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*Dedicated to the
Indomitable Spirit
and Sacrifices of
the SOF Medic*

TacMed UPDATES

The Committee for Tactical Emergency Casualty Care: Fall Update

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Geoff Shapiro, EMT-P; Sean McKay, EMT-P; Richard Kamin, MD

The Committee extends its condolences to the citizens of Charleston, South Carolina, and the families of the victims of the 17 June 2015 terrorist attack on the Emanuel African Methodist Episcopal Church. Now, perhaps more than at any other time in our lives, we must battle the forces of ideological extremism, internationally and domestically. We also extend our thanks to the thousands of law enforcement and medical first responders who, day in and day out, stand the line between our communities and descent into chaos.

General

The Chicago Police Department and Northwestern University Hospital, Chicago, Illinois, hosted the 15–16 June 2015 Committee for Tactical Emergency Casualty Care (C-TECC) meeting. The Committee is grateful to the voting members, invited guests, and subject matter experts from around the country who braved the flash-flood conditions and the Black Hawks Stanley Cup victory to attend another productive meeting. Complete minutes and the record of votes from the spring C-TECC will be posted at www.c-tecc.org in the next several weeks. The meeting focused on strengthening the core recommendations around the First Care Provider, Mental Health Resiliency, and innovative training modalities.

New Guidance Documents

Department of Homeland Security,
Office of Health Affairs

“First responders should adopt, develop training for, and operationalize the evidence-based guidelines of TECC. Training should be conducted in conjunction with EMS, fire, law enforcement, and medical community personnel to improve interoperability during IED and/or active shooter events.”

— DHS Office of Health Affairs, 2015

The Department of Homeland Security (DHS) Office of Health Affairs (OHA) released a comprehensive document entitled “First Responder Guide for Improving Survivability in Improvised Explosive Devices and/or Active Shooter Incidents.” The full document can be found at http://www.dhs.gov/sites/default/files/publications/First%20Responder%20Guidance%20June%202015%20FINAL%202_0.pdf. This document lays out a strong argument for TECC, integrated warm-zone operations (indirect threat care), and aggressive interagency operational planning. As with all attempts at creating a comprehensive document, there are some limitations to the recommendations. However, DHS OHA is to be commended for laying out a framework that supports existing best practice efforts and empowers local and regional assets to continue evolving their response matrices.

The Interagency Board Update

Sanctioned by the Attorney General of the United States, the InterAgency Board for Equipment Standardization and Interoperability (IAB) was founded by the Department of Defense’s Consequence Management Program Integration Office and the Department of Justice’s Federal Bureau of Investigation (FBI) Weapons of Mass Destruction Countermeasures on 13 October 1998. The mission of the IAB is to strengthen the nation’s ability to prepare for and respond safely and effectively to emergencies, disasters, and Chemical, Biological, Radiological, Nuclear, and Explosives (CBRNE) incidents.

The IAB Health, Medical, and Responder Safety Subgroup released its June 2015 update recommending TECC training and proper individual first aid kits for law enforcement officers. The guidance provides high-level support for agencies working to implement all-hazard TECC programs in their communities. Full recommendations can be found at <https://iab.gov/Uploads/Final%20Law%20Enforcement%20TECC%20%20IFAK%20White%20Paper.pdf>

Guideline Evolution (Leads: Sean McKay, EMT-P; and Mark Anderson, EMT-P)

The C-TECC works continuously to update the content and format of the guidelines. At the last C-TECC meeting, the decision was made to evaluate different formats to facilitate adaption of the guidelines. One initiative involves translation of the current guidelines into a National Fire Protection Association (NFPA) job performance requirements (JPRs) format. This additional formatting option does not affect TECC Guideline content. However, a separate NFPA JPR version would also be available for training organizations that commonly integrate JPRs into their program of instruction and evaluation forms.

The development of a JPR includes six components: Job Task Analysis, Complete Job Inventory, Using Task Analysis Worksheets, Use Action Verbs to State Task, Identify Task Standard, and JPRs. Using this component/technique approach has proven to provide consistency and readability within the formatted document. The NFPA JPRs focus on requisite knowledge and skills rather than mandating specific equipment or training modalities. The definitions that follow offer sample formatting related to operational rope rescue:

1. *Requisite Knowledge.* Determination of incident needs as related to choosing compound rope systems, the elements of efficient design for compound rope systems, knot selection, methods for reducing excessive force to system components, evaluation of incident operations as related to interference concerns and set-up, rope commands, rigging principles, system safety check procedures, and methods of evaluating system components for compromised integrity.
2. *Requisite Skills.* The ability to determine incident needs as related to choosing compound rope systems, select effective knots, calculate expected loads, evaluate incident operations as related to interference concerns and set-up, perform a system safety check, and evaluate system components for compromised integrity.

Per the NFPA, the goal of this format is “to describe the methodology for developing [JPRs] so individuals can identify the specific format and are able to revise text that is used to evaluate the knowledge, skills, and abilities of a person qualifying for a national recognized standard level or position as they perform essential job tasks.”

There are many advantages to incorporating the NFPA format into the TECC Guidelines. First, the format does not dictate a specific technique or specific equipment. So whether the end user selects one particular commercial tourniquet over another, it does not matter. What

matters is the performance requirement of placing a tourniquet effectively (even if it is improvised) and accomplishing the outcome of cessation of hemorrhage.

The second advantage of the standardized NFPA format is that it allows the organization to tailor the level of training and operations to accommodate a variety of end users. NFPA uses a tiered-knowledge approach (i.e., Awareness, Operations, and Technician) with escalating expectations and requirements. The terms Awareness, Operations, and Technician will not only allow specificity for skill sets ranging from the bystander through the first receiving facility but also facilitate the second-order effect of interoperability within various agencies responding to a dynamic incident. As an example, when looking at JPRs pertaining to tourniquet application and/or casualty collection point acquisition and management, the patrol officer or rescue task force (RTF) member would obviously need to be at the Technician level, while the command staff may only need to be at the Awareness or Operations level. When looking at RTF-specific performance requirements, such as packaging and evacuation, the firefighter would need to be at a Technician level, while the patrol officer may need to be at an Operations level depending on the agency. Because of the potential critical task of breaching for access into a fortified building (e.g., Virginia Tech), patrol officers should be Technicians, while emergency medical services (EMS) personnel should still have an Awareness level of the requirement.

A third benefit of using the NFPA format is the concept of “authority having jurisdiction” (AHJ). The NFPA acknowledges that all agencies and jurisdictions have different threats, resources, political environments, budgets, and operational constraints. Therefore, the NFPA JPRs outline requisite knowledge and skills, but the AHJ determines the specific piece of equipment or the technique to accomplish the JPR. Individual departments, municipalities, and/or counties determine the relevant AHJ to fulfill the JPR.

In addition to the NFPA JPR formatting, the C-TECC has established a working group to begin tailoring the online guidelines to create a mechanism for agencies to more easily create tailored guidelines for nonmedical first responders, basic life support, advanced life support, and special operations teams.

TECC First Care Provider (Leads: Dr Josh Bobko; Mark Anderson EMT-P; and Dr Rich Kamin)

Guidelines Committee member Dr Joshua Bobko discussed the First Care Provider initiative that began in 2012. The term First Care Provider (FCP), coined by Dr Bobko and Board of Advisers member Todd Baldrige,

is meant to denote those people who are involved in a high-threat disaster or mass casualty scenario by proximity but do not suffer life-threatening injuries. Formerly referred to as bystanders, these people represent medical-force multipliers for traditional first responders and should be leveraged to initiate needed medical care to the wounded.

The Westminster Police Department (PD) in California has initiated one of the first whole-community TECC programs to offer basic TECC training and equipment to schools, major retailers, and other city facilities with the goal of building a community of FCPs.

The organizers took a multiphase approach to atypical disaster preparedness with the Westminster PD. The initial phase consisted of Run, Hide, Fight and shelter-in-place education. The subsequent phase focused on communication with 9-1-1 dispatch and first responders, operational planning for media relations, family reunification, and so on. The third phase educated participants on the preventable causes of traumatic death and provided equipment familiarization training. The effort concluded with a large-scale exercise using paired groups of various demographic components of the community evaluated in an earthquake scenario. The roles, scenarios, and evaluation criteria were all standardized to be shared through FCPs and the TECC committee.

Measured data points were “time to first action” and “time to solution.” First action was considered a surrogate for recognition of life threat, and was broadly defined to allow untrained subjects an equal chance for success in the scenarios. Time to solution was also broadly defined to account for the untrained demographic. The study enabled trained laypeople to use the various means of hemorrhage control. Subgroup analysis included time to tourniquet application and a subjective evaluation of tightness using the hemorrhage-control feature of ITTS mannequins (Innovative Tactical Training Solutions Inc.; <http://www.tommanikin.com>).

The preliminary results were reported at the TECC meeting in June and showed a significant improvement in the trained layperson’s ability to recognize life-threatening injury and respond appropriately. Further study is required on a larger scale and a standardized, multi-community model is being rolled out this summer across the nation. Through this and other ongoing efforts, the Committee is acquiring data to support the hypothesis that education of laypeople can effectively reduce both time to recognition and time to definitive hemorrhage control.

The ongoing C-TECC FCP efforts are focused on the continued support of community-based hemorrhage-control training programs (e.g., schools, universities,

high traffic public venues). In addition, C-TECC is leading a national effort to engage emergency medical dispatch (EMD) providers to modify existing protocols on hemorrhage control. Two recent events have driven this effort. On 14 January 2015 in San Diego, California, EMD gave instructions to a former Navy seaman to remove the tourniquet from a bleeding extremity wound of a motorcycle accident victim.¹ The victim subsequently died because of exsanguinating hemorrhage. On 14 June 2015, EMD at Oak Beach, North Carolina, told off-duty paramedic Marie Hildreth to not place a tourniquet on a victim whose arm had been amputated in a shark attack.² The C-TECC *strongly* encourages medical directors and EMD leaders to revise and update their protocols to reflect modern practice of hemorrhage control as recommended by the C-TECC and now the American College of Surgeons. This includes an earlier and more liberal application of prehospital tourniquets.³⁻⁶

Building First Responder Resiliency

C-TECC continues to work toward developing recommendations for best practice surrounding mitigating stress-induced mental health disorders in responders to high-threat incidents. The importance and support for building resiliency in first responder groups is growing due to subject matter expert consensus and a growing amount of research specific to the issue. As such, multiple organizations (IAB, International Association of Chiefs of Police, National Fallen Firefighter Foundation, and others) have issued documents that stress the importance of increasing awareness of the risk of and resources dedicated to addressing the complications of emotional and psychological stress. The importance of resources dedicated to support providers after an event and the understanding that building preresponse resiliency will create a more robust and protected responder have been described.

The Committee expects that as best practice is further developed and promulgated, the TECC Guidelines will be modified to include specific recommendations to minimize fallout from psychological stress. Until specific guidelines can be developed, the Committee has committed to aggregating and helping distribute best practice as it is created.

Ongoing Training

Members of the C-TECC continue to be actively involved in the Interagency Planning Group and delivery of the Joint Counter Terrorism Awareness Workshop Series (JCTAWS) sponsored by DHS and the Federal Emergency Management Agency (FEMA), the National Counterterrorism Center, and the FBI. Jersey City, New Jersey, and San Antonio, Texas, were host cities in this

reporting time frame. Additionally, the Integrated Emergency Management Course (IEMC) now features a JCTAWS theme and prominently highlights TECC and integrated discipline response models built around the tenets of TECC and rapid point-of-wounding care. Baton Rouge, Louisiana; Winston-Salem, North Carolina; and Milwaukee, Wisconsin, are all IEMC cities this cycle. Both the JCTAWS and IEMC deliveries are designed to test response plans and capabilities to a complex attack on the jurisdiction, including the use of fire as a weapon, active shooter events, and improvised explosive devices (IEDs) in a well-planned coordinated effort by the attackers.

FEMA Technical Assistance (TA) programs are available to any interested agency looking to increase its awareness of TECC and TECC's operationalization. Local agency leadership can request the TECC TA through standard channels. FEMA provides funding for instructor travel and lodging. Local agencies are only responsible for providing students and classroom space. Atlanta, Georgia, recently hosted a TECC TA that was well attended by area law enforcement, fire, EMS, and healthcare system personnel.

More than 100 private-sector organizations, public service agencies, and educational institutions have completed the C-TECC ethical use agreement and are providing training under the Recognized Educational Content banner. Most recently, the National Association of Emergency Medical Technicians Prehospital Trauma Life Support unveiled its TECC course. The C-TECC Recognized Educational Content logo represents a good faith agreement between the vendor and the C-TECC that the training provided is consistent with the published TECC guidelines. Importantly, the C-TECC does not endorse any particular training program.

Technology and Innovation in TECC Training

Note: C-TECC does not endorse any training company or product. However, our partners in the private sector are often key subject matter experts, innovators, and drivers of change.

Robert McCue (President) and Tim Miller (Trainer) of MILO Range (<http://www.milorange.com>) briefed the audience on the second day of the C-TECC meeting. MILO Range is a vendor for interactive use of force, tactical judgment training, and firearms training systems. MILO Range Interactive Systems use interactive video scenarios with computer-generated imagery that create hyper-realistic first-person environments. The scenarios are engineered and repeatedly filmed with different variables and outcomes, using professional actors and role players. This allows the on-screen scenarios to bifurcate

and change based upon the actions and decisions performed by the participant(s). MILO Range reported that they offer a full spectrum of options based on the end users' requirements, department size, budget, and tactics, techniques, and procedures.

Recognizing the importance of full-spectrum TECC training, Mr. McCue and Mr. Miller have been working with TECC experts to evaluate the integration of the TECC guidelines throughout their wide range of operational scenarios. Collectively, they are integrating a multitude of potential casualty management problems throughout scenario responses to active shooter events, IED attacks, and other situations outlined by DHS in its publication *First Responder Guide for Improving Survivability in Improvised Explosive Device and/or Active Shooter Incidents*.

International Application of TECC

C-TECC members recently delivered presentations focused on lessons learned and planning considerations for asymmetric attacks, to a North Atlantic Treaty Organization (NATO) Headquarters audience in Brussels, Belgium, and held expert panel discussions. The presentations were based on the JCTAWS and IEMC experience and focused on tiered training and application of TECC in dynamic prehospital environments. The NATO conference also included a brief from French officials regarding the response to the recent terrorist events in and around Paris, including the Charlie Hebdo shootings.

Administrative Updates

The next C-TECC meeting will be Sunday, 1 November 2015 in San Marcos, Texas, in conjunction with the Advanced Law Enforcement Rapid Response Training (ALERRT) Conference. The Committee is grateful to ALERRT for its ongoing support of TECC and look forward to this new collaboration.

You can follow us on twitter @CommitteeTECC or on Facebook at Committee for Tactical Emergency Casualty Care.

References

1. Summers D. SD 911 operator gave wrong advice in fatal crash. 14 January 2015. <http://www.nbcsandiego.com/news/local/Dispatcher-Tourniquet-911-Call-Crash-Palm-Avenue-San-Diego-288541881.html>. Accessed 20 June 2015.
2. 911 Call in North Carolina shark attack released. <http://www.cnn.com/videos/us/2015/06/15/911-call-released-north-carolina-beach-shark-attack.cnn>. Accessed 20 June 2015.
3. Callaway DW, Smith ER, Cain J, et al. Tactical Emergency Casualty Care (TECC): guidelines for the provision of prehospital trauma care in high threat environments. *J Spec Oper Med*. 2011;11(3):104-122.

4. Callaway DW, Robertson J, Sztajnkrzyer MD. Law enforcement-applied tourniquets: a case series of life-saving interventions. *Prehosp Emerg Care*. 2015;19(2):320-327.
5. Bulger EM, Snyder D, Schoelles K, et al. An evidence-based pre-hospital guideline for external hemorrhage control: American College of Surgeons Committee on Trauma. *Prehosp Emerg Care*. 2014;18(2):163-173.
6. Jacobs LM, Rotondo M, McSwain N, et al; Joint Committee to Create a National Policy to Enhance Survivability From Mass Casualty Shooting Events Hartford Consensus II. Joint Committee to create a national policy to enhance survivability from mass casualty shooting events: Hartford Consensus II. *Conn Med*. 2014;78(1):5-8.