Rural Disaster Management

Lessons Learned in Mass Transit Rescue

by Ruth E. Uphold, MD, Michael O'Keefe, EMT-D and Elizabeth A. Schaeffer, RN

With multi-casualty incidents (MCIs) on the increase, EMS systems and hospitals are expected to be trained and ready to act. As with the case in the Amtrak train accident in Williston, Vermont, which involved more than 150 victims, MCIs are frequently the result of mass transit accidents or construction or engineering mishaps. The last major train accident within the state occurred in 1887, so not surprisingly, none of the ambulance personnel had any prior experience with train rescue. It is important that lessons learned from an accident such as this be shared so that others can benefit from the experience. We describe here the unique problems posed by railroad cars and a rural accident site. We conclude that certain specialized rescue tasks are performed well even though the individuals have never been drilled in disaster preparedness. EMS personnel sufficiently familiar with a disaster plan are able to adhere to it in principle, while remaining flexible in adapting it to specific problems.

Ruth E. Uphold, MD is the medical director for the emergency department, and Elizabeth A. Schaeffer, RN is the clinical coordinator for the emergency department at the Medical Center Hospital of Vermont in Burlington, Vermont. Michael O'Keefe is an EMT-D with the Medical Center Hospital of Vermont.

On July 7, 1984, shortly before 7 a.m., a 12-car, two-engine Amtrak passenger train was traveling north through the western portion of Vermont between Williston and Essex Junction. At 6:51 a.m. the train hit a section of track crossing a run-off culvert which had been eroded away by the previous night's torrential rainfall. The first two cars and the two engines traveled across the flood-created ravine and four cars plunged into the two- to four-foot deep water and mud. There were 278 people aboard the train, of whom 262 were passengers.

Williston, Vermont, where the derailment occurred, is a rural town of about 4,000 located on the outskirts of Burlington. The area is served by 11 emergency ambulance rescue squads (all but one are volunteer), two first response squads and one private nonemergency service. Average call volume per squad is approximately 200 to 400 per year. Almost all squads provide at least some service at the EMT-Intermediate level and just about every call has at least one EMT-Basic which includes certification to use antishock trousers. There are no active paramedics in the district, although two squads provide defibrillation without drugs by written protocol. Each squad conducts frequent continuing education sessions for its own members which are supplemented by formal training programs sponsored by the district. There are approximately 250 active squad members in the district, of whom at least 90 percent are volunteer.

There are two hospitals in the district—Fanny Allen Hospital, a community hospital with 100 beds and the Medical Center Hospital of Vermont (MCHV), a referral center with 450 beds. There is a coordinated dispatch center in MCHV's emergency department.

Access to the accident site was a major problem. The first report was only an approximation, so ambulances approached from two directions. The best access involved a quarter-mile walk through a heavily wooded area. A path had to be cleared before any patients could be carried out this way. The initial approach involved driving on the railroad bed, crossing a trestle, and walking an additional 300 yards. Several patients were evacuated over this route by means of a railroad work car before the ambulance staging area was set up. Two significant factors in the rescue operation were the terrain and the distance over which patients had to be moved before they could be loaded onto ambulances or helicopters. A road had to be constructed to remove the train passengers, as well as to enable necessary heavy duty extrication equipment to reach the site. To this end, numerous construction companies volunteered their services (see Table 1 for equipment