

# Hospital Problems of Mass Evacuation

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**H**OSPITALS, particularly those in target areas to be evacuated, have one of the most important and yet most complex roles of any group in civil defense. Removal of persons who are ill or who are recovering from injury is obviously a much more difficult job than moving able-bodied persons. This, however, is not the only problem of the hospital. Arrangements must be made for continued care of hospital patients either in expanded hospitals at a relatively safe distance from the civil defense impact area or in an emergency hospital. Either or both must be established by the hospital staff with the aid of whatever mobile hospital teams might be available.

Natural disasters as well as manmade disasters may require mass evacuation. Fire, flood, earthquakes, tornadoes, and hurricanes are always with us. One can scarcely pick up a newspaper or turn on a news broadcast without hearing of a disaster some place in the world.

No hospital is free from the possibility of having to evacuate, and, certainly, every hospital may be involved with the care of patients who have been evacuated or with those who become ill or are injured during an evacuation.

During "operation greenlight," a practice evacuation in Portland, Oreg., in 1955, 100,000 persons were evacuated from the downtown area in 34 minutes. This shows what can be accomplished through careful, advance planning. But it was not a test for Portland hospitals since none of them were evacuated.

Imagine a real alert at 3:00 o'clock in the morning instead of 3:00 in the afternoon, with a howling wind and heavy rain falling and darkness blanketing the area. What would happen at the hospital? Most of the Portland hospital administrators would probably be at their homes fast asleep. On awakening, what would be the administrator's first thought? Could he reach the hospital? If not, who would be in charge? Is there a plan for evacuation that is well known to all of the staff, or would chaos develop and removal of patients be impossible because there had been no advance planning?

An evacuation experienced in Oregon during the Vanport flood in 1948 will illustrate what can happen in a disaster. Fortunately, the Vanport Hospital had been evacuated in advance, but some 15,000 to 20,000 people were still housed in Vanport on that Memorial Day afternoon. In Portland, adjacent to Vanport, several of the Red Cross staff members and I were in the offices of the Multnomah County Chapter of the American Red Cross planning the evacuation of Vanport. The weather was ideal. At 4:00 p. m. our planning was interrupted by word that a railroad fill, holding off the flood waters of the Columbia River, had given way, and the city of Vanport, built to house 40,000 to 50,000 people, was being engulfed by a flood of water.

Pandemonium soon broke loose in the chapter offices. Telephone lines were completely blocked by incoming calls. Volunteers jammed the offices. The first thought of the chapter's medical department was of infants and small children. Milk and baby food were ordered through the chapter, but we were helpless to do much more without communications.

The director of the medical department and

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*Dr. Erickson, Oregon State health officer, delivered this paper at a meeting of the Oregon Association of Hospitals in October 1955 at Gearhart, Oreg.*

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I walked to the offices of the Oregon State Board of Health a few blocks away. In a short time we had a large number of the health department staff on duty. A switchboard operator and eight trunk telephone lines were available to us, but we could not make efficient use of them because we had no communication with the Multnomah County Chapter, and we finally went back to that office. There we learned that a request had come through for 20 physicians to report in the neighborhood of Vanport. We did get calls through to a number of doctors, but to this day I do not know whether they were able to reach the area since the streets and highways in the vicinity, we learned later, were completely blocked both by cars that were fortunate enough to get out of Vanport and by sightseers and others trying to reach the scene. In the excitement, it took only one or two stalled cars to block the limited number of roads out of Vanport. Hundreds of cars were completely flooded over; two-story houses were washed hundreds of feet off their foundations—many of them collapsed. But fortunately, only 19 persons lost their lives. There were very few, if any, injured.

At 10:30 that evening the milk and baby food we had ordered were available for delivery to the shelters. Two nurses and I were designated to make the rounds of the some 20 shelters within Portland. That was an enlightening experience. As we reached the various shelters, we found in most instances that babies as well as other evacuees had been fed. People were lined up for blocks near the shelters—not to receive aid but to offer blankets, clothing, food, and their own homes for housing the evacuees. During the first 2 or 3 days, irrespective of race, the majority of the evacuees were housed in private homes. One school was designated for the care of infants and children who needed special medical and nursing supervision. A number of children had measles and there were other illnesses. One outbreak of food poisoning resulted from hasty preparation of sandwiches and lack of refrigeration facilities in one of the shelters.

In brief, during the first few hours communications and transportation broke down, and the residents of the area were entirely dependent on their own resources. From this

experience, I believe we can rely to a great extent on the ingenuity of people and on volunteers if a disaster is not too great. In this instance, a population of less than 20,000 had all the resources of Portland, a large city of more than 350,000, to give aid. After 48 hours, the American Red Cross, Portland Housing Authority, and many governmental and volunteer agencies together did an outstanding job of rehabilitation.

In New Jersey, the experience of the Perth Amboy General Hospital in two disasters is worth review (1-3). Hospital officials met the first, a munitions explosion on four lighters at the South Amboy docks in 1950, with a plan for emergency accident patients, drawn up the month before. The plan worked moderately well, and, with its flaws remedied, the hospital was really prepared for the second disaster, a railroad wreck in 1951.

Certainly we can profit from experiences in disaster, particularly from the experiences of hospital administrators (1-8). In the hospital reports, one statement appears time and again: "Advance planning for disaster is essential if unnecessary loss of life is to be prevented and the needs of patients are to be taken care of in an emergency; there is no substitute for advance planning.

In an evacuation of the Portland metropolitan area, as in any other city the same size, 500,000 persons would have to be moved out. Portland hospitals would have to transport some 3,000 patients; 1,300 of these would be surgical cases and 300 serious medical cases. There would be approximately 100 obstetrical cases, 150 newborn infants, and perhaps 10 or more premature babies that would require special care. In addition to these, a portion of the 2,500 persons who become ill each day would require hospitalization and would have to be cared for. It is estimated that at least 5,000 persons would require first aid or even hospital care as a result of injuries incurred during the evacuation. An additional 3,000 to 4,000 beds would be needed. All of the supplies and equipment would have to be provided locally, at least during the first 24 hours or so until the hospital supplies stockpiled by the Federal Civil Defense Administration could be made available.

## The Questions

What then are some of the specific problems faced by the hospital administrator? Getting back to the warning at 3:00 a. m. on a stormy night, with 4 to 6 hours expected before an attack, problems would be:

1. How will staff members be notified? Which ones should be called and who should notify them?

2. Which patients are to be evacuated and which must be left because they are in too critical a condition to be moved?

3. Where will the critical patients be moved to in the hospital?

4. Who will be left in attendance?

5. Where will the patients that are being evacuated be transported to?

6. Which patients will walk out of the hospitals and by what route? Where do they report? Who directs their leaving?

7. Will helpless patients be moved by stretcher, litters, or wheelchairs, or will beds be moved?

8. Who accompanies the patient?

9. If power fails, is there provision for emergency lighting? What substitutes are there for power?

10. How do we avert panic?

11. Who sets up the temporary hospital, if that is necessary?

12. Where will supplies and equipment be obtained? Where will staff be obtained?

13. How will the staff and patients be fed?

14. What sanitation facilities will be used?

15. What records are essential?

16. How will relatives and other interested persons be notified?

17. Will mortuary services be available? How will the dead be cared for?

18. Who will assume responsibility for various activities if key persons are not available?

19. Can volunteers be used?

These are some of the questions the administrator of the hospital in the evacuation area would face. The hospital outside of the impact area would have additional problems.

Administrators of the receiving hospitals may be warned that patients are being brought to their hospitals. Without prior planning, however, their first knowledge of evacuation might

be on the arrival of patients. These hospital administrators would face additional problems:

1. How will traffic be controlled outside the hospital and inside the hospital?

2. Where are the keys to the various services?

3. What areas of the nonevacuated hospital are to be used for the screening of patients, first aid, additional surgeries, wards, and other necessary emergency services?

4. Are additional hospital supplies and equipment available? If so, where? How will they be obtained? How transported?

5. Where can additional blood and blood plasma be obtained in an emergency?

6. What will be done about supplies and equipment that are offered to the hospital?

7. How will relatives, visitors, and the press be handled?

8. How will admissions and discharges of patients be handled and recorded?

9. Will orderlies and housekeeping personnel as well as other key personnel have transportation to the hospital?

10. Will staff members and pretrained volunteers have personal identification to allow passage through road blocks and guarded centers?

I'm sure that hospital administrators will think of many more questions that need answers. We all realize that order or chaos in an emergency will depend on whether or not these questions have been considered and plans made in advance. Again, and we cannot emphasize it too often, advance planning is a must.

## Planning Principles

What are some of the principles of planning? Briefly outlined, they are:

1. Anticipate the worst possible disaster that might strike the hospital without completely destroying it and plan for this. The resulting plan will enable the staff to handle lesser disasters more effectively.

2. Cooperative planning is best. Bring as many hospital staff members as possible, including the medical staff, into the planning. Forming the nucleus of the planning group may be the hospital administrator, the medical chief of staff, and the director of nurses. A trained public health worker might be invited to join

this group. Other staff members can be called upon when planning in specific services is required.

3. Develop a simple and flexible plan. You cannot plan for every disaster, but a simple, flexible plan can be easily modified as the exigency demands.

4. Correlate the hospital plan with that of the local civil defense agency, fire department, police department, health department, and other agencies that might be concerned.

5. Plan for communications. Arrange for messenger service and two-way radio as substitutes for the telephone, if it should be out, and have a battery-operated radio set available. In planning notification of staff members, remember that the switchboard operator can call only a limited number of persons. Chain-type calling has proved of value.

6. Provide for emergency lighting, water supply, and sanitation facilities.

7. Consider making available a helicopter landing strip at the hospital or nearby.

8. In stocking supplies, some hospitals that have experienced disasters planned initially on having at least 1 month of supplies on hand. Now, the same hospitals are planning on 2 to 3 months of supplies, which they believe will take care of the average disaster. The issuance of moderate amounts of supplies during the emergency and moving them in boxes has been of value in conservation. Get information on reserve medical supplies and equipment available from other hospitals or medical facilities in a nearby area.

9. Keys labeled for all essential parts of the hospital and placed together in a locked box that is to be opened only in an emergency has been a demonstrated aid.

10. Decide on essential records, their preparation, and routing. Designate a responsible staff member and alternates to list daily evacuable and nonevacuable patients.

11. Arrange for emergency mortuary services.

12. A list of volunteers should be considered. It has been pointed out, however, that unless the volunteers are recruited in advance and trained and oriented as to their function in a disaster, they may be of little use. They may, in fact, be a handicap.

13. Plan emergency housing and feeding for the staff, including volunteers. Determine source of food supplies.

14. Assign in writing responsibilities, duties, and priorities of functions to each staff member and pretrained volunteer, designating as many as five alternates for each key position.

15. Avert panic. Psychiatrists tell us that the best way to prevent panic is to give everyone concerned a job to do, familiarize him with the job, and let him do it in the disaster. Combating rumors and giving people an opportunity to discuss their fears and problems is the best approach to psychiatric first aid.

16. Have a check list. Be sure that all details have been considered.

17. Familiarize the entire hospital staff with the plan.

18. Conduct realistic exercises that are as complete as possible.

19. Review the disaster plan and amend it as needed.

These are some of the general principles—a skeleton outline to be enlarged upon and filled in with many administrative details.

To quote from a conclusion reached at a recent meeting in Chicago called to plan for disaster in schools: "Manmade disaster may come and go, but natural disaster is always with us; let's be prepared."

#### REFERENCES

- (1) Eckert, A. W., and Riddell, D. T.: When disaster struck, we were prepared. *Hospitals* 24: 60-64, September 1950.
- (2) Eckert, A. W., and Riddell, D. T.: Disaster preparation—A prayer or a plan. *Hospitals* 25: 41-44, April 1951.
- (3) Perth Amboy's disaster plan goes into action. *Modern Hosp.* 76: 85-87, 130, March 1951.
- (4) Lopez, E.: They took the "twister" in their stride. *Modern Hosp.* 78: 80-82, May 1952.
- (5) Johnson, L. W.: Memorandum to disaster planners: Have you thought of these? *Hospitals* 25: 64, August 1951.
- (6) Casberg, M. A.: Medical organization in national catastrophe. *J. A. M. A.* 154: 501-506, Feb. 6, 1954.
- (7) American Hospital Association: Principles of disaster planning for hospitals. Chicago, 1956, 23 pp.
- (8) American Hospital Association: Readings in disaster planning for hospitals. Chicago, 1956, 90 pp.