Preparedness & Response
Mental Health Emergencies and Post-Traumatic Stress Disorder

Adapted from a chapter in Emergency Public Health

INTRODUCTION

From a public health perspective, complex emergencies and large-scale disasters produce enormous and multi-faceted mental health morbidity.[1] Individuals will encounter symptoms of emotional distress that are primarily non-pathologic (in contrast to psychiatric illness) but, at the same time, worthy of emergency attention. However, much of the suffering that is deemed "mental" is missed, overlooked, or deferred indefinitely due to a focus on physical injuries (dialogue at Global Mental Health Discussion Group, World Bank, Nov 2009).

Within psychiatry, the DSM-IV-TR defines a traumatic event as one in which a person is confronted with a significant threat and the person's response to that threat involves "intense fear, helplessness or horror."[2(p251)] A broader, more working, definition of "trauma" is a stressor that overwhelms an individual's capacity to respond and cope adaptively. In Western societies, although wide consensus exists about post-traumatic stress (PTSD) disorder being the most identifiable post-traumatic sequela, the health professional evaluating traumatized populations should have a differential diagnosis breadth that includes the following mental health morbidities: generalized anxiety disorder, panic disorder, major depression, complicated grief, acute stress disorder (thought to have predictive power of long-term morbidity),[3,4,5,6,7,8,9,10,11,12] substance abuse,[13] somatoform disorders,[14] poor physical health,[15] multiple idiopathic physical symptoms (or "MUS," medically unexplained symptoms),[16,17] arrest or regression of childhood developmental progression,[18,19] behavioral changes, work and relationship disturbances, including family conflict.[20,21] This chapter provides a "best practices" framework for selecting and applying mental health interventions for public health emergencies. It outlines the preparedness, intervention, and mitigation strategies for proactive and systematic emergency mental health response.

-- Case Study removed for adaptation --

FRAMEWORK

In order to promote effective recovery from mental trauma and to mitigate harm, a framework that helps determine best practices, flags harmful practices and streamlines inter-agency activities should be in place "pre-event".[1] During a public health emergency, important differences and specific needs can be easily missed in favor of "just getting through it" minimalism. The problem with minimalism is that interventions are arbitrarily chosen, opportunities are lost, and outcomes suffer.[1] The solution is to systematize the mental health approach and engage in "best practices." Figure 1 depicts a simple framework by which public health officials and healthcare workers can meet a best practices standard for mental health interventions.
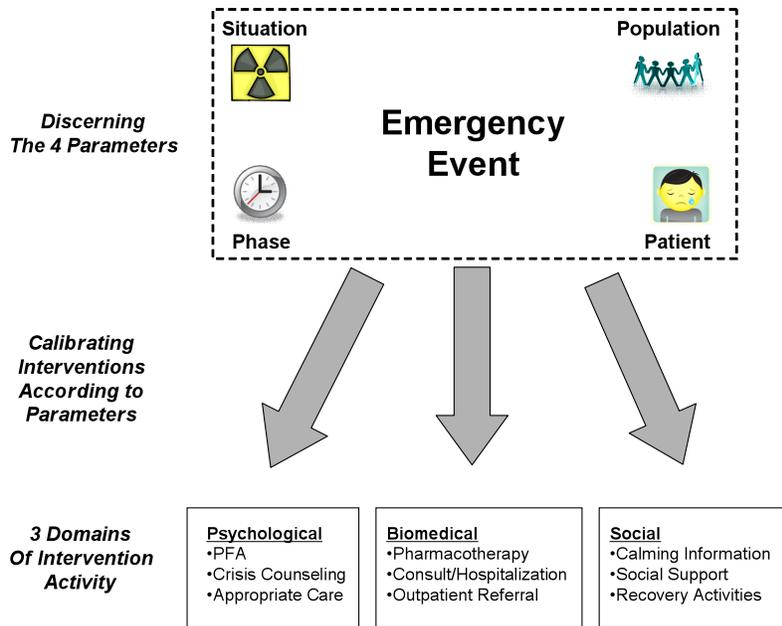
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Figure 1: Framework for Emergency Mental Health Interventions
Source: The Author

Situation, **P**hase, **P**opulation and **P**atient ("*SPPP*") are the four fundamental parameters for calibrating mental health interventions in public health emergencies. In order to be effective, emergency responders must have a familiarity with how to discern the SPPP parameters and implement interventions accordingly. Each parameter can be better understood by asking a specific question about the major issue at hand.

Situation-specific: *What is it about this event that overwhelms the capacity to respond and cope adaptively?*

Large-scale public health emergencies are characterized by situational factors[22] that make for a highly emotional and stressful environment: the injurious event itself, confused reactions to limited information, maladaptive coping mechanisms (e.g. rumors, aggression), and evacuation trauma. For example, psychological stresses specific to a radiological disaster[23] are complex: invisible, odorless, and un-felt nature of radiation; its unfamiliarity; fear of sterility/impotence; fear of malformed offspring; fear of malignancy; and possible social stigma associated with a perceived or real exposure.

Phase-sensitive: *What concerns, symptoms and syndromes are paramount at this point in time after the event (or as the event unfolds)?*

The time elapsed since the traumatic event configures the extent to which signs and symptoms are "expected and normal" as opposed to

signs and symptoms that are pathological and deserve special attention. The demarcations of *impact*, *acute*, and *post-acute* are frequently used phases; however, their exact onset/resolution are subject to systemic factors and clinical judgment.

- Impact: Time from the initiation of the traumatic event up to the first 24-48 hours after the termination of the event. Phase during which a community's fight, flight and freeze responses are at their peak. Confusion, insomnia, intense emotions, heroism, disorganized behavior, and shock are to be expected. Other than psychosis and harm to self or others, most reactions are normal responses to trauma; however, if the reactions cause a person to become emotionally inflexible and non-functional, then professional attention is warranted.
- Acute: Extending for two months after the event, the acute phase consists of processing, or "taking stock of," the trauma. Communities and families attempt to understand their losses while the brains of individuals are transitioning from fear responses to goal-directed thinking. Rapid shifts in mood and arousal are pervasive.
- Post-acute: After two months and beyond, the community establishes a "new normal" in which a routine has been established and stress levels are close to their pre-event levels. Psychiatric syndromes (anxiety disorders, PTSD, depression) in response to the event will be more discernable during this time.

This chapter focuses on the impact and early acute phases (together called "early intervention" in some of the literature) when emergency response is most active.

Population-based: What is known about the people needing assistance? What barriers are present to reaching those who may not present themselves for assistance?

The interventions and protocols used in public health emergencies should be faithful to the affected population. Demographics and risk factors are important to understand. Social and political history also may play into how the population reacts. Thus, a well-honed understanding of the situation-specific parameters and expertise in lowering the barriers to mental health assistance for subgroups that are marginalized or self-isolating will improve the efforts of public health professionals.

Patient-centered: What interventions would assist this particular individual to cope adaptively and reduce morbidity?

To be patient-centered means to choose interventions that are effective based on an individual's past history, pre-event emotional stresses, and cognitive style. Assessment is focused not simply on PTSD but also on the range of post-traumatic morbidity relevant to an individual.[24] Those patients with pre-event histories of mental illness should be assessed for exacerbations of psychosis/mania, impulses to self-harm, or the interruption of medications.[25,26]

Interventions should be chosen to promote health and healing in a way that emotionally and cognitively engages the individual in the process. During a public health emergency surge, this may be the most difficult

parameter to follow. However, even after the post-acute phase, emergency department personnel, primary care systems, and public health professionals should assess for exposure and coping skills in a trauma-exposed population because studies show that survivors will seek help in large numbers for medical problems, such as cardiovascular disease, and these medical visits are an opportunity for mental health screenings also.[27,28,29]

Preparedness and Planning

Regarding the systems in play during a public health emergency, the emergency medicine literature increasingly recommends that Emergency Medical Services (EMS) Systems coordinate with government and other agencies through the hazard management concept *Incident Command System* (ICS).[30,31,32]

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Table 1. Linkages with mental health services and resources

1. Psychiatric, psychological and social work services within one's own institution ("in-house")[33,34]

2. Relief Agencies (international, governmental, non-governmental; e.g. Federal/Central Government, United Nations, UNHCR, CDC, SAMSHA, Health and Human Services, State and County Departments of Social Services, Regional Behavioral Health Authorities, Red Crescent/Red Cross, World Vision, Save the Children, regional associations of psychologists/psychiatrists/social workers)[35,36,37]

3. Neighboring academic medical centers

4. Community-based mental health practitioners and agencies that connect patients (e.g. Mental Health Association hotline 1-800-LIFE-NET)

5. Faith-Based Institutions and Spiritual Care Practitioners

6. Schools and other means of contact with youth[38]

Interventions

Emergency interventions to safeguard a population's mental health involves activities from three interlocking domains: psychological, biomedical, and social.[39,40,41] When calibrated by the *SPPP* parameters, the following intervention activities serve a broad range of needs.

Psychological Interventions

1) Providing Psychological First Aid (PFA)

In the United States and other countries, PFA is gaining acceptance as the set of early interventions with the best evidence base and least potential for harm. While the terminology of PFA may differ slightly from manual to manual, interventions should include the following:

- Provide human presence for those who are highly distressed
- Enhance ongoing safety and comfort; shielding survivors from further harm or unnecessary triggers/reminders
- Reduce physiologic arousal and teach calming techniques
- Impart information to minimize uncertainty
- Facilitate reunion with loved ones and utilize social support systems

PFA has been described in several excellent publications, including the National Institutes for Health (NIH) publication *Mental Health and Mass Violence: Evidence-Based Early Psychological Intervention for Victims/Survivors of Mass Violence*[42] and the National Child Traumatic Stress Network and National Center for PTSD publication *Psychological First Aid: Field Operations Guide* (which includes handouts for providers and survivors). PFA also supports the religious/spiritual views of survivors. If a survivor clearly finds strength using religious or spiritual terminology and the assigned member of the healthcare team is not comfortable with such usage, then transfer the survivor to another member for appropriate care.

2) Arranging Crisis Counseling

Naturally, some proportion of survivors will actively seek out human interactions for the release of their traumatic experience and memories. These interactions then take on elements of crisis counseling, which is an intervention that cannot be provided on a large scale in the impact phase because the supply of trained professionals will be limited. If feasible, referral to outpatient counseling is most practical.

Debate exists over what constitutes "debriefing" and its benefits. Studies and meta-analyses suggest that single sessions of psychological debriefing (in which subjects are asked to recount or discuss their traumatic experience soon after the event) have little or no benefit in preventing PTSD and may induce worse outcomes in the general population.[43,44,45,46,47,48] "Debriefing" can also be taken to mean Critical Incident Stress De-briefing (CISD), which is one component of a larger program called Critical Incident Stress Management (CISM).[49,50,51] Research shows that CISM is effective for emergency service workers (e.g. fire departments, police departments, humanitarian workers) who, in preparing to be in harm's way, are oriented to CISM as part of their

job training and team culture.[52,53,54] Thus, when traumatic experiences occur, these CISM-trained emergency workers anticipate CISD to follow. Single sessions of debriefing are against CISM protocol.

If crisis counseling is indicated (because a patient feels pressure to speak about his/her experiences and it cannot be deferred to after the impact phase), careful attention should be paid to whether the recounting of trauma is associated with problematic physiologic arousal or dissociation. When problematic reactions occur, a reversion to PFA interventions is important to prevent further harm. If signs of decompensation occur, then psychiatric evaluation is likely indicated and, possibly, hospitalization.

3) Providing Appropriate Care to Vulnerable Populations
A vulnerable population is a group of people who are prone to being overlooked or underserved. Several studies show poorer mental health outcomes in vulnerable subpopulations such as those of lower socio-economic status (SES),[55,56] younger children,[19,57] and minorities.[58] Other vulnerable groups, for whom there are not sufficient outcomes data, include the elderly, disabled persons, and immigrants. Generally speaking, vulnerable groups are less able to cope with unfolding emergencies for a variety of reasons. These groups may manifest significant variations in traumatic effects and help-seeking behavior. They are often disenfranchised and marginalized, and, therefore, they have limited access to mainstream resources for assistance.

Although it is important not to over-generalize, awareness of specific factors characterizing different groups allows public health professionals to conduct outreach to groups that might otherwise not enroll for assistance. Once enrolled, assessment and interventions must be appropriately adapted to address the life circumstances of vulnerable members. For example, assisting children involves an evaluation of families as a system, in which a child's reactions are significantly shaped by parental reactions. Modifying parental responses (for example via psycho-education) may significantly diminish post-traumatic morbidity and support natural resilience of children. Additionally, interventions are most effective when developmentally appropriate for the reactions of infants, pre-school children,[59,60] school-aged children, and adolescents.

Biomedical Interventions
1) Pharmacologic Agents
Medical professionals should strive for clarity and consistency regarding the intention behind prescribing medications for emergency mental health concerns. Arbitrary practices and biases in emergency medical care can lead to either overtreatment or under-treatment.[36,61] In the emerging field of neuro-ethics, there is concern that overtreatment might preempt an individual's opportunity to form memories of the event and/or impede what is known as post-traumatic growth.[62,63,64] On balance, in the impact and early acute phase, the acceptable indications for medications are (1) to alleviate overwhelming distress by reducing symptom burden and (2) to improve functioning.

According to a training by Disaster Psychiatry Outreach (Early Therapeutic Interventions Post-Disaster: Psychopharmacology lecture, March 2008, National Voluntary Organizations Active in Disaster), "Despite the limited evidence base for acute pharmacotherapy, the judicious use of short term medications appears to be humane and

helpful." In the spirit of promoting rational and humanitarian practices for emergency medical care by non-psychiatrists, this section advocates a basic and conservative framework for pharmacological interventions. For example, concern over insomnia may warrant pharmacotherapy. Hyperarousal may include severe insomnia for two nights or more, and the ensuing exhaustion and cognitive impairment can significantly hinder an individual's ability to take positive steps towards self-care and recovery. In another example, signs of moderate agitation in a parent may warrant pharmacotherapy; without treatment, the parent's apprehension and disorganization has the capacity to create a ripple effect, thus impairing a whole family unit.

Best practices for addressing such agitation and hyperarousal symptoms include a short-term regimen (2-5 days) chosen in a patient-centered manner: a review of the patient's current medications, medical and psychiatric history, allergies, and social support resources. If the agitation presents with significant signs of autonomic hyperarousal, as single dose of propranolol might be beneficial to reduce the hyper-adrenergic state in the short-term. For acute agitation, a single dose of a fast-acting anxiolytic (e.g. lorazepam, diazepam, alprazolam) may be appropriate. For residual agitation, a slow and long acting agent such as clonazepam for 2-5 days may be beneficial.

For insomnia, hypnotics such as zolpidem and zaleplon are frequently used. A more conservative choice for insomnia, often used with children, is diphenhydramine.

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There is a combination of strong and weak data supporting the use of antidepressant medications (primarily SSRIs) to prevent depression and anxiety disorders (including, but not limited, to PTSD) in the mid- and long-term.[65] Since these medications can increase feelings of agitation in the initial days of usage, they are best considered for use by psychiatrists, who may opt for a benzodiazepine along with the antidepressant. Several other agents have been under investigation;[66,67] however, there is not enough evidence that the benefits outweigh the possible adverse effects.

2) Emergent Mental Health Evaluation and Emergency Hospitalization
The following problems warrant emergent evaluation and a consult by a mental health professional: hallucinations, other psychotic thinking/behavior, severe agitation (unrelenting distress), persistent state of shock (catatonic or frozen), inability to care for self or children, self-destructive impulses or homicidal thinking. One barrier that should be addressed "pre-event" is that some in the medical center will perceive admitting patients with dangerous mental health concerns as a resource-drain during a mass emergency. This is where an appropriate standard of care during surges is indispensable. Explicit guidelines about the indications for consultation and/or emergency hospitalization will result in greater efficiency in handling difficult issues without adding to problems due to strained resources.

3) Outpatient Follow-Up
Arranging follow-up, in contrast to advising a patient to "return if there is a problem," can mitigate distress.[17] Pre-event linkages with mental health services and resources (whether in-house, community-based, or academic medical centers) greatly facilitate patient referral. After initial emergent mental health triage and care, a follow-up outpatient appointment (as well as standard mechanisms to assure that follow-up) is indicated in the following cases:

- Patients who warranted evaluation by the mental health team
- Patients who demonstrated intense distress, numerous risk factors, symptoms that might impact daily functioning or symptoms that might impair executive thinking
- Patients who received anti-psychotics in the emergency department or have a previously untreated psychiatric disorder
- Patients with severe mental illness who have no longitudinal care or at risk for medication interruptions

Social Interventions
1) Providing Calming Information
Information in emergency public health situations can be managed and delivered in multiple, beneficial ways. Accurate and up-to-date information about the unfolding emergency event and relief activities helps to contain anxiety and fear that stem from the unknown. Effective risk communication[17,68] allows people to comprehend appropriately what harm they have sustained, undertake strategies that safeguard them and their loved ones from further harm, and seek medical necessary countermeasures when indicated.[69]

Practical information can promote adaptive functioning, and the public can be educated about typical trauma reactions (palpitations, flashbacks), the difference between normal and pathological reactions, healthy coping techniques (human contact, focusing on breathing), and common maladaptive coping responses (withdrawal, alcohol use). Frequently, those in crisis experience psychological regression, temporarily losing skills and know-how that would otherwise be automatic. Reminding people to breathe calmly, avoid making major decisions, and seek help can all be done with relative ease through available print and multimedia education. These interventions require surprisingly little effort on the part of public health professionals compared to their positive and high-yield impact. In their communications with media and public officials, emergency personnel can impart information, give hope, and make positive recommendations. Studies show that the manner in which a tragic story is managed can exacerbate or soothe a population's psychological wounding.[70,71] A designated media liaison should be delegated the responsibility of preparing such communications.

2) Utilizing Social Support Systems
As a key feature of PFA, social support deserves special mention. Emergency responders should facilitate communication that brings families and other primary support persons together for either brief or ongoing contact. Fostering social support includes asking isolated individuals how they might effectively seek support or services once they leave emergency care. Religious or spiritual support systems can

also prove calming and organizing for persons who suffer from loss, uncertainty apprehension, and/or grief.

3) Involving Survivors in Recovery Activities
Anecdotes from different cultures suggest that survivors feel better when they can participate in constructive, recovery-related activities.[81] Trauma research suggests that the ability to execute purposeful action counteracts the frozen and helpless neurobiological states of trauma.[72] Thus, if a survivor actively seeks to volunteer, emergency staff can point trauma survivors to organizations that are able to enroll volunteers at a level in keeping with their skills. While some harm-reduction counseling may be applicable due to physical and emotional risks for volunteers in recovery activities, as a principle, trauma-affected persons should not be barred from taking positive action to assist their community during any phase.

Mitigation

Many components of preparedness simultaneously serve to mitigate emergency-related mental health consequences. Systems of coordination should be clearly delineated so that agencies and institutions do not clash but rather synergize with each other. Often, in the midst of a crisis, providing PFA or other mental health interventions are lost as priorities. Anticipating this problem of de-prioritization and given the evidence on post-traumatic morbidity, mitigation involves mental health advocacy and some degree of automation that ensures interventions are not overlooked.

Resilience is an important capacity to recognize and reinforce in both individuals and communities. Most people exposed to trauma do not develop PTSD or other syndromes. Communities tend to display heroic recovery efforts and the capacity for hope. Recognizing that recovery and growth are the most common outcomes can help to organize future interventions along a model of health, rather than disease, while leaving room to identify individuals who require professional care.

A *risk factor* is a characteristic that increases the probability of post-traumatic morbidity in persons compared to those who do not have that risk factor. At the intersection of emergency healthcare services and public health, mitigation involves outreach to those in the community with risk factors. Mitigation efforts can involve secondary and tertiary prevention campaigns directed at those with the following risk factors: female gender, middle age (40-60), living in a highly disrupted or traumatized community, prior psychiatric history, prior exposure to trauma or disaster, lack of social supports, ethnic minority status, and having children present in the home. Prevention campaigns may involve education about the extreme stress of emergencies and awareness-raising on seeking assistance from one's own support system plus obtaining expert care. For clarification, vulnerable subpopulations (discussed in Interventions) and those with risk factors are not necessarily the same groups. For example, being middle aged (40-60) is an individual risk factor for post-traumatic morbidity during disasters while people greater than age 60 ("older age") constitute a vulnerable population (i.e. prone to being overlooked or underserved). Low SES is both a vulnerability and a risk factor.[73] Finally, certain risk factors cannot be identified pre-event; however, a good mitigation plan involves setting aside resources for the following groups: those with the highest

exposure (dose) to the unfolding emergency and those experiencing forced evacuation, quarantine or separation from loved ones.

Another component of mitigation that overlaps with preparedness and planning is cultural adaptation. Cultural adaptation refers to educational efforts and practices by which providers become ethno-medically competent[74] and services become appropriately geared to different cultural groups. Ideally, mental health interventions should not be one-size-fits-all, taken "off the shelf" from one setting and applied to another.[65,75,76,77] A culturally adapted intervention responds to a specific population's patterns of psychological distress and help-seeking behavior.[78,79] Similar to ethnic minority populations, low SES members in the ethnic majority may tend to avoid mainstream mental health care, and they disproportionately rely on primary care services to address their psychological distress. Adaptation can be valuable in any setting and with any population in which the trauma or emergency response is viewed differently.

There is a major opportunity for mitigation and prevention for first responders (paramedics, police, rescue workers), humanitarian aid workers, medical staff and mental health providers. PTSD and other psychological morbidity prevalence rates for this population are high, particularly when the cause is human-made or a technological disaster.[80,81] Forty-four percent of the police officers involved in the 1989 Hillsborough football stadium disaster in the UK, assessed 1–2 years after exposure, were classified with severe symptoms, and 44% were classified with moderate symptoms.[82] Five months after religious and mob violence affected India in 2002, 100% of humanitarian aid workers attributed the onset of at least one new post-trauma symptom (with moderate or severe severity) to their work.[83] After the 9/11 terrorist attacks, 22% and 20% of disaster workers were found to suffer from PTSD at 2 weeks and 10–15 months, respectively.[84]

Perceived physical safety in disaster workers, including emergency staff, has a direct relationship to worker morale and productivity.[38,85] Respectively, the ongoing psycho-emotional stresses of the work calls for pre-event training[86] and during-event support to mitigate vicarious traumatization,[74,87] also known as secondary traumatic stress. Mental health professionals may be specifically assigned to assist ED staff with their own emotional needs ("caring for the caretaker"). By providing such training and support services, emergency response agencies may not only prevent morbidity in first responders themselves but also enable those responders to provide better PFA to survivors.

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Conclusion

The intersections among public health, mental health, and emergency healthcare represent opportunities to prepare, intervene, and prevent morbidity in the case of traumatic events. Much room still exists for further development in this area, as awareness increases regarding mental health traumatic events. Communities can suffer greatly if large proportions of people remain overwhelmed, terrorized and frozen after

trauma, leading to increased suffering, reduced productivity and diminished quality-of-life.

The *SPPP* parameters are presented as a model to calibrate interventions in emergencies. Institutional preparedness and linkages provide a foundation from which evidence-based responses can be launched and mitigation efforts can be sustained. The tsunami case study illustrates how using the SPPP lens can help bring clarity to a complex situation and assist the emergency public health provider in service delivery during emergency response, a time when confusion and errors are more likely. Protecting and improving the mental health of people affected by an emergency is of paramount importance. In the case of terrorism, experts agree that psychological and social sequelae are likely to be the most enduring, widespread, and socially and fiscally costly of all health effects.

As emphasized by the Inter-Agency Standing Committee ("IASC," established by UN resolutions 46/182 and 48/57 as the primary mechanism for inter-agency coordination of humanitarian assistance), responding to a population's diverse mental health needs requires coordinated action among several governmental and non-governmental entities. Bringing together all stakeholders – government, health care, voluntary agencies and communities – with the concepts in this chapter can serve to yield competent and comprehensive emergency management.

On-line Resources

http://www.ptsd.va.gov: The National Center for PTSD maintains information pages and multiple resources including PILOTS (Published International Literature on Traumatic Stress), the largest database of publications on PTSD.

http://ncptsd.kattare.com/ncmain/ncdocs/manuals/nc_manual_psyfirst aid.html: National Center for PTSD site with Psychological First Aid Manuals, Provider Worksheets

http://mentalhealth.samhsa.gov/dtac/default.asp: Substance Abuse and Mental Health Services Administration's Disaster Technical Assistance Center (DTAC).

http://www.istss.org/what/index.cfm: International Society for Traumatic Stress Studies, a multidisciplinary, professional membership organization that promotes advancement and exchange of knowledge about severe stress and trauma.

http://www.bt.cdc.gov/mentalhealth: Centers for Disease Control and Prevention (CDC) page for Trauma and Disaster Mental Health Resources

http://www.sphereproject.org/index.php: SPHERE is an international effort for Humanitarian Charter and Minimum Standards in Disaster Response

http://www.disasterpsych.org: Disaster Psychiatry Outreach is a non-profit with direct service components as well as providing education/training.

http://www.hhs.gov/disasters/index.shtml#post: U.S. Department of Health & Human Services site for Disaster Preparedness and Medical Surge

http://www.nimh.nih.gov/health/publications/massviolence.pdf: National Institute of Mental Health (NIMH) document *Mental health and mass violence: evidence-based early intervention for victims/survivors of mass violence*

www.nctsn.org: National Child Traumatic Stress Network (NCTSN) has a searchable learning center that includes child and family-focused fact-sheets and guidelines, a child and adolescent-focused version of PFA, and a range of trauma-focused training videos/webinars.

http://www.who.int/mental_health/media/en/640.pdf: World Health Organization (WHO) document "Mental Health in Emergencies"

http://www.humanitarianinfo.org/iasc: Inter-Agency Standing Committee (IASC), the primary mechanism for coordination of humanitarian assistance between UN and non-UN agencies. Published *IASC Guidelines on Mental Health and Psychosocial Support in Emergency Settings.*

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