

Quick Response Report #102

FIRST AID RESPONSE TO THE KOBE EARTHQUAKE, JANUARY 17, 1995

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1997

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This material is based upon work supported by the National Science Foundation under Grant No. CMS-9632458. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.

FIRST AID RESPONSE TO THE KOBE EARTHQUAKE, JANUARY 17, 1995

Tuesday morning, January 17, 1995 at 5:46 a.m., an earthquake registering 7.2 on the Richter scale struck Japan's sixth largest city, Kobe. The 20-second quake was the most devastating event in Japan's history since World War II. It left over 225,000 people displaced, 5,291 dead, and 34,492 injured. At a time when America's prehospital care is under scrutiny for its cost effectiveness, Japan's is in it's infancy. American Life Support (ALS) standards and paramedic protocols are not routine. Much of the prehospital and first aid care during this disaster was thus left to the lay person in the community.

During a 12-day study in Japan, 45 city and medical officials were interviewed regarding the emergency medical response to the Kobe quake. They were specifically asked questions regarding the lay person's response to the injured. Additionally, 25 lay people were interviewed regarding their experience with first aid administered after the quake.

Officials were asked the following questions:

1. How did you know where you were needed?
2. What did you find?
 - a. What injuries were encountered?
 - b. Did you see members of the lay public applying first aid for the injuries?
 - c. If you are a first aid provider, what training do you have?
 - d. What supplies were available?
 - e. What supplies did you lack?
 - f. How did you obtain additional supplies?
3. What first aid courses are available to members of your community?

- a. What courses are taught?
 - b. Who is responsible for teaching the courses?
 - c. How are people made aware of the courses?
 - d. How many enroll?
 - e. Do you think that additional training in first aid by the lay public would be beneficial for disaster situations?
4. The protracted death rate for the quake has been predicted to be 8% by reports. From your experience, is this number correct? What would you predict the protracted death rate to be?
 5. What steps can be taken to decrease the protracted death rate should an event such as this occur again?

Those interviewed included physicians at Kobe University, Senri Critical Care Center, Hyogo Medical Association, Officials at Osaka Gas, Kobe Fire Department, Kobe City, Hyogo Fire Defense, Itami City, Osaka Ken, Nishinomiya City, Paramedics, and the Kobe Newspaper.

1. How did you know where you were needed?

Frustration at loss of community was a major component in the earthquake. Most officials, after recognizing the extent of the quake to some degree, reported to their workplaces. Many were frustrated by lack of phone lines, transportation, and open roads. Once prehospital personnel were at their workplaces, they were either uninformed about devastated areas, or, they were unable to arrive at locations with many injured due to lack of ambulances, care, and roads. Thus, those treated were those that were able to come to them. Those that could make it a distance for treatment, of course, were the less injured. Physicians found themselves going to shelters without instruction or knowledge of where they were most needed. The ratio of physicians to people in a shelter was reported as high as 1:1000. A common frustration reported by officials was the lack of a coordinated response. There was a great lack of communication and coordination, so efforts were disjointed.

2. What did you find?

- a. What injuries were encountered?

Recognized injuries included bleeds, lacerations, fractures, crush injuries. C-spine injuries were neither recognized nor reported treated by prehospital personnel.

- b. Did you see members of the lay public applying first aid for the injuries?

Although most officials did not witness first aid performed by the public, they occasionally reported simple first aid efforts such as pressure for bleeding. In a population of 400,000, the city of Nishinomiya reported a goal to have 20% of those over 15 trained in CPR. Observance of limited CPR was reported by only two officials. Stabilization of fractures was less reported. Again, no c-spine treatment was witnessed by these officials. One paramedic reported going into disaster sites after the quake with a supply of kits to be used for first aid by the public. Because the public did not have training in how to use these kits and what to do, they were left unused.

- c. If you are a first aid provider, what training do you have?

The paramedic division answered positively on this question. It is under the direction of the fire department. There are a total of 330 paramedics that are trained similar to an Emergency Medical Technician in the United States. Of the 330 paramedics, only 6 have been trained in Advanced Life Support. Thus, the level of training for those prepared to care for injured is not as advanced as the U.S. Paramedics that were interviewed expressed frustration also at the role of medical command in their EMS system. Prior to performance of most care, they must receive authorization from a physician. Due to the lack of phone lines and other forms of communication, even if they felt treatment was appropriate and necessary, they were unable to perform it during the disaster due to lack of communication. Much of the work reported by the paramedics in the first two days after the quake was extrication. This job was so overwhelming, that once victims were extricated, rather than applying medical treatment and transporting, the paramedics sent patients to hospitals by private cars.

- d. What supplies were available?

At the initial shelters, no supplies were readily available; medical personnel reported bringing their own bandages, gauze, disinfectant, and intravenous fluid to the shelters.

e. What supplies did you lack?

Fire department lacked water; others lacked ambulances, open roads, bandages, equipment for clearing debris to locate victims, intravenous fluids, food and disinfectant.

f. How did you obtain additional supplies?

Supplies eventually reached shelters by volunteer efforts, although shortages were commonly reported. The first shelter was set up on 1/19, as reported by the city of Nishinomiya. Many of the supply lines were not established until this time, two days after the quake.

3. What first aid courses are available to members of your community?

a. What courses are taught?

There are courses offered through the Kobe Fire Department, although response was reported as very low.

b. Do you think that additional training in first aid by the lay public would be beneficial for disaster situations?

The overwhelming response to this question was "Yes." Many feel that the protracted death rate was much higher than reported. Officials state that it could have been as high as 30%. They strongly feel that additional first aid training to the lay public is essential to Kobe's future.

The lay public interviewed agree with this view. One person in particular, was unfortunate enough to be present in the earthquake the previous year in Los Angeles as well as the quake in Kobe. She affirmed the opinion of virtually all interviewed. First aid was less than adequate in Kobe, and relief efforts difficult to find, obtain, and assist. Many mentioned the frustration of not knowing what to do. Without direction on first aid, although they had members of their own households injured, efforts were minimal and uneducated.

4. The protracted death rate for the quake has been predicted to be 8%. From your experience, is this number correct? What would you predict the protracted death rate to be?

As above. An overwhelming number of officials felt the protracted death rate was much higher than the reported 8%.

5. What steps can be taken to decrease the protracted death rate should an event such as this occur again?

Most suggestions are summarized in the above questions.

1. Improved communication for coordinated relief efforts: although many officials went to their individual places of business, there was no communication with other departments for a coordinated relief effort. This was complicated by dysfunctional phone lines.
2. A coordinated disaster plan: virtually all officials stated that if there had been a plan in place previous to the earthquake, relief efforts and prehospital services could have been much more effective. As it was, each office did what they felt was best, and this was not always the most effective use of resources, people, and supplies.
3. Increased training for ambulance personnel: as stated above, the training is minimal for prehospital personnel. Many are simply trained to transport patients to the hospital. Yet, in this time of increased stress on the system and also blocked roads, personnel were unable to transport and were left to their own devices out in the field.
4. Increased freedom for prehospital personnel with protocols for standard procedures: the current system in Japan does not allow paramedics that are trained in ALS to deliver necessary treatments for those who are unstable without first receiving permission from a command physician. This delays treatment time and costs lives. Many studies have proved the efficacy of early defibrillation, for example in ventricular arrhythmias. Without early intervention, mortality increases even in nondisaster situations.

5. Disaster supplies and ways to obtain supplies: although ambulance personnel were at times able to identify areas with injured victims, the supplies they carried were inadequate in number and inappropriate for the lay person's use. A coordinated disaster plan with central supply centers would improve delivery, according to local officials.
 6. Improved communication with those in the community to inform them of locations where they could receive help was a strong suggestion by officials.
 7. First aid classes to the community and information on what to do in case of a disaster or medical emergency was also strongly recommended by the majority of officials. There is a great lack of first aid exposure and training to the lay people of Japan. First aid efforts following the quake were minimal and, according to the officials and lay persons interviewed, not very helpful. The city of Nishinomiya has a goal to educate 12,000 adults/year in first aid. Hopefully, with this aim and the experience of the January 17th earthquake, they will be able to keep and attain this goal.
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February 24, 1998

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