PRELIMINARY PAPER #115

SOCIOPSYCHOLOGICAL ASPECTS OF EVACUATING OR
SHELTERING HEALTH CARE FACILITIES IN THE EVENT
OF A NUCLEAR POWER PLANT ACCIDENT*

E. L. Quarantelli

Disaster Research Center
University of Delaware

1986

*This paper was prepared as part of a larger report issued by a non-Disaster
Research Center source.

SOCIOPSYCHOLOGICAL ASPECTS OF EVACUATING OR SHELTERING HEALTH CARE
FACILITIES IN THE EVENT OF A NUCLEAR POWER PLANT ACCIDENT

EXECUTIVE SUMMARY

There are both similarities and differences in the emergency-relevant
features of general hospitals and nursing homes for adults. In both types
of facilities: (1) there is a collective providing of the daily
necessities of life for their resident populations; (2) the population,
whether known as patients or residents, expect to be and are ordered and
controlled by the staff of the facilities; (3) the working staff is very
heterogeneous; and (4) there are a variety of links to the outer world,
such as relatives and friends of the patients or residents, suppliers of
goods and services, and community and public officials. On the other hand:
(1) hospitals are considered public resources with some responsibility for
providing medical care for the community, but nursing homes are not so
viewed; (2) hospitals are medical, whereas nursing homes are primarily
custodial facilities; (3) hospitals have substantial and continual
turnover in their patient population, whereas nursing home populations tend
to be far more stable, and (4) there are likely to be more totally
incapacitated patients in hospitals than in nursing homes.

All hospitals and most nursing homes have some kind of emergency or
disaster planning. However, research studies indicate that the planning as
a whole is neither intensive nor extensive, and numerous problems surface
when efforts at implementation in actual crises occur. In general,
existing disaster planning by health care facilities is poor, uneven and,
in many cases, more the carrying out of a bureaucratic requirement than a
serious effort to be prepared for a range of emergencies. In addition,
hospital planning tends to be specific disaster agent oriented, with most
nursing home emergency planning almost exclusively fire oriented. The
consequence of all of this is that conditions are not favorable to the
adding of additional disaster planning with respect to a nuclear plant
accident.

In the face of disasters different kinds of evacuation may be
necessary, but the more unexpected and different the evacuation is from the
anticipated, the more likely the greater the degree of stress and
disruption for evacuees or an evacuated community as a whole. It should be
easier to evacuate a hospital than a nursing home. Overall, evacuating
residents of a nursing home would be disrupting the normal social world for
most of them. In contrast, it is possible that the staffs of nursing homes
might find it relatively easier to evacuate than those working in
hospitals. In the case of both kinds of facilities, the research evidence
indicates that in an evacuation it is unlikely there will be meaningful
role conflict for staff members between job responsibilities and family
responsibilities. The evacuation of health care facilities would not seem
to create any new or special problems for the great majority of the
relatives and friends of patients or residents (assuming that as part of
the general population in the area they also are evacuated more or less at
the same time as the hospitals and nursing homes). On the other hand,
there might be some real problems for outsiders such as suppliers who
normally provide goods and services for health care facilities.

In general, any attempt in response to a nuclear power plant accident to institute in-place sheltering in facilities, will be highly problematical. Any in-place response is a passive form of response and runs contrary to what human beings have been socialized to do in the face of an immediate threat, and that is to move away from the danger. Staying in place also runs against common sense and familiar behavior patterns. Experience from the fire emergency area where remaining in place has been both advocated and tried, is not strongly supportive of the idea. Asking staff or outside suppliers to keep themselves in a dangerous situation rather than going to an area of safety may not be very effective. In particular, relatives and friends are unlikely to leave an area if that is perceived as "abandoning" sheltered loved ones in facilities.

All the evidence points to the strong probability that the weight of feeling would be substantially against the idea of sheltering rather than evacuating in the case of a nuclear power plant accident. The time frame that might be involved would not seem to make any difference in the probable attitude. Nonetheless, if people are "caught" by an in-sheltering operation, planning can assume they will react relatively well despite the stresses of the situation.

However, irrespective of whether an in-place sheltering or evacuation occurs, the results will only be positive if there has been prior planning. In general, medical facility planning is usually not too well integrated with overall community disaster planning. But if planning is to be effectively implemented such integration is necessary; in fact, only intra-community planning might not be enough given that many and distant jurisdictions could be involved in a nuclear power plant accident.

Disaster planning and managing are not the same. Even if the planning is good, there still may be serious problems in managing a disaster response. However, there are ways of improving the disaster managing capabilities of health facilities.

THE IMPORTANCE OF SOCIOPSYCHOLOGICAL ASPECTS

There are socialpsychological as well as logistical issues involved in the evacuating and/or the in-place sheltering of health care facilities in the event of a sudden disaster. More than 35 years of research on disaster behavior indicate that if crucial social and psychological matters are not considered in prior planning, there will not be a good response at the time of an actual emergency. The general behavior of human beings and groups under extreme stress is rather predictable, but such knowledge is useless unless it is specifically implemented in disaster preparedness measures.

For example, responses to warning messages are heavily dependent on whether those warned find confirmation of the threat from those in their social setting; that is far more important in generating coping or adaptive behavior than the content of the message. Those exposed to a warning will attempt to confirm either by looking at what other people are doing, or telephoning others, or turning on the radio, that the threat is to be taken seriously. Good planning has to insure that the social confirmation that is sought is found. Otherwise the warning will be discounted and disregarded. Alerting people to a danger is not enough. Warnings, to be effective, require reinforcement by other social actions that confirm the necessity to act.

Similarly, there is a very strong tendency for families (as well as other persons collectively making up a household—such as two close friends living together) to evacuate together as a unit. There is resistance to leaving even a recognized endangered locality if family and important household members are not all physically present or unless it is absolutely certain absent members are in a safe place. Disaster planning that is to be effective has to take into account that generally evacuation in the face of a threat will not be by solo individuals but by family or household units. Existing social ties anchor people in place. Persons with such ties will move away by themselves only if the threat is perceived as physically immediate, certain and personally endangering (such as a raging fire in a room in a building).

Likewise, as a further example, evacuees do not as a whole go to or use mass shelters or large public accommodations. They instead, if at all possible, go to the nearby homes of relatives and friends (and this possibility will normally be the case except in catastrophes encompassing very large geographic areas). Good disaster planning aims at facilitating such movement. If such evacuation cannot occur, evacuees will reluctantly use mass or public shelter arrangements but they will not put up with such undesired quarters for extended periods of time. The quarters may be physically adequate, but the loss of privacy, being with a large number of strangers, and having to submit to the directions if not orders of shelter managers leads most Americans to become quickly dissatisfied and to attempt to leave such shelters.

Overall, studies of behavior in disasters show that human beings react to what they perceive the situation to be, that the reaction is rather reasonable when viewed from the perspective of those reacting, and that the course of action most likely to be followed is the familiar or the usual.

To understand disaster behavior it is crucial to see it from the viewpoint of those reacting at the time of the emergency, not as it might be viewed from an outside perspective or in retrospect. Within that context, people do not act irrationally; they try to respond in terms of what makes sense to them in a sudden crisis. What will seem reasonable is that which people are accustomed to doing, and there will be reluctance to engaging in unfamiliar or unusual behavior patterns.

To be effective, the planning and managing of the evacuating and/or sheltering of health care facilities in the event of a nuclear power plant accident, should be as consistent as possible with what has just been said. For the most part, it should be possible to do this. However, as we shall note, there may be some special problems in some of the planning and managing, especially with regard to an in-place sheltering of a health facility. A few of the measures that may be necessary to take may be somewhat at variance with what otherwise might be most desirable. Nevertheless, although some special steps may have to be taken, there is no reason to think that realistic disaster preparedness as a whole could not be instituted if an appropriate effort is made which is based on accurate knowledge of how people and groups act in extreme stress situations.

SIMILARITIES AND DIFFERENCES IN EMERGENCY-RELEVANT FEATURES OF HOSPITALS AND NURSING HOMES

There are many common features but there also are some dissimilarities in the emergency-relevant features of various kinds of health care facilities. In this report, we shall make a comparison only between general hospitals and nursing homes for adults. While there are more similar then dissimilar features in the social organizational and structural aspects of the two kinds of institutions, the differences are also significant with respect to the disaster preparedness matters we are addressing.

Both kinds of facilities, from a sociological viewpoint, are quasi total social institutions. Such an institution is a place of residence and work where a large number of like-situated individuals, cut off from the wider society for an appreciable period of time, together lead an enclosed, formally administered round of life (from definition in Goffman, Asylum, 1961:xiii). While prisons are the classical examples of such institutions, they also include homes for the blind and the orphaned, TB sanitaria, boarding schools, work camps, monasteries, etc., which indicate it is the social and not the physical features which are crucial. General hospitals and nursing homes thus are places where all aspects of life are conducted in the same place, where each phase of the resident's activities is carried on with like others, and where overall authority and sets of rules are provided by a relatively smaller supervisory and operative staff. Such kinds of facilities are in contrast to the basic social arrangements in modern societies where most individuals sleep, play, work, worship and study in different places, with different co-participants, under different authorities, and without an overall rational plan of coodination. The health care facilities we are considering are in essence small scale communities or little societies. Many of the similar and dissimiliar aspects of general hospitals and nursing homes are the consequences of the quasi total social institution nature of the facilities.

2

Four common and important elements stand out.

(1) Both kinds of facilities have to provide collectively the daily necessities of life to their resident populations, namely food, clothing and shelter. In this respect, the population is almost completely dependent on the institution to meet its needs along these lines. These health care facilities in turn are dependent on outsiders for the goods and materials needed, unlike other institutions such as prisons which may grow part of their own food and produce most of the clothing needed. The resident population is dependent for basic needs on the facility, but it in turn is dependent on outside suppliers. Much of this is primarily of logistical concern, but we shall note later there are some major social and psychological implications with regard to disaster preparedness.

(2) The resident populations, whether known as patients or residents, expect to be and are ordered and controlled by the staffs of the facilities. These are not democratically run institutions insofar as the population being serviced is concerned. In fact, not only is the population directed by the staff, but typically there is a round-the-clock routine schedule of activities from which little deviation is allowed (e.g., from when breakfast is served to when lights in rooms have to be extinguished). In actuality, if not in principle, patients and residents are expected to be passive and dependent on the working personnel of the institutions, and are expected to fit in and adjust to the requirements and demands of the organization. There are positive and negative aspects of this for disaster preparedness as we shall note later.

(3) Both kinds of facilities are staffed by a mixture of professionals, semi-professionals, white collar personnel, semi-skilled labor, and a variety of other job categories (although nursing homes will have far fewer staff members than hospitals). Thus, the working staff is likely to be very heterogeneous rather than homogeneous with regard to values, beliefs, norms, etc. as well as training, experience and commitment to the work and those serviced. Therefore, different kinds of motivations and self-images will be present in the staff of the facilities. This can be important in a variety of matters, especially the question of how well staff workers can be expected to attend to their jobs when either they and/or their family members may be endangered by a disaster threat. This issue of possible "role conflict" between work and family responsibilities is one that has frequently surfaced in discussions of planning and managing emergencies around nuclear plants.

(4) Neither kind of institution exists in a social vacuum. There are important individuals, officials, and groups outside of the facilities. In both cases, there are the relatives and close friends of the patients or the residents. Similarly, there are suppliers of goods and services outside of the institution (such as sources of food and medicine or of electricity and phone service) without which neither type of facility could long function. There are also some community and public officials who feel they have some formal responsibility and who usually have some degree of legal authority to oversee and, if necessary, to intervene in the operations of the two kinds of health care facilities in a way such officials would not see as allowable for some public and most private groups in their communities. To look only at the internal population of

3

the institution is to miss the relevance of the expectations and behaviors of those outside facilities who have some important social ties to the population or the institutions involved. Such ties have to be taken into account in whatever disaster preparedness is undertaken.

While there are the just indicated common elements, there are also the four following major differences between hospitals and nursing homes.

(1) General hospitals are usually viewed by the community in which they are located as at least having some responsibility or obligation to provide both emergency treatment and health care for the public at large. They stand out and are well known because of this perception. In addition, a great number of the inhabitants in a given locality will have had experience either as patient or visitor with at least one hospital in the area. Nursing homes, on the other hand, are not seen as having any such specific obligation and are mostly unknown, even as to location, to citizens in general. In one sense, hospitals are considered as public or community resources (even if they are privately owned or operated); nursing homes generally are not so viewed. Their differences in saliency and assumed obligations are relevant to disaster planning in particular.

(2) The hospital is a medical facility, whereas a nursing home is primarily a custodial facility even though some kind of medical care is usually provided in the latter. As such, different kinds of combinations of staff personnel and relevant resources are required. The two kinds of facilities, therefore, differ both in social functioning and social structuring. Consequently, internally, there will be a greater variety of activities in hospitals which necessitate a greater division of labor which in turn requires more of an administrative or bureaucratic structure to integrate. The relatively simpler functioning and structuring of nursing homes can affect disaster preparedness.

(3) In general, hospitals are expected to have, and also do expect that they will have, substantial and continual turnover in their patient population. Thus, over a relatively short period of time, while the bed census figure may remain about the same, there may be close to a 100 percent turnover of the specific patients involved. In one sense, the resident hospital population is always undergoing change. In contrast, a nursing home resident population may remain relatively the same over a considerable period of time. The same persons may be around literally for years. This difference in turnover ratio of the two kinds of institutions also has positive and negative implications for disaster preparedness as will be discussed later.

(4) Although there can be considerable variation from one specific facility to another, there are likely to be more totally incapacitated patients in a hospital than in a nursing home. To be sure, a great proportion of the resident population of the latter are probably handicapped in some way, but patients on life support systems or who are unconscious or who have no capacity to handle any of their own needs will instead usually be in a hospital setting. So, in one sense, while there may be a greater portion of handicapped (including non-ambulatory cases) there will be a lesser proportion of basically incapacitated in a nursing home than in a hospital. The size of the institution aside, the worst cases from a medical care point of view will almost always be in hospitals (there, of

4

course, may be instances where a particular nursing home may function primarily as a depository for medically terminal cases, but the typical nursing home is not such a place). Different kinds of disaster planning and managing has to be considered for places where a proportion of the resident population is totally dependent for all needs on the staff of the facility.

EVERYDAY EMERGENCY PREPAREDNESS

All hospitals and most nursing homes have some kind of emergency (or disaster) planning. Hospitals need to have a written plan for accreditation, and in most localities nursing homes are also required in different ways to have undertaken emergency planning. In addition, in the great majority of American towns and cities, apart from the planning of the health care facilities themselves, hospitals and nursing homes are frequently taken into account in overall community disaster planning, and in the planning of the emergency oriented organizations such as police departments, the utilities, and the local emergency management agencies (still known as civil defense offices in some places). As we shall soon note, this attention is primarily one-sided, going from the larger community disaster planning to the health/medical/hospital sector and often not the reverse. But in either case, general hospitals and nursing homes do not totally ignore, nor are they totally ignored by, others in disaster preparedness activities.

However, research studies indicate that the emergency or disaster planning of health care facilities is generally not impressive and numerous problems surface when efforts at implementation are attempted in actual crises. Too often the planning involves only the development of a written disaster plan, with little else being done other than the production of the document. Many of the plans are either too vaguely general or stupifyingly detailed. Except for fire emergencies, the great majority of disaster planning assumes that the facility itself will not be threatened or impacted. Most plans are only nominally exercised with systematic updating being rarely undertaken. Staff members usually are only indifferently trained, if at all, or taught their responsibilities and duties in disaster situations. It is almost unknown for patients or residents to be allocated anything except a passive role in the disaster planning, and in many cases they are not even alluded to as a category in the disaster plans. While hospital emergency planning sometimes takes into account disaster planning by other hospitals in the area (although this in not true of nursing homes), the typical disaster medical planning in an area is usually independent of and not integrated with the planning by emergency organizations and others in the community. Exceptions to the above, especially in large hospitals and in metropolitan areas can sometime be found, but they are the exceptions not the rule. In general, existing disaster planning by health care facilities is poor, uneven and in many cases more the carrying out of a bureaucratic requirement than a serious effort to be prepared for a range of emergencies.

Studies of hospital responses in actual disasters (very little research has been done on nursing homes) confirms the poorness of the emergency preparedness of such institutions. While planning is only one factor in the effective and efficient management of emergency responses (as

5

will be discussed later), the problems that typically surface are partly attributable to the poorness of the pre-impact preparedness activities. Research also indicates that the actual experience of having undergone a community disaster does not necessarily lead to the upgrading or improvement of hospital planning.

Given all that has been said, the question of how much existing disaster planning by medical care facilities can contribute to planning for nuclear plant emergencies is somewhat problematical. However, this must be kept in proper perspective. There are facilities with good planning for disasters. There is at least a paper base of emergency planning in almost all health care facilities. Thus, it is not a question of starting at ground zero. Also, while experience of an emergency does not necessarily automatically lead to better planning, it does usually leave the facilities involved with greater awareness of potential problems and a greater inclination to respond to outside pressures to improve the disaster planning of their institutions.

On the other hand, very few hospitals anywhere ever have had the experience of having had to evacuate their quarters as a result of a disaster threat or impact. The 1972 flood in Wilkes Barre, Pennsylvania, was one such unusual emergency situation. However, sheltering in-place is an almost unknown experience for any kind of organization in the face of any kind of danger. Later in this report we will discuss some speculations about this kind of response in the instance of certain kinds of toxic chemical threats and particular circumstances where it might be tried in hurricanes.

Apart from the question of how much planning is already in place in the facilities, is the issue of whether it is agent specific or generic. That is, much emergency planning in the United States is specifically oriented to particular disaster agents such as hurricanes, explosions, floods, fires, tornadoes, chemical spills, etc. The written plans may discuss what should be done with regard to each type of disaster, who should do what, the nature of the problems which might arise with each agent, etc. On the other hand, emergency planning may be more general or generic, frequently addressing tasks or functional problems such as the issuance of warnings, evacuation of people, setting up security and pass systems, handling the dead, etc. The assumption in this kind of general approach is that there are many common elements irrespective of the particular disaster agent involved. Thus, for example, whatever the source of the danger, warning messages will not be taken seriously if they also do not suggest an appropriate course of action; similarly, evacuation is undertaken by family or household units, again irrespective of the threat source. In general, in this kind of approach it is assumed that, for instance, interorganizational problems of coordination or the exercise of organizational authority will essentially be the same irregardless of whether the emergency is a tornado, a high-rise fire, a volcanic eruption, a toxic cloud spread, etc.

It is unknown to what extent hospital disaster planning is agent specific, but there is reason to think a substantial part of it is so oriented. It is known that nursing home emergency planning is almost exclusively internal fire oriented. Unfortunately, research shows that disaster planning which is generic rather than agent specific is better

6

planning, more cost efficient, prevents duplication of or uncovered disaster relevant tasks, is easier to implement in actual crises, and otherwise is what should be in place. Generic planning also allows for the adding to the planning agenda the special or distinctive features of specific disaster agents, but does assume that it is first better to plan across-the-board for disasters in general and common problems before addressing agent specific matters.

To the extent that the disaster planning for health care facilities is generic rather than agent specific, the easier it will be to add to it the particular features for planning with respect to a nuclear plant accident. To the extent it is agent specific, adding planning for nuclear plant accidents will be an additional burden in the process. At best, it will make the plan longer and more detailed, not desirable characteristics. At worst, it will probably increase the possibility of additional problems in trying to manage nuclear accidents and disasters. To be sure, there may be no choice in that the planning for nuclear plant mishaps will have to be almost certainly added to whatever disaster preparedness is already in place. But choice or not, it should be kept in mind that one path will be easier than another, and perhaps more important, that one kind of planning—the generic—almost certainly will make for better managing of a disaster if it occurs. Additions to planning, even those affecting social psychological aspects of an emergency, however good and valid in themselves, cannot compensate for or undo a weak or poor model or basic format.

PROBLEMS IN EVACUATING FACILITIES

While there are certain common features in any kind of evacuation, there also can be important differences in different types of evacuation. To illustrate, all evacuations implicitly assume a round trip, that is, an initial leaving but an eventual return to the starting point. As such, it is different from relocation and easier for human beings to cope with given that temporary rather than permanent changes usually require less adjustments. Similarly, all evacuations require people to engage in generally unusual and unfamiliar behavior. As such, evacuees necessarily undergo psychological stress and social disruption apart from the socialpsychological effects which may have resulted from reacting to the danger or threat which may have necessitated the physical movement in the first place.

On the other hand, some evacuation is rather a short range activity. That is, the move may be no more than a temporary few hours or overnight stay in other than one's normal place of residence. This does not require the reestablishment of household or everyday living routines. However, the evacuation may be for a longer duration which would create the need to set up daily routines but in what would be viewed as a temporary abode. Such a kind of evacuation will most certainly be more psychologically stressful and socially disrupting than a short run one. Also, some evacuations require only the movement of people as such. But some necessitate that goods, equipment, personal property, etc. also be moved. Moving just people is easier than also moving material goods.

In part, we are trying by the examples just given to indicate the

7

considerable variation there may be in different evacuations which may be made of health care facilities. Not only can there be variety in the duration, kind, etc. of the evacuating behavior which may occur, but, more important, there can be a rather broad range of consequences from them. For example, the psychological stress and social disruption which will ensue will partly depend on the particular combination of factors which would be involved in an evacuation in a given emergency.

For purposes of illustration we mentioned only four possible factors. But even just using these four, a worst case scenario could be postulated by assuming the worst for each factor involved. Any evacuation being nontraditional behavior would generally be difficult and create negative attitudes (at least in the short run even though in the long run or in retrospect an opposite attitude might develop). If, in addition to people, other things also had to be evacuated at the same time, both social difficulty and psychological stress would be increased. To the extent that the evacuation was long rather than short in duration, the effects probably would be even more negative (and more likely if the initial belief was that the evacuation was going to be of short duration such as for a night or two). Finally, if it developed that the withdrawal movement from the endangered area came to be seen at some point as implying relocation rather than just evacuation, the sociopsychological negative effects would be maximized (apparently this has been a real life happening in the Chernobyl nuclear plant accident in the Soviet Union).

All of these four possibilities could occur in the evacuation asso- ciated with a nuclear power plant accident. For purposes of illustration we have discussed only four variables; others could obviously be involved, such as an acutal radioactive contamination of an area instead of just the threat of such a happening, or the issuance and release or inconsistent and unclear information by a multiplicity of different authorities (such as happened in the Three Mile Island incident).

At any rate, our overall point is that there can be a variety of different combinations of factors involved in the evacuation resulting from a nuclear power plant accident. Thus, no simple sweeping statement about socialpsychological aspects or consequences can be made which would apply in all possible crises, including worst case scenarios. Nevertheless, it is almost certainly true that the more unexpected and different the evacuation is from the anticipated, the more likely the greater the degree of stress and disruption for evacuees or an evacuated community as a whole.

As for the two types of facilities we are discussing, it should, from a socialpsychological rather than logistical point of view, be generally easier to evacuate a hospital than a nursing home. However, while this is probably true when we are talking of the institutions generally, the statement obscures certain important subdifferences. That is, the question of easy or hard will vary somewhat depending on what specific population subcategory is being considered.

Thus, evacuation of residents from nursing homes should be more difficult and create more problems than evacuating patients from hospitals. Overstated for our purposes, the evacuation of residents from a nursing home is like taking people from their permanent houses or apartments, whereas to evacuate patients from a hospital is more like taking them from

any other location used as a temporary abode such as a hotel.

It is to be expected that residents of nursing homes will be very reluctant to be moved. Many would see themselves as being uprooted from their permanent quarters. While residents are frequently ordered around by staff personnel, unlike in a hospital, an order to evacuate would not appear to come from persons who have unchallenged authority. While staffs often try to define residents as passive and attempt to force them into a dependent role via staff personnel, the effort is not always successful and is frequently a source of conflict in nursing homes. Frequently the little personal possessions many residents have are of great psychological and symbolic importance to them, such as family mementos—in some cases there would be strong objections to leaving them behind in an evacuation and in almost all cases such abandonment of items would be psychologically stressful. Because of age and mental deterioration, in some instances residents would have extreme difficulty in understanding the need for a sudden social upheaval as would be created by the evacuation of a nursing home. Overall, evacuating residents of a nursing home would be disrupting the normal social world for most of them.

Relatively speaking, it should be much easier to evacuate patients in hospitals. As said earlier, patients generally see themselves only as temporary visitors to hospitals. In addition, they are used to being ordered around and not being given meaningful explanations by hospital personnel. The patients think of themselves, and are acted towards, as being dependent and passive in the social role of patient. They have few if any symbolic ties to or in the hospital setting. The great majority could easily understand why there might have to be withdrawal movement in the face of a sudden emergency.

Our emphasis here is that, comparatively speaking, and from a socialpsychological viewpoint, patients ought to be easier to evacuate than residents. This is in relative rather than absolute terms. However, as already noted several times, evacuation is a somewhat difficult form of behavior for anyone to undertake. In the two facilities we are considering, there also could be other factors increasing the stress and disruption in the situation. Thus, both nursing home residents and hospital patients almost certainly would question if, during an evacuation, their relatives and friends would lose contact with them. Depending on their state of health and alertness, some evacuees from both kinds of facilities might also wonder if they would continue to receive the same treatments and services they had been receiving in the hospital or the nursing home. In addition, unless a very systematic informational campaign was instituted by officials of the facilities, the uneasiness and anxiety generated by an evacuation would almost certainly be compounded by the false stories, "rumors", and misinformation that will undoubtedly circulate at such a time. Thus, evacuation will not be easy for anyone, but it will be harder for residents in nursing homes more than patients in hospitals.

In contrast, it is possible that the staffs of nursing homes might find it relatively easier to evacuate than those working in hospitals. There should be less problems in the evacuation of nursing homes than of hospitals, given the simpler activities, division of labor and so on, in the former than in the latter. It is also probable that on the whole problems of dealing with residents would not be seen as materially

increasing, but this would not be perceived as necessarily true for all hospital patients. The idea of having to evacuate someone on a life support system, for example, cannot be something any hospital staff member would look forward to attempting. In essence, the greater logistic problems in evacuating a hospital instead of a nursing home, is likely to spill over into the attitudes and feelings about evacuation that the staff members of the two kinds of institutions would have.

There is also the question of the earlier mentioned problem of possible "role conflict" for staff members. Would staff members find themselves caught between their responsibilities to their families and to their work, and would there be any differences regarding this among the workers at nursing homes and at hospitals?

The research evidence is fairly clear on the first point. The likelihood of any staff member on duty abandoning their job is extremely low in any kind of emergency relevant organization. There will be psychological stress for some workers, but behaviorally they will carry out their work duties. In particular, those with direct responsibilities for residents or patients, as would be true of physicians and nurses, could be depended upon to do their work. In addition, staff personnel who would see their tasks as important and crucial in the running of their institutions-- and these would range from administrators to certain kinds of medical technicians to security personnel--could be expected to remain on the job. Those who usually have emergency, critical or important work responsibil- ities in medical care facilities, all prior studies indicate, could be depended upon to help in the evacuation of their institutions. They will not run off to help their families evacuate.

Likewise, such personnel could be expected to come to the facilities to help in the evacuation if they are not present in the institution when the crisis starts to develop. A number of such persons, who may be neither at work or with important family members at the initiation of the crisis, may take actions to insure the safety of the members of their families. At worst this will result only in some minor delay in their getting back to the work situation. The most conceivable situation where an assumption of work role and responsibility by some might not quickly or never occur would be if there was a total collapse of the general evacuation effort in the larger community.

There is a possibility some, especially lower level staff members with little commitment to their jobs, might leave or not come to their institu- tions if a serious emergency would start to develop. This perhaps might be more of a problem for hospitals than nursing homes. Not all workers, even in health care institutions, see their jobs as crucial or important in the running of the organization. Some of them, additionally, would not make any link between their everyday work and the welfare and care of hospital patients or nursing home residents. Particular kinds of housekeeping and maintenance personnel, parking lot attendants, groundkeepers, and certain volunteer workers, might be examples of staff members without major commit- ments to their institutions. In an evacuation situation it is conceivable that a few such workers might leave their jobs or not come to them.

In almost all crises and over the short run such behavior should not be noticeably disruptive to the operations of a facility, including an

evacuation of that institution. Apart from the fact that it is probably true that their activities over a short period of time are not an integral part of the functioning of their institutions, it is also almost certain that a percentage of the workers involved would remain on the job or come in to do their work.

To the extent the absence of such staff members might be a problem, it is somewhat more likely to be the case in hospitals rather than nursing homes. The more complex divisions of labor in hospitals perhaps could be more affected by the absence of different kinds or workers. Even this could be partly balanced off by the existence of work shifts in such facilities. In theory, work shifts could allow the loss of two staff members out of every three for many jobs, without impairment in the functioning of the organization if the workers were absent for less than a day. Work forces in nursing homes have less jobs on a shift basis, but they also have far less elaborate divisions of labors than hospitals, and, therefore, might have less problems as a result of the absence of some staff members.

The evacuation of health care facilities would not seem to create any new or special problems for the great majority of the relatives and friends of patients or residents (assuming that as part of the general population in the area they also evacuated more or less at the same time as the hospitals and nursing homes). To be sure, there probably would be the disruption of usual visiting patterns and that would not be welcomed. Also, it might be more difficult to establish contact and obtain information from the evacuated facilities in their temporary new quarters. This could become an issue for such relatives and friends who were concerned about particular patients who were dying or at medically critical points. There should be an insignificant number of patients who would fall into such a category. More concerned might be the relatives and friends of evacuated nursing home residents who might realize the evacuation could be very socialpsychologically disturbing (as we noted earlier) for many evacuees from such institutions. Inability to communicate personally or directly visit their relatives or friends evacuated from the nursing homes could create a strain, although it is difficult to see much of a problem developing over a short time period.

On the other hand, there might be some real problems for outsiders, such as suppliers, who normally provide goods and services for health care facilities. Clearly an evacuation would disrupt usual distribution routes and patterns. To a considerable extent what would primarily be involved would be matters of logistics. However, there are some socialpsychological aspects which could come to the fore. These are apart from the fact that the great majority of human beings do not like to have their routines interrupted or to have to establish new patterns of behavior quickly. There might be anxiety generated about possible financial losses from the inability to provide the services or goods to the moved health care facilities. Some suppliers might have a sense of responsibility for providing deliveries, especially to institutions such as hospitals, and be disturbed over being delayed or unable to make deliveries--particularly if it is thought the facilities are heavily dependent on only one or a few suppliers. Where suppliers themselves would get certain supplies might become problematical and a source of concern for some especially in a general evacuation which covered a wide geographic area. Thus, unlike

11

relatives and friends of evacuees who can interpret an evacuation as taking loved ones out of danger, suppliers, at best, can only see evacuations as making their job more difficult, if not impossible, to carry out well. There is little of a positive nature for them in an evacuation situation.

PROBLEMS INVOLVED IN SHELTERING IN FACILITIES

In general, any attempt to have in-place sheltering in facilities in response to a nuclear power plant accident will be problematical. Such behavior runs counter to a number of social psychological factors usually operative in crisis situations. There are also some negative socialpsychological consequences. From a technical point of view there may be merit in asking people to remain in place in the face of danger. There also may be situations where in-place sheltering may be only one of a few options realistically available in an extremely rapid development of an emergency. This form of behavioral adjustment is fraught with a variety of potential human and social problems.

Before expanding on the nature of these problems, we should note that in-place sheltering as a way of coping with danger has generally been advocated in only one area of emergencies, namely certain kinds of fire situations. It is being considered as an optional way of coping with certain kinds of toxic chemical emergencies. There has been talk of the possibility of "vertical" evacuation in the case of hurricanes, namely having endangered populations remaining or going to high-rise buildings rather than attempting to leave a neighborhood or community likely to be impacted by hurricane winds and rains. So the idea of in-place sheltering is not a totally new one or special to the nuclear power plant area, although in the chemical and hurricane disaster possibilities the question of such sheltering has been primarily raised rather than something that has become policy or practice.

However, in the one kind of emergency where such in-place sheltering has been the norm or at least one option suggested for endangered persons, that is, some kinds of fire emergencies, the results have been, at best, mixed. The idea has been that instead of attempting to flee through smoke and fire-filled halls or stairwells, persons in burning buildings should remain behind the closed doors of their hotel or dormitory rooms. The research literature on the topic is not extensive but it suggests that it is very difficult for human beings to remain behind doors in rooms where there is a fire outside or very nearby. There are cases where people initially behind closed doors, where it would have been safe for them to remain for hours, eventually attempted, with fatal results, to leave their fairly safe place of refuge.

It is quite understandable why in-place sheltering is difficult. The behavior runs contrary to what human beings have been socialized to do in the face of an immediate threat, and that is to move away from the situation. In-place sheltering is also a passive rather than active form of response which also runs against the learned impulses of people of what to do in the face of danger and that is to take and continue to take actions until the peril is no longer facing the individual (the actions themselves may range from directly attacking the danger source such as by throwing water on a fire to indirectly dealing with the threat by

12

physically distancing oneself from the specific danger source). Finally, sheltering in-place runs against both common sense and familiar behavior patterns, and thus can be seen as not being rational behavior. Very early in this report, we noted that human beings under extreme stress act on the basis of what they perceive a situation to be at the time, they try to respond on the basis of what rationally makes sense to them, and they react as much as possible in terms of familiar and usual behavioral acts. Remaining in place in an endangered locality is at variance with all of these matters, and is part of the reason why sheltering in-place, at best, can be characterized as atypical behavior whether it is advocated or attempted.

When sheltering is examined in terms of the different subcategories of people we have considered throughout this report, the picture changes only very slightly. There is no reason to think that the resident population in hospitals or nursing homes would react to in-place sheltering any differently from the population as a whole. It might be argued that remaining in a nursing home during a crisis might be a little less problematical than in a general hospital. At least the residents would have the general social support that usually is provided in any closed social group, and that would exist somewhat less among patients in a hospital. Earlier, other reasons were noted why it might be difficult to evacuate residents in nursing homes. Many of the reasons could be seen as indicating that remaining in the homes would be easier. In relative terms, this is probably true.

Staff members of facilities would almost certainly have the same degree of concern and anxiety that would be generated among any population set that was asked or forced to remain in what they perceive as a dangerous situation. Perhaps the role conflict problem discussed earlier would be somewhat less because usually persons are caught in the dilemma of perceiving obligations towards two kinds of "others"--the family "other" and the work "other." But in the kind of situation being discussed here, the family "others", presumably becoming evacuees, would be thought of as going to safety. The possibly endangered person in the in-place sheltering situation, therefore, becomes the actor and not family "others." Actually this kind of situation might result in some potential evacuees refusing to leave, not wanting to leave important family members behind in a perceived dangerous situation. Thus, sheltering in-place in facilities might become a source of problems for efforts at overall evacuation in the community.

Almost certainly, those staff members who do not see themselves as having an important or critical work role in a health institution would be even less likely than in an evacuation situation (as we discussed earlier) to assume or take over their jobs in an in-place sheltering situation. In an evacuation they would perceive themselves as going to an area of safety. The sheltering action would almost certainly be perceived as keeping oneself in a dangerous situation.

The greatest pressure in a sheltering in-place situation might be felt by the relatives and friends of residents and patients. To many it would seem like they would be abandoning loved ones, leaving them in peril while saving themselves. In fact, it is probably safe to say that a considerable number of relatives and friends would go to the health care facilities and insist on taking them out of the institution. If this occurred on a large enough scale, a sheltering in-place effort might actually undermine a more general concurrent evacuation effort in the community.

13

Important suppliers of the institution would not be much better off either. If they evacuated, they could not carry out their roles and perceived obligations, and we earlier noted some of the problems for suppliers in an evacuation situation. The problems would be compounded if sheltering and evacuating were concurrent and mixed action patterns. If suppliers did not evacuate, they too would have to undertake their own sheltering in-place, a seemingly somewhat improbable course of action and not one likely to occur spontaneously.

For all categories of people involved, there probably would occur the thought that sheltering in-place might be only a short term solution for a problem. If there was an actual danger from radioactivity, many would wonder how long the facilities could provide physical protection, and that evacuation would eventually be necessary although under more dangerous conditions than if an evacuation had been done in the first place. In fact, the general uneasiness and uncertainty that exists among large segments of the American population about nuclear power and related matters would almost certainly surface in the face of a sheltering in-place effort. As such, the weight of the feeling would be substantially against the idea of sheltering rather than evacuating in the case of a nuclear power plant accident.

We have discussed in-place sheltering in facilities apart from any time frame. There is no doubt in our mind that anything involving an overnight stay would quickly and strongly generate the psychological stresses and social behaviors already indicated. But what if the sheltering activity was of relatively short duration, such as less than an eight-hour period? If an absolute and believable guarantee could be provided ahead of time that sheltering would not be necessary for more than the indicated number of hours, some of the negative aspects about not leaving a perceived endangered area might not loom as large, although it seems very doubtful it would affect others (e.g. the idea of leaving endangered loved ones). However, it is very difficult to see how such a guarantee could be provided and, particularly, how it could be made believable. Studies not of nuclear plant accidents but chemical threats indicated that many in the population are very wary of assurances by public authorities that a danger will last only a fixed period of time or is over, when anything in the social environment can be taken as a cue for the opposite. Thus, in the context of ongoing major evacuations and/or major sheltering in-place activities, statements that the threat will soon be over will tend to have little credibility.

Of course, as noted earlier, there may be no choice in an actual emergency about having to undertake sheltering in-place. If so, we have indicated what we think will be the probable reactions. Studies of behavior under extreme stress, as well as the stories that have appeared about the reactions in the Soviet Union to the Chernobyl nuclear disaster, suggest that there may be some things which can be done to prevent a bad situation from becoming worse. For one, public authorities should be forthcoming, quick and honest in the information they provide to the public about the situation. For this to be done right, however, the time to plan is now and not at the time of a disaster.

Finally, even in the worst sheltering in-place case, the situation is

very unlikely to be one of social chaos. People might not, if they have any choice, opt for the in-place sheltering activity, but if they are "stuck" in such a situation they will try to cope the best they can. For example, staff members "caught" in the facilities will generally try to carry out their perceived responsibilities. For most everyone, the psychological stresses and social pressures we have indicated will be present, but almost everyone will continue to function in a behaviorally normal way even in these situations. Again, getting appropriate information to and from all the relevant parties involved would help make the situation more bearable. However, our major point here is that if prior planning is to be effective, it has to be based on realistic assumptions (e.g. that the endangered parties will try to help themselves) and not mythological ones (e.g. that chaos will prevail).

THE NEED FOR INTEGRATED PLANNING

Research studies indicate that certain problems consistently plague most disaster planning. Among those that frequently surface are the lack of overall community disaster planning and the difficulty of integrating planning that encompasses a very wide area and cuts across many jurisdictions. Planning in the medical health and hospital area is often weak on both scores. This could seriously affect the evacuation and sheltering in-place that might occur in nuclear power plant accidents. One consequence could be the magnification of social psychological problems.

As noted earlier, the medical health and hospital sector of the typical American community tends to develop its disaster planning apart from the rest of the emergency planning in the locality. The result is that planning and managing the health care response is not at all well integrated with the actions and activities of other emergency groups such as police and fire departments. There may be two sets of plans differently indicating where on-site command posts will be set up, who will take charge, what roads will be used for evacuation and for the transport of the injured, what kind of pass system will be used, which tasks will be carried out by what groups, etc. One result of the existence of different sets of plans or planning activities is that when disasters occur there will be organizational conflicts, confusion and ambiguity about responsibilities, and overlaps and gaps in the carrying out of tasks. Such social organizational problems will also be reflected in social psychological difficulties.

Thus, for example, the planning for in-place sheltering of any medical care facility cannot be undertaken only from the perspective of the particular institution involved. Intraorganizational planning, to be effective, has to be part of interorganizational planning. The general hospital and the nursing home may be little social worlds of their own, but, of necessity, have ties and links to a larger community setting. This social environment is primarily made up of other people and groups. If these evacuate, the normal supportive social framework for the facility is removed. Logistical problems apart, this will generate concern and alarm among all of those who remain in the facility. In turn, those who evacuate will be forced to weaken or cut important ties whether these be adult children leaving their elderly parents in nursing homes or suppliers not continuing to provide hospitals with vital goods or services. That which

15

is normally embedded in a larger social setting cannot, without negative consequences, be socially isolated at the time of an emergency.

Similarly, intracommunity planning for an emergency may not always be enough. Evacuation, for instance, cannot be meaningfully approached only from the perspective of those leaving an area. The receiving or host localities, and other areas through which evacuees go, have to be part of the planning process before any emergency occurs. Any disaster related activity which cuts across jurisdictional boundaries is always problematical. Studies show that far more than legal matters of boundaries are involved. In fact, many of the conflicts and disputes which occur when boundaries are crossed have to do with perceptions of organizational "turfs" which have to be symbolically protected, with uneasiness over "outsiders" coming into one's social territory, and similar social psychological issues. An acute emergency situation does provide a socially acceptable excuse for those endangered to invade, socially, nearby communities, but the tolerance limit for such behavior can be quickly reached. In non-emergency times an indication of some of the underlying issues involved can be seen in the fierce battles which often erupt, for instance, when it is proposed that health care homes for certain kinds of people be placed in certain neighborhoods. Some of the same issues are involved in equally contentious debates over "crisis relocation" or the planning for the evacuations of populations from one locality to another as a result of a nuclear war threat or impact. The conflicts mostly have to do with social psychological, not logistic, issues.

DISASTER PLANNING AND DISASTER MANAGING

In conclusion, we need to note that there is also a difference between disaster planning and disaster managing. A parallel here can be drawn to the distinction the military draws between strategical and tactical principles. Strategy involves the overall approach to a problem, such as winning the war. Tactics involve the specific approach to a particular problem, such as capturing Hill #391. The latter tactics allow taking into account all the contingencies associated with a concrete situation which cannot be done in the strategical approach. In a rough sense, disaster planning is, or should be, the strategy of preparing for disasters generally, whereas disaster management involves the carrying out of the specific steps which need to be done in a given actual emergency situation.

It follows in this kind of framework that planning for an evacuation or an in-place sheltering of medical care facilities is different from the managing of the evacuating of hospitals or nursing homes in an actual emergency. The same, of course, is true of planning a sheltering operation and managing one. Part of the importance of drawing the distinction is to emphasize that planning and managing are, at best, only roughly correlated. That is, good emergency planning does not automatically turn into good disaster managing. Put another way, planning is only one factor that enters into managing.

Good management or improvement in managing does not just occur. It can be facilitated, for example, by realistic exercises of a proposed evacuation or sheltering effort by a given hospital or nursing home. Such exercises should quickly bring to the fore the social psychological aspects

16

of evacuating and sheltering health care facilities in a nuclear power plant accident. Unfortunately, realistic exercises are very difficult to carry out in both kinds of institutions. From a practical viewpoint it would be impossible to practice, literally, the total evacuation of a functioning hospital. Similarly, it is difficult to think of how a sheltering in-place exercise could realistically be done in a functioning nursing home. The situation, however, is not totally impossible. Some approximations to the "real thing" can be obtained by way of computer simulations and table top exercises.

However, while perhaps relatively little can be done directly, much can be done indirectly to improve the capabilities of general hospitals and nursing homes to manage their responses in an acute emergency. As a result of decades of research, at this point in time much is known about organizational behavior and problems in disasters. This knowledge can be brought to bear through a variety of activities ranging from taking training courses to reading research reports. While the bulk of the work done has been more social organizational than social psychological, the latter aspects are not independent of the former aspects. Some of the more relevant literature sources which could be tapped include the following.

LIST OF READINGS FOR OTHER INFORMATION

Blanshan, Sue
    1978   "A time model: Organizational response to disaster." Pp. 173-198 in E.L. Quarantelli (ed.) Disasters: Theory and Research. London: Sage.

de Boer and T.W. Baillie (eds.)
    1980   Disasters: Medical Organization. London: Pergamon.

Dynes, Russell R. and E.L. Quarantelli
    1986   "Role simplification in disasters." Pp. 23-37 in Role Stressors and Support. Washington, D.C.: U.S. Government Printing Office.

Dynes, Russell R., E.L. Quarantelli and Gary Kreps
    1981   A Perspective on Disaster Planning. DRC Report Series #11. Newark, Delaware: Disaster Research Center, University of Delaware.

Goffman, Erving
    1961   "On the characteristics of total institutions." Pp. 1-124 in Donald Cressey (ed.) The Prison. New York: Holt, Rinehart and Winston.

Maxwell, Christopher
    1982   "Hospital organizational response to the nuclear accident at Three Mile Island." American Journal of Public Health

Quarantelli, E.L.
    1970   "The community general hospital: Its immediate problems in disasters." American Behavioral Scientist 13:380-391.

    1983   Delivery of Emergency Medical Services in Disasters: Assumptions and Realities. New York: Irvington Publisher. (Available from the Disaster Research Center, University of Delaware).

    1983   "Disaster preparedness." Disaster Medicine 1:118-121.

    1984   Evacuation Behavior and Problems: Findings and Implications from the Research Literature. DRC Book and Monograph Series #16. Newark, Delaware: Disaster Research Center, University of Delaware.

    1985   "Needed innovations in emergency medical services in disasters of the future." Disaster Research Center Preliminary Paper #95. Newark, Delaware: Disaster Research Center, University of Delaware.

1985   <u>Organizational Behavior in Disasters and Implications for</u> <u>Disaster Planning.</u> DRC Report Series #18. Newark, Delaware: Disaster Research Center, University of Delaware.

Silverstein, Martin
  1984   <u>Triage Decision Trees and Triage Protocols: Changing</u> <u>Strategies for Medical Rescue in Civilian Mass Casualty</u> <u>Situations.</u> Washington, D.C.: Georgetown Center for Strategic and International Studies.

Stallings, Robert A.
  1970   "Hospital adaptations to disaster." <u>Human Organization</u> 29:294-302.

Taylor, Verta (ed.)
  1977   "The delivery of Emergency Medical Services in Disasters: A Special Issue." <u>Mass Emergencies</u> 2:135-204.

Tierney, Kathleen J.
  1985   "Emergency medical preparedness and response in disaster: The need for interorganizational coordination." <u>Public Administration Review</u> 45:77-84.