on emergency medicine preparedness and response to acts of terror, active shooter incidents, and complex mass-casualty events. ACEP President Dr Jay Kaplan has selected Dr David Callaway, C-TECC Co-chair to serve as Cochair of the Task Force along with Dr Gina Piazza, C-TECC Guidelines Committee member. C-TECC and our members will continue to support the efforts of ACEP.

Dr Callaway will take a leave of absence from C-TECC to serve in his new capacity on the leading ACEP Task

Force. Dr Nelson Tang of the Board of Directors has accepted the position of interim C-TECC Cochair in Dr Callaway's absence. Additionally, Dr Carol Cunningham and Dr Richard Kamin have been appointed to the C-TECC Board of Directors. Drs Cunningham and Kamin have been active, long-standing committee members and will provide strategic insight and expert leadership in their new roles.

National Activities

Special Operations Medical Association—Department of Homeland Security Tactical Emergency Medical Support Summit

Held separately from the C-TECC meeting, the Special Operations Medical Association (SOMA) cohosted a multi-agency summit on tactical emergency medical support (TEMS) to provide the Department of Homeland Security (DHS) with ongoing guidance on the development of national core-competency standards. Key discussion involved the incorporation of TECC guidelines as the first competency domain of the restructured National TEMS Initiative and Council TEMS Competency Framework. Core participants representing ACEP, National Association of State EMS Officials, National Association of EMS Physicians, National Association of Emergency Medical Technicians, International Association of Chiefs of Police, SOMA, and C-TECC agreed with near unanimity on the consolidation of domains and integration of TECC as Domain 1. The DHS Office of Health Affairs tasked these representatives with making recommendations to their respective boards of directors to secure formal endorsement within the next 60 days. Once formalized, DHS will support 10 national core-competency domains for TEMS providers, with TECC representing the operational casualty care domain.

Joint Counter Terrorism Awareness Workshop Series and Integrated Emergency Management Course for Complex Coordinated Attacks

Members of C-TECC continue to serve as the Interagency Planning Group and faculty for the Federal Emergency

Management Agency/Federal Bureau of Investigation/National Counterterrorism Center Joint Counter Terrorism Awareness Workshop Series (JCTAWS) and Integrated Emergency Management Course for Complex Coordinated Attacks (IEMC-CCA). JCTAWS has recently been conducted in San Diego, California; Dallas, Texas; St. Louis, Missouri; and Tampa, Florida. Future workshops are scheduled for San Francisco, California; Phoenix, Arizona; and New Orleans, Louisiana. An IEMC-CCA was recently conducted for Durham, North Carolina, at the Emergency Management Institute in Emmitsburg, Maryland, and future courses will be held for Bellevue, Washington; Ada County, Idaho; and Salt Lake City, Utah. Interested communities may contact C-TECC to seek additional information on how to request either JCTAWS or IEMC-CCA.

Scientific Advances

Effective response to civilian mass-shooting incidents remains of critical concern to public safety entities worldwide. Data-driven practices from the battlefield experiences of the US Military have led to widespread endorsement of public access hemorrhage control as a key element of survivability. A new study published in the *Journal of Trauma*, "The profile of wounding in civilian public mass shooting fatalities,"¹ was presented by coauthor Geoff Shapiro, C-TECC Executive Committee member. The purpose was to gain a greater understanding of the fatality patterns after civilian public mass shootings, using similar design and methods to the military combat autopsy studies that drove the development and priorities for TCCC. Study data demonstrated not only that fatalities following civilian public mass shootings differ from combat fatalities in the mechanism of injury, overall wounding pattern, fatal wounding pattern, and the percentage of potentially survivable injuries but also simple hemorrhage control measures alone may not have the same positive effect on survivability in civilian public mass shootings as they do in combat.

Tourniquets and external hemorrhage control should be part of, but not be the sole focus of, public medical education and first responder capabilities. Further, the difficulties encountered by study investigators in obtaining clinical injury and forensic information demonstrated the ongoing need to develop enhanced accessibility to quality civilian casualty data. The study conclusion emphasizes that although hemorrhage control remains a critical component of point-of-wounding care, the entirety of TECC training and procedures implemented in a provider scope-appropriate manner as a system along the chain of survival is crucial to improving survivability when planning and preparing for high-threat incident mitigation.

- An introduction to the Trauma Hemostasis and Oxygenation Research (THOR) project and discussion of

remote damage control resuscitation and prehospital whole-blood transfusion was presented by Dr Geir Strandenes and Marc DePasquale, 18D.

- Prehospital application of resuscitative endovascular balloon occlusion of the aorta (REBOA) was presented by Dr Peter Fischer.
- Intramuscular delivery of tranexamic acid in trauma was presented by Dr Eric Vu.

The TECC principles are framed around the concepts of damage control resuscitation. As emerging science and technology offer new solutions, the C-TECC will continue to review, analyze, and integrate cutting-edge advances into its guidelines.

Program Updates

Key program updates on the Hartford Consensus were presented by Dr Matt Levy and an overview of Counter Narcotics and Terrorism Operational Medical Support was given by Greg Smith.

Case Study

A major meeting highlight included an in-depth presentation of the 2 December 2015 complex terrorism attack in San Bernardino, California. The presentation was by Ryan Starling, a paramedic/police officer with the San Bernardino Police Department Special Weapons and Tactics. Mr Sterling was operational during the event and was the first medical provider to access the initial scene, triage casualties, render point-of-wounding care, and coordinate evacuation of patients. This case study highlighted the complexities of response to such coordinated attacks and accentuated the ongoing need to disseminate the tenets of TECC and operationalizing new integrated response models.

Technology

A panel of industry representatives presented updates on research and development of hemostatic agents. John Steinbaugh of RevMedx, Simon McCarthy of Tricol Biomedical (formerly HemCon), Corey Russ of Combat Medical Systems, and Ricardo Flores of Z-Medica provided clinical information regarding current agents as well as new products under development or review. Mr Flores provided a reminder that end users should review all available research and clinical data regarding hemostatic agent selection. End users should consider the study type, scope, and patient population when determining its usefulness. Like other similar committees, the C-TECC does not have a mandate to endorse any product or manufacturer. Rather, C-TECC emphasizes the need for medical directors and program managers to review existing literature and to correlate with the needs and demographics of their patients to make data-driven decisions before selecting any product for field use.

TECC Guidelines

C-TECC discussed and voted on a revised “Skills Matrix” that delineates the knowledge, skills, and capabilities an individual should have based on their role in emergency response. The levels reflected on the matrix are First Care Provider, Nonmedical First Responder (Law Enforcement and Fire), Medical First Responders, and First Receivers. It is crucial to maintain the TECC Trauma Chain of Survival to potentially increase survival during high-threat incidents, while establishing a modular framework reflecting common language and interventions. Specific guidelines for each matrix level are being finalized and will be posted on the C-TECC website (C-TECC.org). The intention of the level-specific guidelines is to facilitate end-user development of training appropriate for respective target audiences.

Acknowledgments

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Reference

1. **Smith E, Shapiro G, Sarani B.** The profile of wounding in civilian public mass shooting fatalities [published online ahead of print 8 March 2016]. *J Trauma Acute Care Surg.* In press.

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