



### Emergency Medical Services System Response

Emergency Department Response

Surgical Department Response

Intensive Care Unit Response

Radiology Response

Blood Bank Response

Hospitalist Response

Administration Response

Drugs and Pharmaceutical Supplies

Nursing Care

## Managing Surge Needs for Injuries Emergency Medical Services System Response

### PURPOSE

To provide guidance for local emergency medical services (EMS) response and to mobilize additional EMS-related resources needed in a community within 4 hours of an explosion. These resources are intended to treat at least 300 injured patients.

### BACKGROUND

The Madrid, Spain, terrorist bombings were used as a model to help develop solutions for managing rapid surge problems during a mass casualty event.

On March 11, 2004, 10 explosions occurred almost simultaneously on commuter trains in Madrid, killing 177 people instantly and injuring more than 2,000. On that day, 966 patients were taken to 15 public community hospitals. More than 270 patients arrived at the closest facility between 8:00 a.m. and 10:30 a.m.

Federal resources should not be expected to arrive sooner than 72 hours from the time of the explosion. Resources can be delayed by the time taken to deploy them and by emergency personnel responding to multiple communities.

### GOAL

To mobilize the appropriate number and type of EMS resources to adequately evaluate injuries, initiate triage, begin transporting at least 300 injured patients, and establish ongoing EMS operations for up to 72 hours.

### REQUIRED RESOURCES

- ◆ Personnel must:
  1. Be appropriately trained, equipped, and knowledgeable about chemical, biological, radiological, nuclear, and explosives (CBRNE) detection, personal protection, and decontamination;
  2. Be educated in the care of blast-related injuries for adult and pediatric patients;
  3. Be prepared to institute triage;
  4. Have the necessary resources and be capable of rapidly detecting CBRNE agents to assist with decontamination plan; and
  5. Be prepared to institute and participate in unified incident command.

- ◆ An incident management process to address 72-hour operations.
- ◆ A communications system that is interoperable with the public safety disciplines (fire, law enforcement, EMS, and emergency management) and with receiving hospitals, other health care facilities, and local public health officials.
- ◆ Rapid access to a medical cache(s) sufficient to treat the volume of critically injured patients.
- ◆ Ambulance resources to transport critically injured patients.
- ◆ Alternative resources (i.e., buses) to transport noncritically injured persons.
- ◆ Decontamination equipment for ambulatory and non-ambulatory patients. Equipment should be rapidly deployable to the explosion site, a secondary treatment site, or a hospital.
- ◆ Secondary triage and treatment sites that can be determined/implemented within the community.
- ◆ A demobilization plan that includes access to mental health professionals.

► *This document is a resource guide. Local needs, preferences, and capabilities of the affected communities may vary.*

## ASSUMPTIONS

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- ◆ EMS systems in the United States are highly variable, with a wide range of available resources, experience, and financing.
- ◆ A functional EMS system is a critical component for the prehospital management of injured bombing victims and the rapid redistribution of patients from any initial hospital that is overwhelmed with casualties.

## ACTION STEPS

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The following outlines the appropriate steps for managing surge capacity:

### 1. Education.

- ◆ Train EMS dispatch personnel about appropriate strategies to organize EMS response to bombing incidents.
- ◆ Train responding EMS personnel about how to treat primary, secondary, tertiary, and quaternary blast-related injuries. For guidance, go to [www.bt.cdc.gov/masstrauma/explosions.asp](http://www.bt.cdc.gov/masstrauma/explosions.asp).
- ◆ Train EMS personnel about National Incident Management System (NIMS) compliance and the incident command system (ICS). The importance of command, staging, triage, and treatment of initial casualties (regardless of rank of the provider) should be emphasized.



*Develop a plan that includes expectations for initially arriving personnel, including scene assessment, consideration of secondary devices, and attention to safety.*

- ◆ Train EMS personnel about the use of personal protective equipment (PPE) and the potential risks of transporting contaminated patients. Train EMS officials in advanced ICS (ICS-700 or equivalent).
- ◆ Train responding personnel to be aware of the need to preserve forensic evidence.

## 2. Local policy and planning.

- ◆ Facilitate fire, EMS, law enforcement, 911 centers, emergency management, hospitals, other health care facilities, and public health collaborating to develop written plans, as listed in the bullets below. The recommended time for completing these plans is 6 to 12 months. The planning process should include business and community partners. Within 6 months of the plans' completion, other agencies listed in these plans (including mutual aid agencies, etc.) must be included in ongoing planning and evaluation.
- ◆ Plan for mobilizing the appropriate number of ambulances within 10 minutes following the blast. At least 75% of these resources should arrive at staging areas in the first hour, with all arriving in the first 90 minutes. This mobilization should be accomplished by using 911 EMS resources, mutual aid agreements with other EMS providers, or mutual aid agreements with nonemergency transport providers.
- ◆ Develop a plan that includes expectations for initially arriving personnel, including scene assessment, consideration of secondary devices, and attention to safety.
- ◆ Describe in a plan each agency's role in the command structure. Plan should include how critical functions of command, safety, staging, and triage will be accomplished in the first 10 minutes of a response; how treatment, transport, and additional ICS elements will be filled over the first hour; and how the ICS structure will be formally filled by officials trained in advanced ICS (ICS-700 or equivalent) by the end of the first hour.
- ◆ Describe in a plan how alternative transport for 200 ambulatory patients will be initiated in the first 10 minutes after an explosion.
- ◆ Plan for personnel accountability and patient tracking.
- ◆ Describe in a plan the details of interdisciplinary communications (primary and alternatives). Representatives from fire, EMS, law enforcement, emergency management, hospitals, and public health must be included in this plan. The planning process should also involve business and community partners.
- ◆ Plan for decontamination and protection of personnel. This plan should address the following:
  1. agency responsible for scene assessment and determining what (if any) decontamination measures are required;
  2. realistic assessment of the time required to deploy decontamination resources for ambulatory and non-ambulatory patients; and
  3. deployment of decontamination resources to event site, secondary triage sites, or receiving hospitals.

- ◆ Determine the extent of decontamination required before transport (e.g., none, gross, and/or technical).
- ◆ Ensure that a plan is in place to enable the rapid redistribution of casualties, if required, from a hospital overwhelmed with a surge.
- ◆ Plan to establish secondary triage points for ambulatory patients (ideally, within the first hour after the explosion).

This plan should address the following:

1. how sites can be activated and staffed with sufficient medical personnel, law enforcement personnel for security, and support staff to record arrivals,
2. how such patients will be reassessed,
3. how immediate needs for medical care will be met until transfer to definitive care occurs (e.g., allocation of medical supplies and personnel), and
4. how to establish criteria for determining death at the scene, particularly in a mass casualty situation, and for appropriately managing the deceased.

## EVALUATION

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- ◆ Plan and conduct exercises (tabletop, functional, and full scale).
- ◆ Generate an after-action report that assesses overall objectives.
- ◆ Refine plan.

For more information, visit <http://emergency.cdc.gov/masscasualties>.