



MCI – Reevaluate Trauma Field Care Readiness, Too

By Bernard Bar-Natan, Founder and CEO, FirstCare Products

Organizations worldwide are ramping up their efforts to prepare for seemingly inevitable worst-case urban terrorism scenarios. As contingencies are prepared, evacuation procedures improved, equipment stockpiled, and response times examined, emergency medical professionals are revisiting basic field lifesaving techniques and equipment.

As Homeland Security professionals, we've all thought about the nightmare scenario in our own communities. Hundreds of wounded, hospitals overwhelmed, streets blocked and evacuation routes inaccessible. The potential for a conventional or non-conventional terrorist-originated urban Mass Casualty Incident (MCI) has become very, very real all over the world, especially in the West. In such situations, from a medical point of view, traditional field triage and treatment are radically ill-suited.

In the absence of a proximate trauma center, and in light of expected transportation impediments in an MCI scenario - traditional EMS "scoop and run" strategies don't work. Therefore, EMS personnel are now considering how to best stabilize injured in the field, with an understanding that evacuation may be significantly delayed.

In the hundreds of brutal MCI's experienced in Israel over the past decade, emergency services personnel have learned much about the nature and care of MCI injured. The need to train and equip teams and make locations trauma-ready has necessitated a rethinking of traditional first aid strategy – from a caregiving, logistical, and even a cost-benefit perspective.

A Different Class of Injuries

The nature of explosion-originated wounds in an urban landscape are especially bloody. Full and partial amputations, deep shrapnel or flying debris penetrating wounds, and other such injuries are common – and often lead to death through blood loss in minutes without effective intervention.

According to studies of MCIs in Israel, 80% of deaths occur at the time of the explosion. The remaining 20% are termed "preventable deaths." Of these, 80% are due to lack of hemorrhage control, 15% due to unidentified/untreated airway and breathing problems, and the remaining 5% due to an assortment of other problems.

This short window for treatment, coupled with the low-accessibility nature of the urban MCI scene, and the overwhelming number of casualties in even small incidents, has created new challenges for field medicine. Additionally, first responders in urban MCIs may not always be medical professionals, and caregiving strategies need to take this into consideration.



One of the primary conclusions given the overwhelming percentage of preventable deaths in MCIs resulting from poor hemorrhage control is the need to rethink field bleeding control strategies and tools.

Learning from Military and Non-MCI Civilian Experience

Field bleeding control has long been the focus of military first aid. Under fire or far from medical centers, combat medics have been trained to control bleeding and stabilize wounded over time – saving lives even when evacuation takes hours. Further, all soldiers carry first-response bandages, and undergo basic first aid training – primarily preparing them to act effectively to control bleeding.

One of the keys to field hemorrhage control is effective bandaging – especially application of direct pressure to wounds without using a potentially detrimental tourniquet. Army medics are traditionally intensely trained in bandaging strategies for different types of wounds – often using several different bandages for each wound, and improvising tools for application of direct pressure.

Recently, however, military organizations around the world have begun to adopt new and advanced direct-pressure bandages which enable both medics and lay soldiers to stop bleeding faster and more simply. Similarly, civilian EMS organizations are beginning to adopt more aggressive field hemorrhage control strategies. Especially in remote areas, or in non-terror-related MCIs like freeway pileups, bleeding control based on effective direct wound pressure is becoming the standard.

Advanced Pre-Hospital Bleeding Control

Trauma specialists have long agreed that direct pressure on the wound is the most effective, and least potentially deleterious (as opposed to tourniquets), field treatment for hemorrhage control. In fact, many paramedics agree that the traditional A-B-C (**A**irway-**B**reathing-**C**irculation) taught in ATLS (Advanced Trauma Life Support) courses should actually be C-A-B – since in cases of massive bleeding, death can occur as rapidly from bleeding as from respiratory distress.

However, until recently, application of effective direct pressure was an overly-complex process – difficult for professionals and almost impossible for laypeople – that demanded primary bandages and a series of secondary bandages and accessories to focus pressure on the wound.

Advanced technologies now allow severe bleeding to be stopped and managed even in the absence of evacuation by both professional and non-trained personnel. Multiple bandaging items are now often replaceable by a single advanced bandage – saving lives, saving time, and – yes – saving money.

Cost-Benefits of Trauma Equipment Consolidation

It is correct and legitimate to put a price tag on MCI trauma treatment readiness. As countries and organizations accelerate preparations for worst-case scenarios, costs are absolutely an issue. Medical professionals are today looking to technology to



solve both medical and logistical challenges – seeking technologies that consolidate multiple functions into one.

When examining advanced trauma equipment, savvy medical procurement personnel take "life cycle costs" into account. In the case of bleeding control, the move to advanced bandaging solutions can mean replacing three or four stock items with one single item. For example, today's direct pressure bandages replace traditional field dressings, multiple secondary dressings, and often field tourniquets. Thus, not only are lives saved more effectively, but significant savings in purchasing, ordering, training, warehousing, distribution, and maintenance can be achieved.

In both civilian and military organizations worldwide, the savings in the case of advanced direct pressure bandages have been shown to be 3:1. In Homeland Security terms, this level of savings translates into more funds for personnel and other equipment – and ultimately more effective overall MCI readiness.

Additionally, on the logistical side of field caregiving, consolidation of multiple bandaging items saves space in emergency vehicles – just as it has saved space in combat medical field packs. Ambulances and paramedics, just like their military counterparts, can carry more equipment, and be ready to save more lives – all for less money.

Benefits for Untrained or Self-Application

Another tangible benefit of advanced direct pressure bandaging as a solution to MCI hemorrhage control is ease of application. As mentioned above, previous approaches to bleeding control, largely unchanged since pre-World War II, involved cumbersome primary and secondary bandage applications, in addition to various direct pressure devices – often of a provisional, improvised nature.

Today's direct pressure bandages demand little or no training for effective application. This not only lowers training expenses for first-response professionals, but also allows untrained first-responders to start saving lives before emergency personnel arrive on the scene. These modern bandages even allow wounded to self-treat – freeing up medical personnel for the most seriously wounded. As discussed above, in chaotic and congested urban MCI scenarios, this can literally mean the difference between life and death.

Conclusion

The potential demands of urban MCIs necessitate a rethinking of basic field lifesaving techniques. Based on both worldwide military and Israeli MCI data, the vast majority of terror-originated MCI victims die of severe bleeding. Thus, hemorrhage control in a delayed-evacuation scenario should top the list of caregiving techniques to be revisited.

New advances in technology provide excellent solutions that control bleeding more effectively, and more cost-effectively, than previously possible. These solutions involve consolidation of multiple items into one – saving administrative and logistical overhead, and lowering the burden on field personnel. Advanced solutions are also



simpler to use – lowering professional training overhead and allowing untrained first responders to more effectively contribute to saving lives.

By adopting field-proven, forward-thinking approaches to MCI trauma treatment, Homeland Security organizations will be ready to save more lives, while still retaining the fiscal flexibility needed to comprehensively meet the challenges of today's terror threat.

First Care Products provides innovative first-response medical products which save lives through improving field hemorrhage control, and yield significant savings in time and resources. The company's unique, combat and clinically-proven direct-pressure Emergency Bandage has been adopted on a large scale by military and civilian organizations worldwide. Learn more at www.firstcareproducts.com.