



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: Drugs and Pharmaceutical Supplies

PURPOSE

Within 4 hours of an explosion, acquire the additional drugs and pharmaceutical supplies needed to treat 300 injured patients for 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

Within 4 hours of an explosion, mobilize appropriate and adequate drugs and pharmaceutical supplies to treat 300 injured patients for up to 72 hours.

REQUIRED RESOURCES

- ◆ Readily available pediatric dosing charts, including color-coded tapes.
- ◆ Quick reference card to be developed/updated for supplementing available resources.
- ◆ The list below includes therapeutic categories, route of administration, and recommended drugs or pharmaceutical supplies. For simplicity, purchase and stockpile a single or limited number of drugs from each therapeutic category. Limiting the types of medications available should better enable prescription and dosing by care providers with little or no prior experience with the drug.
 1. Analgesics:
 - by mouth (PO): hydrocodone/acetaminophen (one strength—5/500);
 - intravenous (IV): morphine;



2. Anxiolytics:
PO and IV: lorazepam;
3. Antipsychotics:
PO and IV: haloperidol;
4. Antibiotics, broad spectrum with low allergy risk:
PO and IV: ciprofloxacin;
5. Intravenous fluids:
normal saline and dextrose 5% water (D5W); alternative methods for intravenous access such as interosseous;
6. Drugs for intubation:
IV: etomidate, succinylcholine, and vecuronium;
7. Burn care agents:
topical: silver sulfadiazine, bacitracin;
8. Ears, nose, and throat (ENT) meds for tympanic membrane perforation:
neomycin, polymyxin B, and hydrocortisone otic suspension,
9. Ocular meds:
proparacaine ophthalmic ointment, erythromycin ophthalmic ointment;
10. Tetanus toxoid vaccine; and
11. Other medications:
penicillin, cephalosporin, vancomycin, metronidazole, clindamycin, anti-emetics (e.g., ondansetron hydrochloride [HCl]), albuterol.

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

ASSUMPTIONS

- ◆ A demand for certain pharmaceuticals may follow a bombing event with multiple casualties.
- ◆ Pharmaceutical 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. Establish community medical leaders.

Identify community medical leadership and a committee to address near-term solutions. Discussions and subsequent decisions should include emergency medical services (EMS), emergency medicine, trauma surgery, hospital pharmacy (PharmD), blood bank, hospital leadership, hospital nursing, emergency management, public health, and law enforcement (regarding transport of pharmaceuticals).

2. Create an inventory of drugs.

Create an inventory of drugs and quantities available at points of care (prehospital and hospital). Assuming at least 4 hospitals and 10 ambulances will be involved in the response, the committee should delegate a point person to contact hospital pharmacists and EMS leadership and inquire about inventory.

3. Identify gaps.

Identify gaps between drugs in stock and the goal (within 4 hours of an event, acquire appropriate and adequate drugs to treat 300 patients for up to 72 hours).

4. Locate drug sources.

Identify potential sources of drugs in the community other than current prehospital and hospital supplies (e.g., locally developed stockpiles, community pharmacies, drug wholesalers/warehouses, private physician offices). Identification of additional sources should consider daily and routine needs of the community.

5. Develop relationships outside the community.

Develop relationships with leadership outside of the immediate community. Discussion with this leadership could include requests for a snapshot inventory of drugs and establishment of mutual aid agreements to rapidly acquire drugs.

6. Assess drugs available in the community.

Calculate total drug supplies available in the community by adding prehospital + hospital + community pharmacies + drug wholesalers/warehouses + physicians' offices (through medical society).

7. If the drug supply is deemed insufficient to care for 300 patients for up to 72 hours, develop a plan for intercommunity mutual aid or rationing.

8. Create plan for rapidly obtaining drugs.

Develop a plan to rapidly acquire drugs from additional sources and deliver products to points of care. This plan should include communications between point(s) of care and additional sources, mutual aid agreements with additional community sources, transport of drugs, and documentation for reimbursement.

9. Develop a detailed pharmaceutical list and recommended inventory based on hospital surge capability.

EVALUATION

- ◆ Plan, conduct, and evaluate a community-wide drill. The evaluation should include measurements of quantity and names of drugs and pharmaceutical supplies acquired, distributed, and administered; time when drill started; time drugs were acquired from distribution points; duration of transport; time of distribution to points of care; and time of administration to patients.
- ◆ Refine plan based on drill experience.

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