



**The Psychological Aftermath of Disasters
Individual Responses, Treatment and a State Behavioral Health
Care System's Response to 9-11**

Benjamin S. Bunney, MD

At 8:48 am, on September 11, 2001, a Boeing 767 crashed into the North Tower of New York's World Trade Center, beginning what was to be the worst disaster in American history. Besides the fact that it was the largest terrorist attack ever carried out on U.S. soil, it was unique in two ways. It was the first disaster where, in its aftermath, psychological repair was more important than repairing bodies or burying the dead. In addition, at least part of the event was watched live by millions of people. The magnitude of the mental health consequences of these two facts is still being assessed. Because the immediate and subsequent psychological impact was so great, it forced individuals, states, and indeed the nation to come to grips with how important psychological reactions to disasters are and the toll that it can take in human suffering, human functioning and economic loss.

Those who experienced or witnessed the disaster first hand (those who lost friends and loved ones), and those who responded in an attempt to rescue the living and later recover the dead, suffered the most. However, even those watching the disaster unfold on television were unwittingly exposing themselves to what for many would be a severe stress. The most vulnerable populations would be particularly affected. In at least one school in New Jersey, teachers brought television sets into the classrooms and sat with the elementary school children watching the disaster unfold. Later, on the evening of September 11th and for many evenings thereafter, parents sat with their children and watched rerun after rerun of the planes hitting the Towers, bodies falling from the Towers, the Towers collapsing. Still later, videos of people on the streets running from the mountainous wave of hot ash that came pouring after them were shown repeatedly. The elderly, captive in their nursing homes, also were exposed to rerun after rerun of the terrible events of that day.

These media experiences also were to have profound effects on people's mental health. The purpose of this paper is to give a chronological account of the psychological sequelae of the stress and psychological trauma produced by a disaster, natural or man made, discuss both normal and pathological reactions and provide some guidance for how individuals from a disaster might be handled in the setting of a hospital Emergency Department. The last section of this paper briefly describes the State of Connecticut's response to 9-11 - the development of a state wide Behavioral Health Disaster Plan and the infrastructure to carry it out.

Key Clinical Questions:

1. Are there specific factors from a disaster that cause an increase in mental stress?
2. How do children respond to disasters?
3. What are abnormal reactions to disasters, when do they occur and how should they be treated?
4. What should a state wide behavioral health response include?

PSYCHOLOGICAL TRAUMA

There are many definitions of psychological trauma but most of them include some type of overwhelming, unanticipated danger from which one cannot escape and for which there appears to be no method of either decreasing the danger or the individual's anxiety. Under these circumstances, there occurs a neurophysiological dysregulation that renders the usual cognitive and behavioral responses to the stimuli experienced less effective than normal. The disaster victim may almost instantaneously develop somatic and mental symptoms including a feeling that one's heart is about to burst, difficulty in breathing (so that one feels smothered), muscles that feel like exploding and don't seem to work right, feelings of terror and panic, a confused mental state which may lead to the actual shutting down of cognition, autonomic reflexes or freezing and feelings of helplessness or being out of control. These responses are complex and include biological defenses against the threat, the activation of mechanisms related to past learning and adaptation in similar situations, response to social cues (i.e., one's behavior is shaped by whether or not there are others in the disaster with you and whether or not they are strangers or friends and relatives), reactions to immediate loss or separation from a loved one and the effects of the cognitive disarray that can occur from experiencing chaos all around one.

NEUROBIOLOGICAL RESPONSE TO SEVERE STRESS

Acute Responses

Many details of the neurobiology of stress have been worked out, although there is much still to learn.⁽¹⁾ In brief, the thalamus registers through sensory inputs that there is a threat. If a threat is present, it triggers brain alarm systems including a primitive alarm system in the brain (the amygdala) and there is a release of corticosteroids, secondary to activation of corticotropin releasing hormone (CRH) in the hypothalamus leading to a secretion of ACTH from the pituitary which in turn induces secretion of cortisol by the adrenals. The sympathetic autonomic nervous system is also activated resulting in an outpouring of catecholamines in the periphery which in time leads to an interplay of the sympathetic and parasympathetic autonomic nervous system resulting in activation and deactivation of organs depending upon their relevance to defending the individual against the threat. Thus, fright and flight responses are initiated. The insula and the amygdala coordinate the body's mobilization in response to threat by sounding the alarm. Norepinephrine released by the locus coeruleus in the brain stem promotes focused attention.

The release of cortical steroids promotes instinctual survival rather than goal-directed reflection. Information processing is compromised because the hippocampus becomes inhibited both in spatial orientation and categorization of sensory inputs. Finally, decision making becomes more difficult because the prefrontal cortex receives confusing and chaotic alarm signals resulting in down regulation.

Delayed Responses

Unless there is an immediate resolution of the catastrophic experience and/or resolution of the psychological effects acutely experienced by the disaster victim there is the real possibility of a delayed response. It is thought that these delayed responses are produced by a cascade of complicated neuronal and genomic events. (1-2) These include an increase in the syntheses of CRH and cortisol related receptors in areas of the brain that are not in the immediate hormonal stress response. Thus, it has been shown, at least in animals, that increased protein synthesis occurs in memory areas, including the hippocampus and the amygdala, providing a mechanism for two types of long-term memory of stressful events. One type of memory is explicit in that it is recallable and, therefore, people can talk about it, whereas the other is implicit in that it is manifested by changes in habit and conditioned responses of which the individual is totally unaware. An example is the fear response that can be elicited by cues which remind the individual unconsciously of the traumatic event. It is these delayed biological changes that are thought to be in part responsible, when they are present, for the delayed symptoms of post traumatic stress disorder and other chronic disorders.

In summary, the time immediately after a disaster is a critical time of increased neuronal plasticity. During this time the individual's experience triggers intense physiological reactions which in turn can shape mental traces of the disaster. By mechanisms which are not yet clearly understood, physiological and psychological factors, present both during and after a disaster experience, can either work together to result in adaptation and resilience or can lead to development of chronic stress disorders. Theoretically, therefore, early intervention should reduce risk of chronicity. However, we are far from a best practice approach in that evidence supporting one intervention over another as superior or even effective is lacking.

FACTORS THAT CAN AFFECT AN INDIVIDUAL'S RESPONSE TO A DISASTER

Event Factors (3,4,5,6)

Physical proximity to the disaster has been found to be a determining factor in crisis response to a disaster. Thus, although one can still be traumatized, watching an event unfold on television usually does not have the same psychological impact as being a victim of the disaster.

Emotional proximity to an event is also a determining factor in that even if one is only an observer, the impact will differ depending on whether a loved one is known or presumed to be a disaster victim or one is watching the disaster impact strangers. One's response is also affected by whether or not there are secondary events such as a disruption of daily routines through the loss of shelter, work place, transportation, etc. Whether or not a disaster occurs by natural causes, such as hurricane or flood, or is caused by an act of another person known or unknown,

also has been reported to affect an individual's response. "God's Will" is more readily accepted than accidental or premeditated harm caused by another human being.

Individual Factors (3,4,5,6)

Many individual factors can affect the way a person responds to a disaster. These include such things as genetic vulnerabilities and capacities, prior history of a constant stress or exposure to past disasters, history or presence of a psychiatric disorder, being female, lower education and income, lower IQ, being divorced or widowed, health issues or psychopathology within the family, the presence or absence of family and social support structures and the age and developmental level of the individual. Thus, children represent a particularly vulnerable population.

RESPONSES OF CHILDREN TO A DISASTER (6,7,8,9)

For most children, and especially younger children, what they feel and think about a disaster is primarily mediated by their adult caregivers. The caregiver's emotional response is often as important as the actual event and shapes both the children's immediate and subsequent handling of the experience. Typically, children's initial responses revolve around questions and concerns about safety and security with the focus on frightening things or thoughts. Feelings of anger and thoughts of revenge are common. They often make an attempt to deal with these thoughts and feelings through continual play or talking about the event. Some of their symptoms are similar to those found in adults and some are special to the fact that they are children. Nightmares and inability to sleep are very common as is decreased, or sometimes increased, appetite. They often appear sad and can be much more withdrawn and quiet than normal. Some will show irritability, fussiness, or become argumentative. Regression in behavior is common and a loss of recently achieved milestones can occur. Difficulty in paying attention secondary to day dreaming or easy distractibility can be seen and many times anxiety level is so high that they become extremely clingy and refuse to leave the presence of their parents.

Just because a child is quiet doesn't mean that they are not thinking about the events that have occurred and trying to make sense of them in the light of their own experience and their parent's reaction. As with adults, a child's interpretation of his or her behavior during or after a traumatic event can change their sense of self. Thus, they may feel increased physical prowess or weakness, see themselves as more passive or active. They may think of themselves as cowards or heroes and thus, experience a decrease or enhancement of their sense of self.

Behavioral Changes Specific to a Child's Level of Development **Toddlers (18 months-3 years)**

This is the age range in which the child is most likely to rely on adults and caretakers for his or her understanding of the world and is liable to take on the emotional response of the adults around it. Stress is communicated through behavior and through the body and includes disturbances in eating and sleep, also bowel and bladder control, decreased speaking, increased

tantrums or fussiness or defiance and increased clinging.

Although children in this age group are more involved with their peers and other adults, they continue to look to their primary caregivers to understand how they should respond. This is a highly imaginative age (e.g. preoccupation with monsters – in the closet or under the bed) and because of this they are often more fearful. Their responses can be like those of toddlers, but also include increases in play related to the event, questions about what has occurred including who did it and why, and concerns about their own safety. For example, a pre-schooler watching the World Trade Centers collapse may be fearful that the house in which he lives will also collapse.

School Age

Children at this age are more independent and peers and teachers begin to have a much greater influence. At this age they are very concerned with right and wrong, can become defiant and aggressive or anxious and withdrawn, either of which can lead to difficulty in school. Often children of this age are concerned about revenge, feeling that somebody who has done something bad should be punished.

Adolescents (9)

As every parent who has raised an adolescent knows, it is at this age that big struggles for independence occur. Adolescents are often naturally moody and focused on themselves. After a disaster this can be greatly increased. Conflicts with parents, teachers, and other authorities are common at this age and again can be exacerbated by experiencing or witnessing a disaster. Another characteristic of this age group is a tendency to either minimize or exaggerate their experiences. In the latter case, they may be overly preoccupied with the event, and in the former, they may appear distant and numb. Under normal circumstances, adolescents are at risk for trying new risky behaviors. This can be greatly increased in reaction to a disaster and include new or increased substance use and taking risks such as reckless driving.

Older Adolescents and Young Adults

Responses in this age group are often similar to adults but may include increased concerns about the future. After September 11th, concerned parents reported that their children had begun to question the usefulness of a college education based on the feeling that it seemed insignificant in the light of the magnitude of the disaster and the possibility that World War III might be right around the corner. Increased substance use in this age group can also be a reaction to the anxiety produced by psychological trauma secondary to a disaster.

TREATMENT OF THE CHILD WHO HAS BEEN TRAUMATIZED BY EXPERIENCING OR WITNESSING A DISASTER

It is not in the purview of this chapter to discuss in any detail the various treatments that one may use. But a few general principles can be mentioned. The stage of development in the child will in most cases determine the treatment. It is important to keep in mind that the hippocampus is not fully functional until between 4 and 5 years of age and the prefrontal cortex not until around age 10. Thus, in the former age group, prior to age 5, memory of events or at least the recallability of those events is apt to be minimal in later years. Before 10 years of age, insight and cognitive understanding is often limited. Thus, treatment of child trauma survivors must facilitate developmentally appropriate expression of feelings (for example, through drawing or playing) should focus on age-relevant categories or themes (for example, safe, unsafe) and should not expose the child to more information than its developmental level will allow it to handle.

One of the primary immediate objectives of any child, victim or witness of a traumatic event is to reunite the child with important adults and family members. In addition, it is important to remember that interventions for children should also include caretakers because if the adult had so many problems that they cannot attend to their child then the outcome is poor. Adults tend to underestimate the impact on children of a disaster or alternatively they may displace their own feelings onto child.

Criteria for Referral

Unfortunately, there are no hard and fast rules for determining when to refer a child to a behavioral health professional because there is very little research on the prognostic implications of most symptoms. In addition, there are a myriad of symptoms that can be expressed and they are dependent to a large extent on the developmental age of the child. However, there are some acute symptoms that are serious enough to justify immediate referral. These include avoidance and/or withdrawal, hyperarousal, dissociation and persistent, extreme uncontrollable emotional upset. There is an acute stress checklist available that can help in making an assessment. (10)

Symptoms that can emerge in the days to months following the event include sleep disturbances, regressive behavior, somatization, irritability, extreme aggression, distractability, blunted emotions and regression in social functioning and play. (Shannon, Singer) Most children with these delayed symptoms will be seen first by a pediatrician. However, it is possible that, depending on the severity of some of the above symptoms, a parent will bring a child to an ED. It is important, therefore, to keep in mind that these type of problems can be caused by a traumatic event that occurred many months ago.

RESPONSES OF ADULTS TO A DISASTER (4,5,6)

Acute Reactions

It's important to remember that each survivor is unique and that their personal history, as well as psychological strengths or deficits, will influence their response to a given disaster. Their beliefs and values, as well as the family and community resources available will shape the meaning of their experience and then play a role in the process of recovery. It is also important to understand cultural differences when understanding why a survivor shows a particular pattern of stress responses. Most important to remember is the fact that the great majority of survivors will not have lasting consequences related to their experience despite the fact that they may present with a variety of symptoms which, if they had not been subjected to a traumatic event, would be considered pathological.

Common reactions include anger, despair, guilt, irritability, nightmares, hyper-arousal, somatic complaints and difficulty concentrating (with or without memory impairment) as well as feelings of alienation, social withdrawal and feelings of disassociation in which one feels like one is in a dream-like state and appears "spacey" to the observer. The focus in these cases should be not on disease but on health as the vast majority of people will experience these symptoms as transient and they should be considered as normal responses to abnormal events.

Pathological Reactions

Acute Stress Disorder

This disorder can appear immediately after a disaster or up to four weeks after a traumatic event but, in order to be diagnosed, must have a duration of at least two days and maximum of four weeks. (15) The criteria for diagnosis include three of five dissociative symptoms (i.e., the individual feels detached, dazed, experiences derealization or depersonalization or amnesia). These individuals also experience recurrent unwanted memories, while either awake or asleep and often experience physiological or psychological distress when confronted with reminders of the trauma they have experienced. Because the distress can be so severe when reminded, they often avoid such stimuli. Hyper-arousal is also common and can be manifested by anxiousness, irritability, insomnia, poor concentration, hyper-reactivity or hyper-vigilance. In acute stress disorder these symptoms are so severe that there is significant psychosocial impairment. Individuals with this disorder are at a higher risk of developing Post Traumatic Stress Disorder (PTSD). Just as for children, there is an Acute Stress Disaster Scale available to help make an assessment. (16)

Treatment and Intervention

Unfortunately, there is no one approach to prevention or treatment that has been shown by research to be definitively effective, although there is some evidence that cognitive behavioral therapy (CBT) may be useful for at least some people at risk to develop PTSD. (17,18) However, it is clear that one-time intervention models are not effective and although extremely popular, Critical Incident Stress Management (CISM) has no proven effectiveness. (17,18,19) Psychotherapeutic interventions in the immediate aftermath of a disaster also lack any demonstration of efficacy. We are left then with the practical and the obvious.

1. Triage individuals to mental health professionals when appropriate.
2. Provide information concerning the symptoms and feelings that are normal after a traumatic experience, criteria for judging when additional help is necessary and caregiver contact information.
3. Provide basic necessities (e.g. food, shelter).

When interacting with disaster victims one should be empathetic and non-directive – be a good listener. Don't risk re-traumatization by delving into the details of their experiences. However, if the victim wants to talk and is able to, it may be appropriate. Note the emotional condition of the individual and where possible, label it for them and link it to what they are thinking. Any somatic experiences they are having (e.g. heart palpitations) should be treated the same way, once they have been ascertained not to have an underlying pathological physical origin. Assess the quality and nature of the individual's thought processes and link them to the emotional impact of the event and associated ideas.

If the person is agitated, speaking too rapidly, appears to have lost touch with his/her surroundings or crying uncontrollably, gently, but firmly, ask them to look at you and to listen carefully. Talk to them about positive or unemotional topics. For example, ask them to describe their surroundings and tell you where they are. Remember, however, that being somewhat upset is natural and expected. It is extremely important to explain what the normal posttraumatic response is in terms of symptoms they may experience, tell the individual what they can expect to happen over time and how to tell if additional support or treatment is needed. A hand out that the individual can take with them with the above information in it is very helpful because when seen immediately after a trauma, a person's ability to focus on and remember what they are told is apt to be very poor. On the hand out also should be information on how to arrange further contact if they feel they wish it. Unfortunately, one of the things we have learned is that victims of trauma often try to live with their symptoms rather than seeking help. It is, therefore, critical that the caregiver has some means of follow up in order to assess symptoms and adaptive functioning. Remember that some symptoms may not appear until weeks to months after the event.

Delayed Reactions

For some individuals, there will be persistent physical, mental, relational and/or schoolwork problems that are taking their toll. It is at this time that delayed psychiatric sequelae may begin to emerge including unresolved bereavement, depression, PTSD, anxiety disorders, and addictions.

Target Groups at Risk for Persistent Post Traumatic Sequelae (6,11,12,13,14) **On-site Survivors**

On-site survivors are at risk for PTSD who have been exposed to the threat of imminent or actual death, have witnessed death or destruction, have experienced physical insult such as injury, exhaustion, pain, or have experienced a reactivation of reactions to a previous traumatic event.

These individuals, and families with primary relationships to the victims, are at risk for traumatic grief, unresolved bereavement and behavior which leads either to over demand on relatives or isolation from family members.

On-site Rescue/Recovery Workers

Firemen and Policemen and EMS workers are particularly at risk for psychological trauma because of their exposure to threat of imminent death and the witnessing of death and destruction. In addition, the probability of injury can be high. They often work for long hours, and, therefore, exhaustion can be a problem. If there is a fire, exposure to toxic fumes is an issue. Both can take a psychological toll. Often their experiences are so horrific that detaching and numbing occur which can lead to an increased sense of separation. By the very nature of their work, they are repeatedly exposed to traumatic events and this can lead to traumatic reactivation of thoughts, feelings, and symptoms developed in prior work settings. Since their experiences are so different from those of most individuals and often defy description, there is often a feeling of separation or detachment from their families, friends and community.

Helpers Caring for: Survivors, the Bereaved, Rescue Workers (e.g. Behavioral Health Workers, EAP Primary Care Physicians and Clergy)

Through talking with survivors, these individuals are exposed to the terror, helplessness and grief experienced by the victim or victim's family and often listen over and over again to descriptions of horrifying events. In a large disaster, they work for long hours and often are given responsibilities beyond their knowledge, training or professional limits. Thus, unprecedented crisis demands can greatly increase their role responsibilities and some will have an idealized vision of a role model that they are trying to emulate which can lead to further stress. If they have had traumatic experiences in their lives, which are unresolved, these can be activated. Often it is they who are asked to answer the unanswerable questions of "why did this happen to me?", "how could anyone do such a thing?", "what kind of a God is it that allows such horrible things to occur?"

Family/Community Members Living and Working with Survivors, the Bereaved, Rescue Workers and Helpers

These individuals are also exposed to the feelings of terror, helplessness and grief experienced by a survivor, bereaved family member or rescue worker. Under these conditions, almost anyone would want to help but because of lack of training do not know how, or what to do. In addition, the affected family member may be focusing on coping with impairment or recovery placing a further burden on the non-traumatized family member who must carry an added load in regard to every day living – going to work, taking care of the children, etc. The family member living with a survivor or first response worker may find that that individual has disconnected from the family and experience a sense of loss.

People in Recovery from Behavioral Health Disorders

These individuals may have heightened responses to immediate exposure to an event resulting in feelings of terror, helplessness or grief. Many have had traumatic experiences in their lives and there can be a reactivation of the feelings engendered by those previous events. Decompensation or relapse of their illness can also occur and because of the added psychological reaction to the disaster, may withdraw from the recovery community and from treatment, isolating themselves and thereby leading to increased risk of severe relapse.

Vulnerable Groups (e.g. children, elders, disenfranchised)

Media exposure can be particularly damaging to this group and depending on the circumstances, they may experience reduced access to or reduced reliability of their caregivers and support groups. Further complicating factors may include decreased access to or reliability of key economic, educational, housing and family support services. Elders and the disenfranchised run an increased risk of stigmatization and marginalization. There is evidence, however, that some older people are more resilient than other groups, finding ways to cope and understand traumatic events because of their long-term perspective on life.

Treatment Issues Related to Delayed Reactions

It is not uncommon for caregivers including hospital emergency rooms to experience an increase in individual's seeking help approximately 4 – 6 months after a disaster has occurred. These are most often individuals who have not been able to psychologically come to terms with their experience and are suffering from a number of possible symptoms. For example, they may be overwhelmed with intrusive memories, which make them re-experience the disaster over and over again. They may find that they startle at the slightest noise and are chronically anxious as if they were in a prolonged survival alarm state. Others may complain that they are overwhelmed with emotions that they can't control manifested either as irritability and outbursts of anger or frequent uncontrollable bouts of crying. (Remember that bereavement is not considered a disorder where there has been severely impaired functioning for more than two months after the death of the loved one or there is no improvement in grief symptoms over a six month period.) Still others may describe feeling stunned, empty, dead inside, and may have lost the religious

belief systems they have used to sustain themselves during periods of stress. Some may complain that they have lost any interest in the personal goals they used to value and work for so hard. In extreme cases, they may have been referred in by a family member who has noticed dangerous and impulsive risk taking or a marked increase in the use of substances of abuse. Diagnosable depression may be present with or without suicidal ideation. Individuals who report no improvement or a worsening of any of the above symptoms should be referred to a behavioral health care professional for further evaluation and possible treatment.

Studies of past disasters have found that between 10% and 20% of those individuals in high-risk categories develop depression, PTSD or both. Although alcohol and substance use disorders are not prevalent, subclinical substance use is common.

POSTTRAUMATIC STRESS DISORDER (PTSD) (11,12,13,14)

PTSD consists of recurrent unwanted memories while awake or asleep or biological and psychological distress when exposed to reminders of the traumatic event. These individuals often avoid internal/external reminders and experience emotional numbing, social detachment and amnesia. Conversely, they may be hyper-aroused and exhibit anxiousness, irritability, insomnia, inability to concentrate and/or increased startle response. Almost always there is significant psychosocial impairment. By definition, these symptoms must last for 30 or more days. The onset of PTSD can be delayed for as much as six months and once it develops, it can become chronic. Screening instruments are available to aid in making a diagnosis.(20,21)

Classic PTSD is not common in children but its incidence does increase with age. Instead, children often experience symptoms such as hyper-activity, impulsivity, or become oppositional. Anxiety symptoms such as phobias can also occur.

Although it is impossible to predict who will or will not develop PTSD, there are some patterns of risk.⁽¹¹⁾ These include experiencing traumatic shock and acute stress disorder in the first month, the time and nature of the exposure to the event and the sustainment of a loss. Females appear to be more likely to develop PTSD than males. Referral is always warranted.

SUMMARY

The majority of individuals experiencing a severe disaster will develop some symptoms in the immediate aftermath, which although abnormal in any other setting are normal under the circumstances. These symptoms will resolve in the great majority of cases over a period of time. A small percentage will develop acute traumatic distress disorder, pathological grief, depression and/or post traumatic stress disorder. Although there are some risk factors that increase the probability of developing PTSD or depression, it is impossible to predict whether or not a given individual will develop one or more of these disorders. In addition, there is no clear evidence that any particular intervention in the immediate aftermath of a disaster will prevent their development.

Thus, if an emergency room is flooded immediately after a disaster with individuals that are seeking help for a variety of psychological and somatic symptoms, the treatments of choice after careful assessment are:

1. Treat any bodily injury.
2. Be sure the individual has a safe place to go, and where possible, in the company of somebody they know that did not experience the disaster.
3. Education about the types of symptoms they are experiencing or may experience in the future with clear explanation that these are perfectly normal reactions to an abnormal experience.
4. Provision of a name and telephone number that the individual can contact if they feel the need for further help.
5. Referral to a Behavioral Health Professional if there is any doubt about the kind or severity of the reactions.

If at all possible, the ED should maintain a list of the individuals seen and where they can be contacted so that behavioral health caregivers can make follow up phone calls in the weeks to months after the disaster to be sure that the individual is okay.

Four to six months after a disaster it is not uncommon for there to be an increase in the number of individuals seeking help, usually from their primary caregiver. But occasionally, these individuals present to an ED. Careful assessment for depression, PTSD, bereavement, and increased substance abuse and alcohol is critical. In many cases, referral to a behavioral health caregiver is warranted.

A STATE BEHAVIORAL HEALTH SYSTEM'S RESPONSE TO 9-11 (22)

To this point, this paper has summarized individual responses to a disaster and their treatment. However, whether or not those affected by a disaster who need help are identified and provided appropriate care depends, for the most part, on an efficient rapid and coordinated response plan and infrastructure that must have been put in place and tested prior to the disaster. Such planning and practice is common for the rescue and physical care of disaster victims but, as 9-11 proved, is rare or non-existent when it comes to identifying and treating the psychological effects of a disaster.

Recognizing this need, the State of Connecticut's Department of Mental Health and Addiction Services, Department of Children and Families, the University of Connecticut Health Center, and the Departments of Adult and Child Psychiatry of Yale University School of Medicine devised and began implementing a behavioral health disaster plan over approximately a two year period, post 9-11.

Briefly, a Center for Trauma Response, Recovery, and Preparedness (CTRP) established by disaster experts from the two universities in conjunction with representatives from the two State departments worked to design and implement the plan. Our task was aided by the fact that Connecticut is a relatively small state with only two major universities and that both University Health Centers have a close working relationship with the Department of Mental Health and

Addiction Services and Department of Children and Families. Thus, the parties involved already knew each other and had worked together on previous projects. In addition, the State had already been divided up into regions for the provision of mental health and substance abuse care. Training materials were put together by the CTRP and members of the CTRP taught in the day long training workshops. Behavioral health resources were accumulated and disseminated via www.ctrp.org and www.clearinghouse.org. In the end, more than 800 professionals were trained to serve as volunteers on local behavioral health crisis response teams. Over 150 prevention providers and natural helpers were trained as resources for community preparedness and over 50 behavioral health consumer advocates were trained to help communities support people in recovery. Local volunteers received ongoing technical assistance to build teams and to prepare them for disaster responses. Plans were then made for mobilization and activation of these teams in the event of a major disaster and a mock disaster drill was carried out.

One of the biggest challenges was linking our Behavioral Health Disaster Plan to the Office of Emergency Management in the Department of Public Health Disaster/Crisis Response System. Behavioral health has not been on the radar screen of those responsible for emergency preparedness. However, the psychological aftermath of 9-11 is undeniable. In the end, the state-wide local emergency response systems consisting of municipal officials, public health, fire, police, emergency management, EMS, health care institutions, schools and social service agencies will be linked to state-wide regional and local behavioral health systems which consist of behavioral health agencies, professionals and natural helpers. Within the crisis response behavioral health network, lines of communication and chains of command were identified and efforts made to integrate the behavioral health plan with the state emergency response systems at both the state and local levels. At the top state level this has been accomplished but since each town and region has its own emergency plan and there are many of them, much remains to be done.

In the time of a disaster, the Governor, through the State Office of Emergency Management, sets up a command center in the state capitol with representatives from DMHAS and DCF. DMHAS and DCF then activate a Behavioral Health Command Center. The Center for Trauma Response, Recovery and Preparedness is also activated with direct communication to each of the regions within the State. Each region has two regional behavioral health coordinators (one for adults and one for children) who are already working in a state agency in that region and are in charge of a regional response team. In addition, there are numerous local response teams. The local teams are comprised of specially trained state staff, private, non-profit and private volunteers who work closely with municipal leaders, public health department directors, EMS, clergy, school officials and employers. The regional crisis response teams serve as back up to the local efforts and are only sent out if local resources are overwhelmed. An agreement is being drawn up with the Red Cross so that it and the behavioral health network can work together at the time of a crisis rather than potentially getting into each other's way. Some of the members of the teams have been trained by the Red Cross as well as by CTRP.

Although still a work in progress, the state-wide behavioral health preparedness plan has been written, an operational manual constructed, professionals and natural providers trained, a structure put in place to enable implementation of the plan and a mock disaster drill performed and analyzed. Unfortunately, only another disaster will tell us how effective the plan really is.

Acknowledgements

The author thanks the Department of Mental Health & Addiction Services, Department of Children & Families and all the members of our CTRP for their generosity in permitting me to use educational materials developed by them. A special thanks goes to Steven Berkowitz, M.D. and Steven Marans, Ph.D. for providing materials and advice on children's responses to traumatic events.

Key Learning Points

1. There are a number of factors that increase the mental stress on people experiencing a disaster. They include; being a direct victim as opposed to a witness (e.g. seeing it live on television), having a daily routine disrupted (eg. Loss of shelter), whether the disaster is natural or manmade, socio-economic status, support systems (family and friends), and developmental level.
2. Children often respond to disasters as their parents respond. They can have concerns about safety and then express feelings of anger and revenge. Children frequently can develop reactions in other areas of daily living such as nightmares and difficulty with play. Remember a quiet child may still be having a stress reaction.
3. Abnormal reactions to stress fall into two main categories, acute reactions, such as Acute Stress Disorder, which is generally seen in the first month after a disaster, and delayed reactions, such as PTSD, which can occur up to 6 months after the disaster. Three main things need to be accomplished in the ED when caring for these patients. 1) Provide information about normal behavioral responses to a disaster. Most people want to know they are not abnormal. 2) Provide for the patient's basic needs. Some patients will have no access to money, food or shelter. 3) Triage the severe patients to mental health professionals.
4. A state behavioral health system response needs to be a coordinated effort from the governor's office, including the department of mental health and department of children and family services. These offices must ally themselves with the universities within the state that can provide both needed manpower and expertise in mental health disaster response. Lastly, all efforts need to be incorporated in to the statewide EMS disaster response.

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Annotated Bibliography

www.ncptsd.org (set up by the National Center for Post Traumatic Stress Disorder)

This web site provides up to date information on all aspects of the psychological responses to a disaster including: stages of response, symptoms, methods for assessment, treatments and latest research evaluating available therapeutic interventions. There is a separate section entitled “Information for Professionals.”

www.psych.org

The American Psychiatric Association web site provides a compendium of articles on Disaster Psychiatry taken from *Psychiatric Quarterly*, Vol. 71, No. 3, Fall 2000. Includes articles on “Debriefing Following Trauma”, “Biological Responses to Disasters” and “Disaster Psychiatry: Principles and Practices.” There is also a link to the American Academy of Child and Adolescent Psychiatry, Facts for Families.

www.nccev.org

This National Center for Children Exposed to Violence web site provides comprehensive information regarding the reactions of children at each stage of development to disasters and offers guidance for parents and professionals on what to expect, how to cope, and what to look for when evaluating a child’s reaction to extreme stress. Examples of topics covered are: “In the Aftermath of Crisis: Parents Guide to Talking with Children about Death”, “In the Aftermath of Crisis: Parent’s Guide for Talking to their Children” and “In the Aftermath: Children and Primary Care Services.”

www.nswiop.nsw.edu.au

This is a Disaster Mental Health Reference Handbook produced by the Centre for Mental Health and the NSW Institute of Psychiatry, New South Wales. It is a comprehensive compendium of psychological responses to disasters which includes: Classification of Disasters, Phases of Disasters, Reaction to Disaster. In addition, it describes a well thought out Behavioral Health Disaster Plan.

Questions

1. The type of responses one sees in children after a disaster depends upon:
 - A) Their weight
 - B) Their level of development
 - C) Their type of housing prior to the disaster
 - D) Their socio-economic status

2. Children under 4 years rarely can recall traumatic events because:
 - A) They lack the ability to understand what has happened
 - B) Their attention span is too short
 - C) Their hippocampus is not fully functional
 - D) Their substantia nigra is over active

3. In most people, acute reactions to traumatic events:
 - A) Become chronic
 - B) Are extremely severe
 - C) Resolve over time
 - D) Need urgent referral to a behavioral health care professional

4. Acute treatments for the psychological symptoms of disaster victims:
 - A) Include ECT
 - B) Have been proven to be effective in preventing chronic behavioral sequelae
 - C) Include psychotherapy
 - D) Have no proven efficacy

5. PTSD is a:
 - A) Disorder manifested by disaster victims and First Responders within the first month post event
 - B) Disorder of the liver seen in disaster victims who have inhaled toxic fumes
 - C) Disorder frequently seen in children
 - D) Disorder that lasts more than one month and can develop as late as six months after experiencing a traumatic event

Answers to Questions

1. B) Children at different levels of development react differently to the stress of a disaster. Their reaction depends on both their cognitive and social development.
2. C) The hippocampus is the primary memory center of the brain. It is not fully developed until age 4 to 5. Children under this age will therefore have minimal or no direct recollection of the events of a disaster.
3. C) Fortunately, the vast majority of people with acute reactions to traumatic events have a resolution of their symptoms over time.
4. D) Acute treatments for the psychological symptoms of disasters, such as CISM, have not been proven to be of benefit. Individual referral to mental health professionals is the best disposition.
5. D) PTSD consists of recurrent unwanted memories while awake or asleep, or biological and psychological distress when exposed to reminders of the traumatic event. The symptoms exist for more than a month and can occur up to 6 months after the event.