Emergency Events Involving Radiation Exposure: Issues Impacting Mental Health Sequelae

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INTRODUCTION

Understanding the psychological sequelae of disasters is rapidly increasing as a result of both emerging research as well as real life experience. In the United States, the primary experience base has been with natural disasters. There is much to be learned from experience with natural disasters that is very applicable to planning for, and response to, radiation emergencies.

This paper will not focus on general principles of disaster mental health preparedness and response. There are several good sources for this type of information[1,2,3]. This paper will propose a number of special considerations, which may be significantly *different* than dealing with natural disasters, for understanding human response to radiation emergencies. A number of very concrete suggestions will be offered in response to these special characteristics.

DISCUSSION

Context of Understanding

To begin understanding the psychological consequences of radiation exposure, regardless of the nature of the event, it is important to consider how most people view and understand radiation. Perhaps more accurately, how people *lack* understanding of radiation--therein is the key to understanding what we are up against in helping people cope with actual or perceived exposure.

Most people have very little understanding of what radiation is, how it works, and what it does to living things. What people do perceive is that radiation is very powerful (especially in destructive ways) and very mysterious. It is likely that most people, could not accurately answers very basic questions regarding the nature and effects of radiation and exposure. In the absence of accurate understanding, especially when coupled with often distorted beliefs and

intense fear, it is easy to see how both acute and chronic stress responses can result from even *suspected* exposure.

Recommendations:

- Public education regarding the nature of radiation and its effects on the body should be encouraged, both as part of general public education, as well as emergency and disaster preparedness efforts.

- Education should include dispelling myth, assuring the validity of post exposure assessment, and educating about the nature and normalcy of stress reactions following perceived exposure.

Role of Blame

In responding to natural and other types of emergencies and disasters we have learned a great deal about the centrality of blame following traumatic events which are outside the range of usual human experience. Since, in natural disasters, people find it culturally and religiously unacceptable to blame God, people frequently turn their anger toward any individual or group that they feel is responsible for, or could/should have prevented, the traumatic event. In events where victims/survivors become focused on blame and the desire to seek retribution, stress and depression appear to last longer and delay health integration and resolution of the experience. When blame is not easily assigned, people tend to focus blame on a wide variety of authority figures, regardless of their involvement in the incident. In the case of radiation exposure, there will, in all likelihood, be fairly easy targets for blame.

Recommendations:

- In preparedness activities, help response official understand the normal nature of blame and provide specific training on how to deal with individual and group blame.

- In any counseling interventions following an incident, help victim/survivors understand the normalcy of blame as well as its adverse psychological consequences. Provide alternative coping mechanisms.

Impact of Unknown Health Consequences

In the best known nuclear power plant emergency in the United States, Three Mile Island, the most significant long term health effect was anxiety and depression resulting from unknown long term health consequences.[4,5] Stress resulting from acute and chronic health and medical conditions is significant and often not well treated. This situation is exacerbated if those exposed to radiation fear future illness (even into future generations).

Recommendation:

- Same as in next section.

Tracking and Follow-up with Those Exposed

Because of the fear of (real or imagined) long term health effects it is critical that those exposed are tracked for extended periods of time for screening and intervention purposed. As a result of the long-term nature of some emergency and disaster related stress, as well as its biological manifestations, mental health screening and intervention where appropriate and necessary should be a component of any follow-up program.

Recommendations:

- Include mental health screening as part of all follow-up programs.
- Have treatment interventions available for anyone who needs them.
- Provide ongoing accurate information to those exposed.

Importance of the Message and the Messenger

When faced with frightening and mysterious situations, people seek leadership and accurate information. In the hours immediately following radiation exposure, there is a need to provide the general public and high risk populations with a great deal of information. The content, format, and presenter of the information are important in reducing psychological sequelae.

Recommendations:

- Make every attempt to coordinate messages to reduce the potential of contradictory information. Few things will erode confidence more quickly than conflicting information from identified leaders and experts.
- Assure that the person(s) delivering the message has the highest credibility possible to reduce the potential of listeners discounting the message. All spokespersons should be free of perceived vested interest in "spinning" information.
- Assure that all public information is available in various formats (e.g., radio, television, written) and reflects the culture of the recipients.
- Include information related to stress as part of all massages. Normalize the experience of stress, provide suggestions for coping, anticipate special situations (e.g.., the stress of

families sheltering in place for extended periods, availability of guns, alcohol, etc.), and provide information about where to get help.

- Repeat messages frequently. People under stress tend to retain information less will than when they are not stressed.

Screening for Exposure

In any large scale radiation incident, there will need to be extensive radiation exposure screening. While this will typically place a significant burden on the existing health care system it provides a unique opportunity to intervene in the mental health domain (if not labeled "mental health") If mental health or stress assessment is made part of general screening it provides a great opportunity to assess stress, identify those most in need, establish a contact that can later be capitalized upon for future interventions, provide educational materials about disaster related stress.

Recommendation:

- Make mental health part of all radiation exposure screening and follow-up.

Impact of the View of Government

Most radiation incidents, with the exception of war, are the result of some type of accident or error. Various parts of the Federal government will be involved in activities following the incident even if not involved in the incident itself. There appears to be a significant, and perhaps growing, negative feeling toward government in the United States. This ranges from outright hatred and the perception that government is the enemy of the people (this type of view apparently resulted in the Oklahoma City bombing). Others view the government as involved in cynical attempts to experiment on and manipulate people. Still others, while not viewing the government as sinister, view the government as inept and incapable of adequately managing its affairs and protecting the people.

Emergencies and disasters of all types do not occur in a vacuum. They exist in a context of people's individual and collective experiences, beliefs, and perceptions. The perception of government will play a significant factor in how people cognitively structure their experience of radiation exposure. That cognitive structure will be the major determinant in determining the emotional impact of the exposure and behavior that follows.

Recommendation:

- Preparedness and response activities should include appreciation for, and training in, dealing with the sometimes hostile views of government. It is important for preparedness and

response officials to understand that people's attitudes and behavior may have to do with *other* perceptions that have *little* to do with radiation.

Impact of Competing Priorities

The primacy of concerns about radiation exposure has varied considerably over time. Certainly, it reached its peak during the Cold War. It has always been in the forefront of the concerns for those who live and work in areas where there is ongoing concern for exposure. Even in light of this long standing concern, as noted at the start of is paper, most individuals remain extraordinarily naive and ill informed regarding radiation and its effects. Following the end of the cold war, attention to the potential of radiation exposure appeared to have waned as we adjusted to a world order that is different than what many had known.

With the World Trade Center and Oklahoma City bombings, the threat of terrorism on United States soil became a reality. It did not take long for concerns about radiation to reemerge in the context of the group of threats labeled Weapons of Mass Destruction (WMD). Very shortly after that, radiation exposure, at least resulting from terrorist threats, seems to have lost the spotlight again, probably as a result of the enormous complexity of the threat from biological terrorist events. There is a risk that the significant health and mental health consequences of radiation exposure will not receive the attention necessary to enable full preparation and response because of attention to other types of threats.

Recommendation:

- There should be reinforcement of the perspective that *all* WMD threats represent complex preparedness and response challenges, that the types of threats are *very different*, and that preparing for one does not necessarily make us better prepared for all.

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