

# NEW YORK'S



## Educated Response

By Donald Rowan

**D**O DISASTER DRILLS pay off? We in the Emergency Medical Service of the New York City Health and Hospitals Corporation think that they do. We feel that our past experiences made the difference last November 7, when the Staten Island ferry missed its mark and slammed into a concrete seawall off Battery Park in lower Manhattan.

The early morning accident sent hundreds of passengers flying from their seats and tumbling down stairwells. The force of impact was so great that passenger cars on the ferry's lower level were tossed about like so many scooter cars in a Coney Island arcade, injuring their occupants and people standing nearby.

The accident brought about one of the most effective disaster responses in the seven-year history of EMS in New York City. The response was so quick, in fact, that the first paramedic team was at the scene ready for triage 10 minutes before the ferry could be boarded.

When it was all over, EMS field directors and commanders did find some holes in the operation. But more importantly, the ferry accident last Election Day proved that many lessons of the past had been learned and that tactical errors had been corrected. That translates into better patient care.

### MANHATTAN FOGBOUND

Although the official Coast Guard

inquiry into the accident may continue for some time, we know the basics. Lower Manhattan was shrouded in fog at 7:30 a.m. when the ferry, *American Legion*, approached the Battery with 2,000 early morning commuters from Staten Island.

It should have been another uneventful trip for the *American Legion*. Captain Irving Statler was preparing to dock his ferry after yet another of the many thousands of 20-minute cruises he skippered yearly across New York's upper bay. By all accounts, everything aboard the ferry, including the radar, was working. Then everything went wrong.

For some reason the ferry was off course by 700 feet. This miscalculation sent the boat careening into a retaining wall when it should have been preparing to glide gently into its slip. The ferry radioed the police that there had been an accident and there were "numerous casualties." Within seconds of the crash, the police department notified the EMS Communications and Control Center in Queens. The nature of the accident and the potential for tragedy impelled the Emergency Medical Service's chief on duty to activate the disaster response plan — a plan that has been tested and refined all too many times in the nation's biggest and busiest city.

In all disasters, or multiple casualty incidents (MCIs) as they are called in New York City, the challenge to

effective response is threefold. First, any EMS Control Center must avoid sending only the closest medical units, thereby leaving whole areas uncovered for routine ambulance calls. The Communications and Control Center in Queens, the most modern emergency dispatch center in the country, controls up to 117 ambulances at one time on five borough frequencies and a citywide command channel.

Although command of a system so large presents challenges, the system's very size and flexibility make it adaptable to urban disaster situations. Also, since most of the vehicles are kept roving the streets between calls, ambulances can be diverted to any part of the city as specific needs arise.

Second, an effective triage system must arise out of the confusion of the crash. Amid the hysterical shouts and moans of the injured and anxious urgings of uninjured civilians willing but unable to help, triage teams must appear and take charge to ensure that available medical help reaches those in greatest need.

Finally, there is the third challenge. Even though there may be a number of receiving hospitals within a reasonable traveling time, casualties seem to bunch up at the one or two closest emergency departments. This, of course, causes delays in treatment and has a negative impact on patient care. The overload is

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Rescue workers and police cordon off narrow streets surrounding the ice cream truck that exploded and injured nearly 200 persons, 14 of them critically. The injured were taken to Beekman Hospital, which was quickly overloaded.

compounded as many friends and relatives descend on hospital emergency rooms to be near their loved ones.

**EMS SCORES THREE FOR THREE**

None of us may live to see the day when a disaster response runs perfectly. By their very nature, major accidents generate confusion. Even the best communications systems never seem to be quite enough, and rehearsed procedures just do not fit in every real-life situation.

Despite all that, the New York City EMS response on November 7, 1978, showed how well a rapid mobilization plan can work, especially with experience and a few mistakes to build on.

A critique of the incident showed that triage was generally good. It took almost 15 minutes for the *American Legion* to limp into its slip after ramming the seawall. This allowed basic and advanced life support units to be on the scene before the ferry docked. In addition to showing rapid response after the crash, New York City's EMS did even better in avoiding ambulance drainage which often occurs when only nearby vehicles are assigned to a disaster scene.

True, the first four responding ambulances (25 percent of the area's capabilities) were based in the lower end of Manhattan. But in order to ensure that the routine ambulance needs of the area could be served, the remainder of the responding units,

except MERVANS (mobile emergency rooms), came first from nearby north Brooklyn, then western Queens and finally from south Brooklyn. Through the use of MERVANS and by leapfrogging ambulance assignments, no area of the city was forced to sacrifice coverage in order for EMS to handle the ferry accident.

The first triage paramedics concentrated on categorizing the nonambulatory injured — the fractures, cardiacs and more serious trauma cases. Once the victims were triaged, the responding paramedic teams began stabilizing the first priority cases. Shortly thereafter, additional basic life support units from other boroughs arrived at about the same time as did the MERVANS with doctors and additional EMS supervisors aboard. Many patients were screened and either treated aboard MERVANS, released or transported to a hospital.

The MERVANS deployed at the ferry slip are two of five mobile emergency rooms maintained by the New York City Emergency Medical Service. Located strategically in four of the city's boroughs, MERVANS are fully equipped hospital emergency departments on wheels which respond to major multiple casualty incidents in New York City. They are staffed by physicians, nurses and paramedics.

The single great advantage of MERVANS is their flexibility and ability to serve more than one function at a time. MERVANS have four examining tables aboard with bench areas for

additional patients. People requiring intensive advanced life support can be treated at the scene. Meanwhile, patients with minor injuries can be treated and released, eliminating a hospital trip and ultimately freeing the emergency room staff for more seriously injured persons.

The concept of leapfrogging has another application in disaster response in urban settings. It is recognized that closest hospitals are not necessarily the most appropriate drop-off point. At no time is this truer than in a disaster situation where traditionally the closest emergency rooms become swamped with much more work than they can handle, forcing patients to wait for treatment, while a short distance away emergency room staffs stand idle.

#### EXPLOSION ROCKS HOSPITAL

A good example of unnecessary hospital overload occurred on June 30, 1978, after the now-famous ice cream truck explosion in the Wall Street area of New York. Fortunately, most of the 200 injuries that occurred in the blast were not very serious, but the overcrowding of Beekman-Downtown Hospital emergency department was. The major problem we faced at the Wall Street area explosion will be familiar to EMS personnel everywhere. Because of mixed and often overlapping authority, EMS was not in complete control of the accident scene. The situation was further compounded by the well-intentioned volunteer efforts of civilians at the scene who opted to conduct their own evacuation.

Taxicabs and other vehicles took injured pedestrians to Beekman-Downtown seeking treatment. As a result, many people did not receive final treatment until well into the evening hours.

The New York City EMS learned from the mistakes at the Wall Street explosion, just as every emergency service should examine each disaster response for weak links in the emergency chain. In New York City, new procedures were written, communications protocols were changed, and command was tightened to eliminate confusion and hopefully avoid similar hospital overloads in the future.

It worked. Despite the attendant confusion present at any disaster scene, compared to the most recent MCI, the evacuation procedure at the ferry slip worked like a well-oiled machine. The bulk of the more seriously injured patients, including three who suffered cardiac episodes at the scene, were triaged or treated and then taken to four

different hospitals in the lower Manhattan area. One of the four hospitals was Beekman-Downtown which at this disaster treated 66 people, instead of the 160 it treated after the Wall Street explosion.

The Emergency Medical Service also took advantage of available resources. After seeing that many people on the ferry had only minor injuries, such as simple lacerations and sprains, an EMS supervisor at the scene commanded a city passenger bus. The bus took 48 of the walking wounded uptown to Metropolitan Hospital. This perfect example of leapfrogging allowed hospital staffs in lower Manhattan to concentrate their efforts on the most serious injuries and still have the capability of handling their 200-plus ambulance call load that is a typical daily (8:00 a.m. to 4:00 p.m.) workload in this area.

#### SUMMARY

Other cities and towns can take advantage of the lessons learned from the New York experience and copy its approach to improving their own handling of multiple casualty incidents. For starters, do not underestimate the value of a drill. Major drills recently were conducted with both the New York City Police and Fire Departments. The fire exercise simulated a major land emergency, and the police an air/sea disaster. These joint efforts went a long way in smoothing the sometimes rough interface between different emergency services.

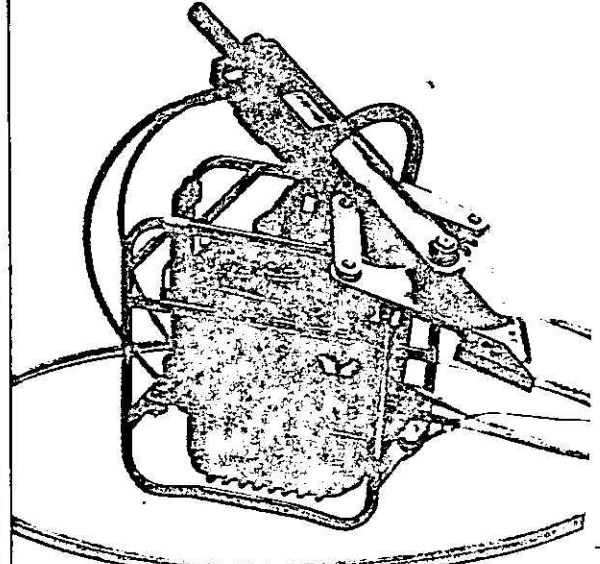
When conducting a drill it is important to spend more time in the painful process of identifying and analyzing mistakes than in pointing out successful aspects of the response.

In addition it is helpful to have some key people stand away from the drill area to watch for flaws. We recently began video-taping real MCIs as well as drills to iron out mistakes and tighten up response. That system might work anywhere.

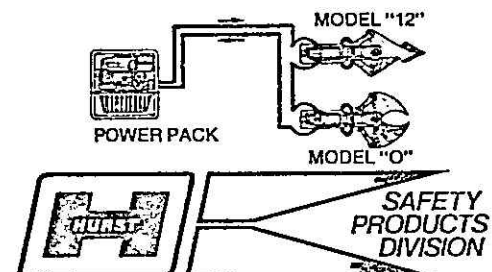
Peter Murray, director of operations for the Emergency Medical Service and in command at the scene, said, "Don't forget trying a systems approach to disaster response. Involve your local hospitals as well as first responders in both disaster planning and drill. It's important to get people thinking about new approaches to prehospital emergency care. After all, that's what EMS is all about." □

Donald Rowan is vice-president of the New York City Health and Hospitals Corporation's Emergency Medical Service.

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