

Building Community Resilience to Dynamic Mass Casualty Incidents: A Multi-Agency White Paper in Support of The First Care Provider

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“Regular people are the most important people at a disaster scene, every time.”

Amanda Ripley

The Unthinkable: Who Survives When Disaster Strikes- and Why

Introduction

Empowered and trained community members can serve a critical role as First Care Providers (FCP) during the initial moments after complex and dynamic disasters. These FCPs often have immediate access to severely injured victims and can provide time-sensitive, life saving interventions; the FCP is the first link in the trauma chain of survival. Public safety and first response agencies must acknowledge this operational reality and should lead the effort to integrate the FCP into whole of community crisis response plans built upon the tiered application of the civilian Tactical Emergency Casualty Care (TECC) medical guidelines. Utilizing TECC as the foundation for FCP training facilitates continuity of care not only for the patient but also the TECC trained pre-hospital care provider taking over care of the injured.

Background

Natural and manmade disasters are creating increasingly complex response challenges. The current U.S. emergency response model relies heavily upon the availability and expertise of highly trained public safety agencies. Too often, this leads the public and our leaders to assume that professional emergency medical care will be immediately available. Unfortunately, there are often delays in first responders accessing victims, especially in complex high threat events (e.g. the attacks in Norway, the Aurora shootings, the Westgate Mall attack). Initiatives such as the Rescue Task Force model and the 3-ECHO program are creating “warm zone/indirect threat care” operational paradigms for first responders and are an important first step in shortening the time from injury to first medical intervention. However, despite aggressive and expedient deployment of professional medical providers, there remains a time gap from point of injury to life saving intervention that only First Care Providers can address.¹

The Committee for Tactical Emergency Casualty Care (C-TECC), a volunteer group of civilian operational medical subject matter experts, published their first guidelines

¹ Bobko J, Kamin, R. “Changing the paradigm of emergency response: The need for first care providers.” Journal of Business Continuity & Emergency Planning Vol. 9, publication pending September 2015.

discussing the FCP concept in 2011. The C-TECC process and guidelines were modeled off of the successful military Tactical Combat Casualty Care (TCCC) guidelines and modified to account for the unique aspects of civilian high threat response. In the military, TCCC was most successful at reducing mortality rates when deployed as part of a comprehensive casualty management system, such as the Ranger First Responder system. However, the vast differences between civilian and military operational response, the unique civilian patient populations, legal restrictions, and the differences in logistics and resources, preclude TCCC from direct application into civilian operations. The TECC guidelines account for these unique aspects of civilian high threat response and allow local leaders to effectively implement “whole of community” high threat casualty response programs.

There is strong historical precedent in the United States and internationally for the TECC First Care Provider concept. The transition of cardiopulmonary resuscitation (CPR) from a hospital-based intervention to a whole of community response paradigm is perhaps the most illustrative. Dr. Elam demonstrated that CPR was scientifically “sound” in 1954. In 1957, Dr. Safar described the ABC’s of resuscitation, and in the 1960’s national medical associations, including American Red Cross, recognized CPR as the standard of care. In the 1970’s, the CPR principles made their way to the public domain and in the past few years has evolved to “hands only” CPR for non-medical first providers.² Over the decades, these bystander care principles have been proven effective and have evolved to include automated external defibrillators and stroke recognition. Today there are millions of trained “bystanders” across our country who can initiate cardiac resuscitation within seconds, can recognize the need, access and apply an automatic external defibrillator, and can even perform a Cincinnati Stroke Scale on the patient and provide results to arriving emergency medical services personnel.

The high profile Boston Marathon bombing focused the attention of national policy makers on what many in the first response community have always known: bystanders will be present, bystanders will act, and by doing so, bystanders can effectively assist the emergency response to these incidents to save lives. The keys to successfully transforming bystanders into effective First Care Providers are a combination of community education and training, first responder integration, and the development of standard operating procedures that address scene security, communication, education, and commitment to a tiered whole of community response paradigm.³

The First Care Provider

² Sayre MR, Berg RA, Cave DM, et al. Hands-Only Cardiopulmonary Resuscitation. *Circulation*. 2008; 117:2161-2167.

³ Fisher AD, Callaway DW, Robertson JN, Hardwick SA, Bobko JP, Kotwal RS. The Ranger First Responder Program and Tactical Emergency Casualty Care Implementation: A Whole-Community Approach to Reducing Mortality From Active Violent Incidents. *J Spec Oper Med*. 2015 Fall;15(3):46-53.

The First Care Provider represents the first link in the trauma chain of survival from point of wounding through definitive care.^{3,4} A First Care Provider empowered system offers a universal, flexible bystander-initiated trauma protocol. This shared language, based on the principles of TECC, empowers the FCP and the arriving medical/rescue assets to integrate effectively and work off of the “same sheet of music.” Like many of the recent advances in trauma care, the FCP concept harkens back to a time of more robust civilian resilience. The impetus for more robust FCP programs is born from the increasing frequency of incidents where geographic or operational barriers prevent timely professional first responder access to victims.

The successful transformation of bystanders into effective First Care Providers requires a commitment from national policy makers, first response agencies, and local community leaders to collectively provide opportunities for training and education. Several national organizations have recently made recommendations regarding “bystander” interventions. Many of these efforts have contributed to the national dialogue, but have only provided limited medical recommendations that focus solely on external bleeding control.⁵ Anchoring on the military data from the past 15 years, these recent bystander initiatives presume that the wounding, fatality, and population patterns in civilian active violence and mass casualty events are the same-as combat operations⁶. This flawed conclusion presumes that first responders should “just do what the military does.” Despite the increased use of military-style weapons and tactics in civilian events, the principles of Evidence Based Medicine preclude the en bloc application of military TCCC to the civilian setting. At its most basic, the military medical response paradigm fails to account for simple differences in civilian mass casualty incidents including civilian demographics, special populations, wounding patterns (i.e. predominance of gunshot wounds over explosives), lack of ballistic armor protection, availability of resources, and financial restrictions. Policy and operational experts must approach the challenge of creating a successful FCP program with a more nuanced and sophisticated mindset founded on the principles of high reliability organizations (HRO); in particular a reluctance to simplify, a deference to expertise, and a commitment to resilience.

Recommendations and Future Direction

There are four key requirements to the development and implementation of a successful community First Care Provider program: administrative leadership and operational policy development, pre-positioning of public access trauma kits, first responder training and training of First Care Providers.

1. Administrative Leadership and Operational Policy Development

⁴ Callaway DW, Smith ER, Cain J, Shapiro G, Burnett WT, McKay SD, Mabry R. Tactical emergency casualty care (TECC): guidelines for the provision of prehospital trauma care in high threat environments. *J Spec Oper Med.* 2011 Summer-Fall;11(3):104-22

⁵ Jacobs L, Burns KJ. The Hartford Consensus to improve survivability in mass casualty events: Process to policy. *Am J Disaster Med.* 2014 Winter;9(1):67-71. doi: 10.5055/ajdm.2014.0143.

⁶ Smith ER, Shapiro GL, Sarani B. The pattern of fatal injury in civilian active shooter events. Accepted for publication. Eastern Association for the Surgery of Trauma.

Successful FCP integration requires grassroots initiatives and national public policy leadership. Leaders must evolve past the complete reliance on traditional 911 response and overcome the widespread reluctance to introduce policies that empower medical action in the broader population. Implementation of public policies that incentivize FCP program adoption and standardization encourages both government and private sector action. Non-medical leadership is critical to creating an effective whole of community system that reduces potentially preventable trauma mortality.⁷

2. Public Access Trauma Kits

Many government buildings and public access businesses in the United States are grossly underprepared to support FCP interventions for traumatic injuries during targeted violence events. The deployment of public access trauma kits serves two critical roles. First, they provide a visual cue to prompt First Care Providers to take action. Second, if properly equipped they can provide critical material to support life saving interventions for more than just hemorrhage control. Public access to readily available medical equipment should be part of a multi-pronged approach to community safety. Civilian experts and medical evidence, rather than military recommendations, should guide equipment selection. Signage indicating location of trauma equipment should be clear and easily understood, mirroring efforts currently undertaken for fire control devices, automatic external defibrillators, and emergency exit planning.

3. First Responder Training

The training of professional first responders currently focuses on unified command, operational coordination, and direct life saving interventions. Additionally, this training traditionally marginalizes the bystanders and uninjured persons on scene. This must change. First responders must be familiar with the capabilities of the FCP and their operational plans must incorporate these available providers as force multipliers in the response. The new model must train first responders to identify the FCP, conduct a rapid threat assessment, appropriately gauge the FCP skill level, provide clear assignments to the FCP, and utilize the FCP as a force multiplier.

4. First Care Provider Training

The First Care Provider model empowers community members to take life saving actions. Data from across the globe demonstrates that training individuals empowers action and improves survival from medical and traumatic emergencies.^{8,9,10} Trained First

⁷ Kotwal RS, Montgomery HR, Kotwal BM, Champion HR, Butler FK Jr, Mabry RL, Cain JS, Blackburne LH, Mechler KK, Holcomb JB. Eliminating preventable death on the battlefield. Arch Surg. 2011 Dec;146(12):1350-8.

⁸ Arbon P, Hayes J, Woodman R. First aid and harm minimization for victims of road trauma: a population study. Prehosp Disaster Med. 2011 Jul-Aug;26(4):276-82.

⁹ Malta Hansen C, Kragholm K, Pearson DA, Tyson C, Monk L, Myers B, Nelson D, Dupre ME, Fosbøl EL, Jollis JG, Strauss B, Anderson ML, McNally B, Granger CB. Association of Bystander and First-

Care Providers demonstrate a willingness to operate independently, are able to recognize critical injuries and can properly allocate resources for maximum benefit to those involved.¹¹ First Care Provider training should provide a targeted, yet comprehensive approach to address the major causes of potentially preventable death as detailed in the Committee for Tactical Emergency Casualty Care First Care Providers guidelines.

External hemorrhage control is a critical skill for many traumatic injuries, however it is not a panacea. Recent events reveal that access to the wounded, recognition of significant injury, and rapid evacuation to medical care are at least equally as important as immediate hemorrhage control. Education on all of the preventable causes of death¹² in penetrating and blast trauma should be the ultimate goal and can be accomplished with a limited time investment. In addition to reducing mortality through application of TECC, this training will improve resilience by empowering individuals to take action in times of crisis. FCP programs should also provide education on:

- Basic airway management, casualty movement, and psychological comfort care of the wounded
- Improved communication between the bystander/first care provider and the 911 emergency dispatch system
- Strategies to mitigate physical and psychological risks
- Basic methods to interact and integrate with first response agencies, including how to signal for help and direct responders to casualties

Conclusion

First Care Providers are the initial link in the high threat trauma chain of survival. The FCP decreases the time between injury and potentially life-saving medical care. Professional first responders in the United States are highly trained and are the cornerstone of high threat disaster response; however, there exists a very real operational gap between existing doctrine, public expectations and operational capabilities. The evolving threat matrix and escalating complexity of mass violence incidents will overwhelm most professional response agencies and demands initiation of a community-based response network. First Care Providers are critical to mitigating this risk. First Care Providers should be trained in the tenets of the TECC guidelines similar to their first response agencies. The TECC First Care Provider model will produce an educated populace that can serve as critical force multipliers during mass casualty incidents and provide a seamless transition of care for traumatic injury during routine operations.

Responder Intervention With Survival After Out-of-Hospital Cardiac Arrest in North Carolina, 2010-2013. JAMA. 2015 Jul 21;314(3):255-64.

¹⁰ Pelinka LE, Thierbach AR, Reuter S, Mauritz W. Bystander trauma care--effect of the level of training. Resuscitation. 2004 Jun;61(3):289-96.

¹¹ FirstCareProvider.Org. Evaluation of First Care Provider Methodology. Submitted for Publication.

¹² Champion HR, Bellamy RF, Roberts P, Leppaniemi A. A Profile of Combat Injury. Journal of Trauma Supplement. 2002 May; 54(5): S13-19.