



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: Radiology Response

PURPOSE

Within 2 hours of an explosion, operationalize radiology support for the initial treatment of 300 injured patients and for ongoing care up to 72 hours.

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 establish policies, procedures, and drills to improve radiology department preparedness for treating 300 patients injured from an explosion for up to 72 hours.

REQUIRED RESOURCES

Enough radiology personnel (radiologists, technicians, and support staff), equipment, and supplies to care for 300 injured patients.

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

ASSUMPTIONS

- ◆ Radiology services will be a critical component of the hospital response to a bombing.
- ◆ Many patients requiring radiology over a relatively short time period may lead to bottlenecks.
- ◆ At least one x-ray technician will be on-site, and additional technicians will need to be mobilized.

- ◆ Radiologist interpretation of images may not be available immediately, and the radiologist may not be available on-site.
- ◆ Most hospitals will be able to provide plain radiographic imaging but will not be fully equipped to address all radiological needs that will arise in an event of this magnitude (ability to do special imaging or ultrasound may be limited).
- ◆ A majority of the patients involved in a bombing will require some form of radiological evaluation.
- ◆ Radiology staff will be familiar with the hospital disaster plan, their individual roles and responsibilities, and the roles and responsibilities of all essential departments.

ACTION STEPS

1. Develop a radiology management plan.

Develop a management plan and call list for the radiology department to use during a mass casualty event. Enhanced radiology patient throughput will be essential in the initial evaluation and treatment of blast-injured patients. Each radiology department must develop a plan to ensure rapid turnaround of patient studies and interpretations.

2. Conduct drills.

Drills should call for radiologists to provide immediate (wet) readings of plain films and special studies. These readings will assist in rapidly evaluating and treating patients. The plan should also optimize and streamline radiology study protocols for use during a mass casualty event.



3. Put support in place to conduct ultrasounds.

When disaster patients arrive, an ultrasound technician will be available in the emergency department to perform an immediate focused abdominal sonography for trauma (FAST) exam. If an ultrasound technician is unavailable, then emergency physicians and trauma surgeons should be trained to conduct this exam.

4. Conduct an imaging equipment survey.

Evaluate the status of the equipment for multiple trauma patients and ensure adequate numbers of portable equipment. Radiology equipment is expensive and usually requires planning in advance for acquisition and installation. However,

by evaluating how available equipment could be put to maximum use during a mass casualty event, a facility can improve patient throughput.

5. Include radiology systems in incident command system plan.

All aspects of patient throughput in the radiology department should be addressed in the hospital incident command system plan.

Computerized tomography (CT) should be available, including radiologist interpretation, within 1 hour of the event.

6. Create radioactive contamination screening protocol.

The hospital should have a protocol and capability for screening and decontamination of radioactive contamination. This protocol needs to be coordinated with the overall hospital response.

7. Ensure timely availability of equipment and readings.

Computerized tomography (CT) should be available, including radiologist interpretation, within 1 hour of the event. The hospital should plan to have ultrasound available for bedside evaluation.

8. Plan for specialized studies and interventions.

Additional specialized studies and interventions may be required (arteriogram, interventional procedures, magnetic resonance imaging (MRI)/magnetic resonance angiography (MRA), etc.) and may not be available on-site. Plans must be in place to obtain these studies at another institution or to transfer patients if necessary.

9. Create plan to read films.

Create a plan to ensure that each film is formally read and discrepancies with any initial readings are reported in a timely fashion.

EVALUATION

- ◆ Where appropriate, the action steps listed above have been incorporated into evaluation drills. The institutional disaster preparedness plan should be updated based on each drill experience.

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