

# BLAST INJURIES

## Prehospital Care



### Background

Because a terrorist bombing can cause a large number of seriously injured persons, prehospital care systems play a critical role in managing the emergency medical response to this kind of mass casualty event. The quality of prehospital emergency medical response will affect the quality of all subsequent clinical care activities, and it may directly affect patient mortality and morbidity rates. The complexity and scope of a mass casualty event caused by an explosion requires that prehospital emergency medical care systems address the following issues:

- Recognition of specific hazards associated with a terrorist bombing, such as secondary devices, environmental hazards (e.g., toxins, fires) and structural instability.
- Identification patients with significant blast related injuries.
- Effective communication with acute care medical resources and emergency management resources.
- Expedient patient triage to match available resources with patient needs.

In the United States, the majority of emergency medical service (EMS) systems are organized and coordinated at the local level. Nationwide, this results in an incredibly diverse prehospital emergency medical care system that is often markedly different in operational and clinical approaches among jurisdictions. According to the Institute of Medicine, EMS systems are challenged by the following key issues: insufficient coordination, response time disparities, inconsistent quality of care, lack of disaster readiness, divided professional identity, and limited evidence base for the profession.

Even though it faces these challenges, the prehospital medical care system will play a pivotal role in blast event medical management by identification and transport of patients with potentially significant injuries to appropriate trauma centers, and direction of less injured patients to other medical facilities.

### Challenges for EMS Providers

Numerous challenges and potential concerns must be addressed by EMS providers.

- Blast sites are dangerous; EMS personnel must be safety conscious and alert for hazards such as:
  - secondary device explosions; and
  - fire, environmental exposure, or structural collapse.
- Exhaustive prehospital evaluations of survivors are impractical due to limited resources and potential dangers at the bombing scene.
- Patients with mild to moderate injuries may rapidly move on their own from the explosion site to the closest hospital(s).
- Effective prehospital triage is an essential component of medical management for an explosive event.
- Due to infrequent occurrence and the diversity of blast events, rigorous study of triage methodologies is difficult.
- A nationally standardized triage methodology does not currently exist.

## Challenges for EMS Providers (continued)

- Prehospital medical responders have adopted a variety of commercially available and locally created methodologies, many of which possess similar processes and definitions; however, subtle differences among them may cause confusion during a chaotic situation.
- Overtriage may deplete limited resources, thus degrading patient care and increasing mortality rates of those critically injured.

## Improving Prehospital Care After Blast Events

In the absence of a defined national prehospital triage methodology, agencies with responsibility for triage at mass casualty events should make every effort to standardize processes and definitions at the local level. An effective prehospital triage system includes:

- common terminology and processes;
- easily understood protocols for providers with varying amounts of medical education;
- deployable tools and record keeping instruments for apparatus possibly used during an emergency response; and
- functional exercises where prehospital medical providers demonstrate understanding of emergency response processes and definitions.

Effective management of the emergency medical response to a mass casualty bombing requires substantial preparation by prehospital medical care systems. Integration into the local trauma system and understanding its emergency response methodology are critically important to ensuring that the most severely injured bombing victims are transported to facilities that have the resources required to care for them. Prehospital medical system administrators should focus on:

- facilitating interagency collaboration by standardizing command structure, lines of communication, and triage methodology.
- ensuring that prehospital medical care providers have a basic understanding of blast pathophysiology and the complex injury patterns produced by such an event.
- training prehospital medical providers to recognize external signs of significant blast injury and designing triage guidelines that facilitates moving these patients to the highest level trauma center(s) in the local system.

*This fact sheet is part of a series of materials developed by the Centers for Disease Control and Prevention (CDC) on blast injuries. For more information, visit CDC on the Web at: [www.emergency.cdc.gov/BlastInjuries](http://www.emergency.cdc.gov/BlastInjuries).*