

FORCE SCIENCE[®] NEWS

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I. After-action report: Tactical Medicine lessons from terror attack

In an after-action report on a major terrorist attack on American soil, a team of medical professionals claims that first-responder agencies are not keeping pace with current terrorist methods in terms of their Tactical Medical Care preparedness.

The present prevailing approach to training and equipment “emphasizes the need for hemorrhage control [for handgun wounds] but overlooks the likelihood of encountering victims with multiple amputations and the complications of blast injury,” the report says.

“In the face of multiple, armed attackers using high-powered rifles and multiple explosive devices, the typically issued [protective equipment] is inadequate and the available medical supplies could quickly be exhausted, particularly when treating individuals with blast injuries.

“In light of the threats now faced by our society, merely supplying one tourniquet, one chest seal, and one dressing may no longer be sufficient.... Medical directors and medical assets should update their education programs” beyond the “traditional mindset”—one of a variety of important lessons learned from the mass-casualty incident the report critiques.

Lead author of the debriefing paper is Dr. Joshua Bobko, an adjunct assistant professor of emergency medicine at Loma Linda U. and medical director for a southern California police department. His eight co-authors, largely MDs or paramedics, are all closely associated with high-risk law enforcement operations.

Their report focuses on the fateful weekday more than two years ago when a married couple inspired by the Islamic State launched a shooting rampage and attempted bombing against attendees at a conference center Christmas party in San Bernardino, CA. Fourteen were killed, 22 seriously wounded—at that time the worst terrorist toll in the US since 9/11.

A physician who happened to be training with a PD SWAT team nearby was the first “medical asset” to reach victims, Bobko reports. He immediately began “triaging more than 30 wounded civilians.” In less than an hour, all the critically wounded had been brought to trauma centers for “definitive care.”

Some of what happened in the interim bears examination and systemic reform, the after-action team believes, to help first-responder agencies everywhere to better “adapt rapidly to threats that are often discussed but rarely encountered.”

CONFUSION. “In all, seven surrounding agencies and four SWAT teams converged” on the scene, Bobko writes. “[A]s the event unfolded, it became evident that responding fire and EMS units were not accustomed to combined operations with law enforcement. Their corresponding equipment packages and communication networks were different,” and communication between units “was extremely strained.”

A “varied understanding of concepts” added confusion and frustration. While the skill sets overlap, in real-world situations “there is a distinct difference between a qualified SWAT paramedic and a paramedic responding as part of a rescue task force (RTF),” Bobko explains.

RTF-model paramedics “are neither equipped nor trained sufficiently to provide care” in an area of direct threat. SWAT medics, on the other hand, are trained to operate “deep within the hot zone,” but their primary responsibility is to provide medical support for the tactical team. They do “not carry equipment sufficient to provide sustained care for a large number of casualties in that zone” and should not be expected to “provide a sufficient medical resource for an RTF model.”

Yet at San Bernardino, Bobko notes, the presumed “role and implementation” of the respective groups varied “markedly from agency to agency.”

A successful coordinated response, Bobko stresses, requires practice “on a recurring basis to prevent confusion of operational objectives.... [C]ohesive and coherent medical education across agencies will not only provide law enforcement with understanding of medical priorities, but also familiarize EMS with the tactical priorities of their law enforcement partners.”

COORDINATOR. The after-action report strongly recommends appointment of a law enforcement medical coordinator (LEMC) to serve as part of the command-post crew during critical incidents. “Ideally,” Bobko writes, “this position would be filled by an active or former tactical medical provider—preferably a physician with knowledge of both the tactical and EMS functions.”

Through ongoing contact with medical assets in both the hot and warm/cold zones, the LEMC can provide useful in-depth, operative input to the incident commander; keep abreast of the scene, its evolution, and its medical needs; avoid duplication of medical personnel; and assure that medical necessities for a potentially extended operation are met and sustained.

BLAST CONCERNS. In addition to the firepower they loosed in their attack, the San Bernardino terrorists placed IEDs where, had they exploded, they could have inflicted severe or fatal injury on civilian victims and responders alike in the immediate vicinity. These devices included a “planted” backpack filled with pipe bombs and a crude detonator that at least 30 rescue personnel unwittingly walked or stood near before it was rendered safe, Bobko says.

“[M]odern terrorists coordinate complex attacks, using multiple [IED] detonations to ‘drive’ response and inflict maximal damage,” Bobko writes. Thus the emphatic urging by Bobko’s team that agencies update their medical training and equipment to encompass blast injuries.

“The actual procedures for IED active-shooter events should now be the standard, practiced scenario,” Bobko writes, including “the complex and critical nature of injuries seen in these events and the challenge of accessing patients wounded by explosion.”

Among its recommendations, the after-action report encourages the development of a portable medical kit for active shooter/suspected terrorist incidents. “Should extra equipment become necessary, this kit should contain multiple tourniquets, triage tape, combination dressing/bandages, and large quantities of gauze for hemostasis/wound packing.

“Contrary to conventional thinking, establishment of an airway is not of primary concern in these types of events, eliminating the need for multiple advanced airway kits.”

When the sprinkler system was activated in the conference center in San Bernardino, “medical assets were unprepared for operations in a wet environment,” Bobko writes. “Moving forward, medical directors should educate and plan for the electrical shock hazards and biological hazards posed to responders in that environment. Rescue equipment should include waterproof triage tags (colored vinyl/plastic tags rather than paper).”

TRAUMATIC STRESS. “Despite several responders having military experience, there is a difference when witnessing catastrophic mortality within your own community,” Bobko writes. “The brutal nature of the San Bernardino attacks, the first responders’ familiarity with the community, and the likelihood of recognizing victims” were all “powerful stimuli for the development of post-traumatic stress.”

In San Bernardino, the problem was addressed beginning at the scene: “team medics immediately began interacting with team members to informally evaluate for signs of PTS.”

Personnel who witnessed casualties in the main death room “were at significantly higher risk than those serving in other locations,” Bobko notes. Access to victims by nonessential personnel was restricted—“the most basic process for decreasing stress.”

Afterward, the report recommends, “formal gatherings of team members and peer groups should be initiated very early to begin discussion of what has been witnessed and to prevent isolation by those most affected.”

And remember, Bobko advises, medical personnel, including SWAT docs, “may themselves need [traumatic stress] assistance after a crisis.”

In passing, Bobko remarks on other elements of the San Bernardino response that warrant attention in training. These include the arrival by some medical personnel without personal protective equipment; traffic blockage of emergency equipment; and the inadvertent establishment of a casualty collection/treatment site in what may have been, in retrospect, an IED hot zone.

Bobko’s paper, titled “A Tactical Medicine After-action Report of the San Bernardino Terrorist Incident,” appears in the *Western Journal of Emergency Medicine* at: <https://escholarship.org/uc/item/7zf9j4w1>

Dr. Bobko can be reached at: jbobko@gmail.com.

Our thanks to Jeff Chudwin, president of the Illinois Tactical Officers Assn., for bringing the after-action critique to our attention.

II. New study: Rarity of police UOF & severe suspect injuries confirmed

Contrary to the prevailing depiction of police in virtually every news cycle, a new study confirms once again that use of force by officers is actually a rare occurrence.

A research team headed by Dr. William Bozeman of the Dept. of Emergency Medicine at Wake Forest School of Medicine in North Carolina reviewed police and available medical records for every UOF incident occurring at three mid-size law enforcement agencies in three states across a two-year period.

“Every type of police force-modality was tracked,” Bozeman writes, including soft and hard empty-hand physical control, CEWs, chemical weapons, batons and improvised impact weapons, K-9s, less-lethal projectiles, firearms, and even foot and vehicle pursuits.

An infographic that captures highlights of the study is posted on the Force Science Web site at: www.forcescience.org/bozeman.pdf

Among the researchers’ findings:

- Out of 1,041,737 calls for service, only one in every 1,167 involved the use of force, for a rate of 0.086 percent. Among criminal arrests, the UOF incident rate was 0.78 percent, 1 in every 128. (Some incidents involved more than one suspect and more than one application of force.)
- Empty-hand physical force and CEW use “were the two most common force modalities used, representing 50.8 percent and 36 percent respectively,” Bozeman reports. “Traditional intermediate force options such as pepper spray and impact weapons were not commonly used, representing 6.3 percent and 0.6 percent of force utilizations. Firearms were used in 0.4 percent of force utilizations.”

- “Overall, 98 percent of suspects had mild or no observed injury after police UOF,” Bozeman writes. “[M]inor injuries are not unexpected as a consequence of violent resistance or struggling with police, and are managed on an outpatient basis with a very low likelihood of complications or long-term disability.”
- Less than one half of 1 percent (0.4 percent) of subjects were severely injured. “There were no significant injuries” from CEW or chemical weapon use” and only one fatality from gunshot wounds. Unarmed physical force resulted in over one third of the significant injuries seen in the study, including head injuries and bone fractures. Still, the likelihood of physical control “producing a significant injury remains less than 1percent.”
- “With over 500 uses resulting in no significant injuries, these data suggest that CEW use is the force option least likely to result in significant suspect injury,” Bozeman notes.
- Of 78 suspects hospitalized after a force incident, only one quarter were admitted because of injuries related to the use of force. The vast majority were admitted “because of medical, trauma, or psychiatric reasons unrelated to UOF,” the research team’s medical experts concluded.

The study, titled “Injuries Associated with Police Use of Force,” appears in the *Journal of Trauma and Acute Care Surgery*.

Dr. Bozeman can be reached at: wbozeman@wakehealth.edu

Our thanks to Dr. Mark Kroll, an adjunct professor of biomedical engineering at the U. of Minnesota and the California Polytechnical Institute, for alerting us to this study.

III. Our readers write: Notes from our in-box

Domestic calls not as dangerous as made to appear

I believe you have misrepresented the statistics on high-risk calls in the National Law Enforcement Officers Memorial Fund/DOJ report regarding officer fatalities.

You highlighted that the study found that “domestic dispute calls were the most dangerous, accounting for 29 percent of all fatal calls for service.” Yes, domestic calls are dangerous, but to label them as the most dangerous is an ill-informed conclusion.

Typically, I have responded to probably hundreds if not thousands of domestic calls in my career. I can probably count on one hand the number of “man with a gun” calls I have responded to. So if, for example, domestic-related calls represent 10% of all the calls that police respond to and man with a gun calls represent .001 percent of the calls (I don't know if that is true, I'm just hypothesizing) while domestic calls account for 29 percent of all fatalities and man with a gun calls represent 10% of all fatalities, then in proportion to domestic calls man with a gun calls could be and probably are far more dangerous than the domestic calls.

Nevertheless, the study is valuable, and I will share it with my troops during briefing. Thank you for sharing it with me.

Ptl. Sgt. Ben Knitter

Mounds View (MN) PD

Permission granted!

I am requesting permission to forward issues of *Force Science News* within my department. The content of your articles is second to none.

Sgt. Jeremy Walk

Officer Survival Section

Illinois State Police Training Academy