

attack in Tokyo, and the 2001 anthrax scare, it is obvious that acts of terrorism can strike close to home and affect a hospital's ability to properly care for a large influx of patients. In the World Trade Center attack and Oklahoma City bombing, a so-called second wave phenomenon occurred: The first patients arrived at the emergency department within 15 minutes of the disaster, but the highest flow occurred between 60 and 90 minutes. Patients transported by EMS have a much higher acuity and admission rate than for all other forms of transport, but in these cases EMS transported only about one third of the patients. The majority were transported by personal vehicle or other modes.

In such disasters, some experts have prepared a two-physician emergency department management scenario. The first physician would be an emergency medicine physician who is intimately familiar with the normal daily operations of the emergency department and who would be responsible for the overall medical and administrative operating of the department. The second command physician would be responsible for the delivery of trauma care, including assigning priorities for surgery and supervising the trauma teams. This role would be best filled by a trauma surgeon.

The 2001 anthrax scare in the United States, the confirmed use of biologic agents by some countries on their own citizens, and the fall of the Soviet Union and the subsequent disorganization of its biologic warfare programs have demonstrated that the threat of bioterrorism is very real. In these scenarios, the emergency department physician becomes a first responder. Without a high level of suspicion, a bioterrorism event may go unrecognized or may be dismissed as a natural epidemic until the scope of the disaster becomes catastrophic. Establishing an effective response requires hospital, local, state, and federal cooperation and training. An effective response should include four steps: (1) detection and diagnosis, (2) declaration of need, (3) detection, and (4) drug therapy.

A. DETECTION

A high level of suspicion on the part of the emergency department physician can pay off. Emergency department physicians should consider whether they have noticed multiple similar patients with similar clinical syndromes, severe illness in young and otherwise healthy people, unusual organisms identified by the lab, unusual antibiotic resistance patterns, atypical presentations of diseases, reports of sick or dead animals, birds, or plants, and the like.

B. DECLARATION OF NEED

Emergency department physicians should immediately contact the house hospital infectious disease officer,

laboratory, and local officials. They, in turn, will follow established protocols to notify state and federal authorities. The Federal Bureau of Investigations is responsible for acute crisis management, whereas the Federal Emergency Management Agency (FEMA) is responsible for consequence management. The Office of Emergency Preparedness (OEP) of the Public Health Service handles medical assistance. The OEP is currently training 120 Metropolitan Medical Response System teams. These teams would be the first to respond, along with military assistance, in the event of a large-scale biologic attack.

C. DEFENSE

Once the biologic agent is identified, each hospital should enact appropriate precautions to protect its employees and patients from further contamination (eg, isolation, barrier protection).

D. DRUG THERAPY

The determination of the biologic agent will determine drug choice and duration of therapy. Uncommon antibiotics, antivirals, vaccines, and immunoglobulins may be necessary. The Centers for Disease Control are currently coordinating a regional stockpile program to augment their needs.

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■ PREHOSPITAL MANAGEMENT OF MULTICASUALTY INCIDENTS & DISASTERS

Preparation for disaster is an important responsibility of any community's public safety agencies. A community should prepare actively for those events to which the area is vulnerable based on historical, geologic, demographic, transportation, and industrial sources. Many large cities practice an airplane crash scenario each year, despite the extremely low probability of such an event occurring, in part because the local airport is mandated by the Federal Aviation Administration to conduct such drills. On occasion this has paid off. However, other realistic scenarios should not be neglected.

Organization of the Response

A. EMS VERSUS "CIVIL DEFENSE" MANAGEMENT

Most events are small level 1 events and are best managed by the local public safety or EMS jurisdiction as an extension of day-to-day operations under an organization or management system that can incorporate and coordinate outside assistance (see Incident Command System, below). At some point, large-scale events overwhelm local agencies and require the management and control to extend over a larger scale. Under the Civil Defense model, victims are collected and treated in supplementary casualty collection points or field hospitals that can stabilize them pending large-scale or distant evacuation. In many states (eg, California), plans exist for both such models, although the EMS model is most commonly employed.

B. INCIDENT COMMAND SYSTEM

The response by emergency personnel to a multicausal event can be complex when multiple agencies are involved, jurisdictional boundaries are crossed, or the event occurs in multiple geographic locations. In order to devise a system to better coordinate events of varying size and complexity, federal, state, and local fire services joined together in 1982 in the FIRESCOPE project to devise the Incident Command System (ICS). The ICS is a management system that allows incidents of varying size and complexity to be managed effectively, regardless of the diversity of agencies and resources involved.

The ICS has several functional components coordinated within an organizational framework (Figure 4-3). At the apex is the incident commander, who directs the Operations, Planning, Logistics, and Finance

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sections. Within the Operations section are various functional divisions, branches, and groups that carry out the emergency response work. Various functional components or autonomous teams of individuals can maintain their group autonomy and fit into the organizational tree as a unit.

In complex incidents that have limited emergency medical needs, the EMS component may simply occupy a small division or group in the overall ICS structure. By contrast, a large, purely medical event may lead to the medical commander occupying the incident commander role.

C. MEDICAL MANAGEMENT

The organization of medical resources in response to a disaster depends on the nature and level of the event. The easiest to illustrate is the geographically focused level 1 event. An on-scene medical commander who designates functional responsibilities to individuals or teams directs the medical response: triage, treatment, transport, communications, logistics, staging, and so on. The medical commander may, in fact, be a branch of division commander within a larger ICS structure or may be the event incident commander if the event is purely medical.

In typical, smaller-scale day-to-day incidents, the first-in ambulance remains out of service for the duration of the event and one paramedic assumes the role of medical commander while the other begins triage or treatment responsibilities. As additional ambulances arrive, their crews report to the medical commander, who assigns them roles or duties. Each crew then treats and transports patients in order of relative severity of injuries (as directed by a transport or loading officer).

If physicians or nurses are available, they are best used in treatment roles, because their expertise in assessing and treating patients may be considerable, whereas their experience in working with other agencies in a command role in a fast-moving prehospital environment is usually limited.

A large-scale diffuse event, such as a major earthquake, is more difficult to manage. There may be no central focus of casualties. Instead, victims may be scattered or clustered over a large area, their existence made known by many hundreds of individual telephone requests (eg, via 9-1-1), provided that telephone services remain intact. This presents a coordinating problem if a limited number of ambulances are available or radio communications with ambulances are interrupted. Such loss of communications and central coordination capability may require decentralized management: ambulan-
ces resources disperse to individual neighborhoods to organize casualty collection and treatment at that level (eg, at each fire station).