

Disaster-Related Physical and Mental Health: A Role for the Family Physician

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Natural disasters, technologic disasters, and mass violence impact millions of persons each year. The use of primary health care services typically increases for 12 or more months following major disasters. A conceptual framework for assisting disaster victims involves understanding the individual and environmental risk factors that influence post-disaster physical and mental health. Victims of disaster will typically present to family physicians with acute physical health problems such as gastroenteritis or viral syndromes. Chronic problems often require medications and ongoing primary care. Some victims may be at risk of acute or chronic mental health problems such as post-traumatic stress disorder, depression, or alcohol abuse. Risk factors for post-disaster mental health problems include previous mental health problems and high levels of exposure to disaster-related stresses (e.g., fear of death or serious injury, exposure to serious injury or death, separation from family, prolonged displacement). An action plan should involve adequate preparation for a disaster. Family physicians should educate themselves about disaster-related physical and mental health threats; cooperate with local and national organizations; and make sure clinics and offices are adequately supplied with medications and suture and casting material as appropriate. Physicians also should plan for the care and safety of their own families. (*Am Fam Physician* 2007;75:841-6. Copyright © 2007 American Academy of Family Physicians.)



ILLUSTRATION BY MARK SCHULER

For a recent commentary on this topic, please see Swain GR, Burns K. Emergency response: physician training and obligations. *Am Fam Physician* 2007;75:401-5 (<http://www.aafp.org/aafp/20070201/curbside.html>).

The American Red Cross defines a disaster as involving 100 or more persons, 10 or more deaths, or an appeal for assistance.¹ Qualifying events include natural disasters (e.g., hurricanes, earthquakes, floods, tornadoes), technologic disasters (e.g., nuclear or industrial accidents), and mass violence (e.g., terrorist attacks, shooting sprees). The annual worldwide impact of disasters is substantial, with an average of more than 500 incidents impacting 80 million persons, displacing 5 million from their homes, seriously injuring 74,000, and killing 50,000.² Although most large-scale disasters occur in developing countries, events such as Hurricane Katrina in 2005 and the September 11 terrorist attacks in 2001 are reminders that the United States is not immune to large-scale disasters.³

Years of research and applied practice have produced a consensus about the vulnerability of the U.S. population to disasters. Accepted facts include: (1) disasters are

common events that affect millions of persons annually; (2) with more persons living in disaster-prone areas and increased technologic complexity, it is expected that the risk and impact of disasters will increase in future years; and (3) disasters are associated with a variety of adverse physical and mental health effects that can range from mild and transient to severe and chronic.⁴

Family physicians are well suited to address the physical and mental health needs of disaster victims. Disaster exposure increases primary health care use for 12 months or more after the event.⁵ More importantly, the acute and chronic physical and mental health issues that most commonly occur after a disaster are within the scope of practice for family physicians and other board-certified primary care physicians.^{3,4,6-8}

Risk Factor Model

Table 1 presents a risk factor model for post-disaster adjustment.⁴ Research supporting

SORT: KEY RECOMMENDATIONS FOR PRACTICE

<i>Clinical recommendation</i>	<i>Evidence rating</i>	<i>References</i>
Disaster victims with high levels of disaster exposure should be monitored for the possible emergence of post-traumatic stress disorder, depression, or alcohol abuse.	C	4, 13, 15
Mental health screening measures should be used to efficiently and accurately identify adults who may be experiencing mental health problems following a disaster.	C	27-32

A = consistent, good-quality patient-oriented evidence; B = inconsistent or limited-quality patient-oriented evidence; C = consensus, disease-oriented evidence, usual practice, expert opinion, or case series. For information about the SORT evidence rating system, see page 789 or <http://www.aafp.org/afpsort.xml>.

this model is briefly summarized to orient family physicians to these risk factors. When clinically evaluating persons after a disaster, family physicians should consider these individual and environmental risk factors to assess potential impact on patients' physical and mental health.

A person's response to a disaster is determined by demographic and socioeconomic factors, as well as the person's pre-disaster mental health and the extent of his or her social support before, during, and after the event. Regarding demographic factors, children typically display emotional distress when family conflict occurs; middle-age adults experience psychological and physical problems when a disaster makes it impossible to meet responsibilities^{4,6-8}; and older adults most often display post-disaster physical and mental health problems when limits on income, health, or social support before the

disaster result in an inability to cope effectively after the disaster. In general, ethnic minority status and lower income have been associated with poorer post-disaster physical and mental well-being.⁹ Although being married appears to help men, a married woman may experience poorer post-disaster adjustment if her marital status results in her giving out more social support than she receives.⁴⁻⁷ Pre-disaster life events also may have an impact on post-disaster physical and mental health. Exposure to traumatic events has been associated with a range of mental health problems (e.g., post-traumatic stress disorder [PTSD]) that can impact post-disaster response.¹⁰ Less intensely stressful life events (e.g., financial or marital problems) existing one year before disaster exposure have been associated with increased physical and psychological symptom reports.^{9,10}

In terms of mental health, a history of pre-disaster symptoms can predict the presence of post-disaster symptoms. Also, persons with pre-disaster mental health histories are more likely to display post-disaster mental health problems including PTSD.⁸

Predictors of effective coping can help triage less-needy patients. Coping refers to cognitive and behavioral abilities to solve problems, manage emotions, or disengage from difficult problems or emotions.¹¹ In general, successful coping is characterized by flexibility, creative thinking, willingness to try new things, action orientation, working cooperatively with others, and the ability to tolerate frustration or other strong emotions.^{6,7,12}

The impact of pre-disaster social support on post-disaster well-being is complex. Generally, victims' post-disaster adjustment can be improved if they perceive that they are supported, if they receive more support than they give, or if they are embedded in a healthy social network.^{6,7}

Within a disaster, exposure has objective (e.g., serious injury, death) and perceived (e.g., sensing threat to life) elements. High levels of disaster exposure increase the risk of developing PTSD or other severe mental health problems following the disaster.⁴ Family physicians must be comfortable in tactfully, directly, and privately asking patients about exposure to within-disaster mental health risk factors.

TABLE 1
Risk Factor Model for Post-Disaster Adjustment*

<i>Time frame</i>	<i>Risk factors</i>
Pre- and post-disaster	Demographics; coping behavior; mental health history; social support; traumatic and other stressful life events
Within-disaster	Deaths; experience of pain and horror; family separation (including death); perceived life threat; property loss; relocation and displacement; serious injury

*—This model documents risk factors that can be used to roughly stratify risk level for post-disaster physical and mental health problems. Family physicians should keep these individual and environmental risk factors in mind when clinically evaluating disaster victims.

Adapted with permission from Freedy JR, Resnick HS, Kilpatrick DG. Conceptual framework for evaluating disaster impact: implication for clinical intervention. In: Austin LS. Responding to Disaster: A Guide for Mental Health Professionals. 1st ed. Washington, D.C.: American Psychiatric Press, 1992:6.

Common Post-Disaster Health Outcomes

The probability of a particular post-disaster physical or mental health condition varies according to the time since the disaster onset. It is helpful to divide the post-disaster time frame into acute (less than one month), intermediate (one to 12 months), or long-term (i.e., chronic; longer than 12 months) phases.

Another way to view the post-disaster time frame is in terms of the potential to experience a series of chronic low-level stresses that may overwhelm coping resources.^{4,8,13-16} Family physicians can be key agents in lessening post-disaster physical and mental health reactions. Key points include providing information, remaining empathic, encouraging victims to seek and accept assistance, advocating self-determination to the extent feasible, reminding persons of how they may have successfully coped with previous troubles, and repeatedly checking on disaster victims for up to 12 months (or longer for more severely devastating events).¹⁷

Physical and mental health effects of disasters often coexist. In some instances, physical problems may increase the probability of mental health problems. For example, a disaster may exacerbate a chronic health condition such as diabetes or congestive heart failure (CHF), with worsening physical health contributing to the development or exacerbation of depression. The reverse direction of causality is possible, with mental health problems resulting in poorer health maintenance efforts and deterioration in chronic health problems.

PHYSICAL HEALTH OUTCOMES

Table 2^{4-9,18-26} presents common post-disaster health problems. Physical problems fall into four categories: (1) acute injuries; (2) acute problems; (3) chronic problems; and (4) medically unexplained physical symptoms.

More than one half of acute post-disaster health issues are illnesses (e.g., self-limited viral syndromes, gastroenteritis).²⁰⁻²⁴ Approximately one fourth of acute post-disaster health complaints are injuries (e.g., cuts, abrasions, sprains, fractures). Other acute post-disaster health issues include routine items such as medication refills, wound checks, and splinting.¹⁹

It is common for disaster victims to require assistance in the management of chronic health problems (e.g., diabetes, hypertension, CHF). Simple provision of medication and medical supplies may be sufficient. Depending on the degree to which the disaster has impacted community infrastructure, such assistance may be required as part of the intermediate or even long-term phase of post-disaster adjustment.

Somatic complaints without organic cause, sometimes described as medically unexplained physical symptoms, are common following a disaster. These unexplained symptoms also are associated with mental health problems such as depression, PTSD, and other anxiety disorders.²⁶ Family physicians should increasingly consider a mental health explanation for vague, unexplained physical symptoms as time since the disaster increases.

MENTAL HEALTH OUTCOMES

Most patients with post-disaster mental health problems had similar problems before the disaster occurred. In such cases, the role of the family physician includes the provision of medication refills, supportive counseling, and appropriate referrals when indicated and feasible.

TABLE 2
Common Post-Disaster Health Problems

Mental health

Acute responses¹⁸

Examples: Cognitive dysfunction or distortion; dysfunctional interpersonal behaviors; emotional lability; nonorganic physical symptoms

Chronic problems^{4,6-8}

Examples: Alcohol abuse or dependence; depression; interpersonal violence; PTSD or other anxiety disorders; schizophrenia or other severe chronic disorders

New-onset mental health problems⁶⁻⁸

Examples: Acute stress disorder possibly evolving to PTSD; alcohol abuse or dependence; depression; interpersonal violence

Physical health

Acute injuries¹⁹

Examples: Cuts or abrasions; fractures; motor vehicle crashes; occasional self-inflicted wounds; sprains or strains

Acute problems²⁰⁻²⁴

Examples: Gastroenteritis or dehydration; head lice; pulmonary problems; rashes; rodent-borne illness; self-limited viral syndrome; toxic exposures; vector-borne illness

Chronic problems^{5,9,20,25}

Examples: Congestive heart failure; diabetes; hypertension; pulmonary problems (e.g., chronic obstructive pulmonary disease, acute bronchitis, asthma)

Medically unexplained physical symptoms²⁶

Examples: Fatigue; gastrointestinal complaints; headaches; other generally vague somatic complaints without clear organic etiology

PTSD = post-traumatic stress disorder.

Information from references 4 through 9, and 18 through 26.

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Acute post-disaster psychological distress includes emotional lability; negative emotions; cognitive dysfunction and distortions (e.g., reduced concentration, confusion, unwanted thoughts or memories); physical symptoms (e.g., headaches, tension, fatigue, gastrointestinal upset, appetite changes); and behaviors that negatively affect interpersonal relationships (e.g., irritability, distrust, withdrawal, being overly controlling). For most persons, acute psychological distress will resolve within weeks to several months, but it can persist for up to one year. Distress tends to resolve as victims are able to reliably meet their basic needs.¹⁸

More severe new-onset mental health problems can occur, with the presentation ranging from obvious to subtle. The most common post-disaster mental health problems appear to be depression, PTSD, and other anxiety disorders.⁸ Increases in alcohol or drug abuse and domestic or interpersonal violence also have been noted.^{6,7} Family physicians should consider screening for common mental health problems among vulnerable populations, such as persons with a history of mental health issues, perceived life threat, serious injury, or exposure to death.

A two-stage mental health screening process is recommended. If a disaster victim is thought to be at high risk because of mental health history or within-disaster experiences, that person should be asked directly about exposure to toxic stressors (*Table 3*^{4,6,7}). If initial screening suggests heightened mental health risk, the person should be asked further symptom-based screening questions.

The authors recommend using the following screening questionnaires: a two-item patient health questionnaire for depression (PHQ-2; 96 percent sensitivity; *Table 4*)²⁷; a four-item primary care PTSD screen (PC-PTSD [this test can be viewed at http://www.ncptsd.va.gov/ncmain/assessment/ptsd_screening.jsp]; 78 percent sensitivity)²⁸; and the four-item CAGE questionnaire for alcohol abuse (75 to 97 percent sensitivity).²⁹⁻³² Relatively high sensitivity rates suggest that very few people with post-disaster mental health problems will be missed by screening (i.e., low false-negative rate). Positive screening results should be followed up with additional diagnostic interviews and intervention as appropriate.^{25,33-35}

Disaster Preparation

The authors propose a four-step disaster preparation plan so that when disasters happen, family physicians are able to turn their collective knowledge and skills into compassionate and competent action. This plan includes education, linking up with other organizations, logistical preparation, and personal preparation.

TABLE 3

Sample Questions to Assess Within-Disaster Risk Factor Exposure*

Certain experiences during disasters are thought to increase the risk of developing anxiety, depression, or other similar problems. To best help you, may I ask a few questions about how you were affected by the disaster?

During or immediately following the disaster:

- Did you ever fear that you might be seriously injured or killed?
- Were you or was anyone close to you seriously injured?
- Do you know anyone who died?
- Were you separated from anyone in your immediate family?
- Was your home seriously damaged or destroyed?

NOTE: Positive responses should prompt further exploration.

*—Degree of within-disaster exposure directly determines risk of developing post-traumatic stress disorder, depression, or other severe mental health problems.

TABLE 4

Patient Health Questionnaire (PHQ-2) for Depression Screening*†

How often over the past two weeks have you experienced either of the following problems:

1. Having little interest or pleasure in doing things?
2. Feeling down, depressed, or hopeless?

*—"Yes" versus "no" response format, with yes = 1 and no = 0. A score of 1 is a positive screening result with a sensitivity of 96 percent.

†—Four-point response format, with 0 = not at all; 1 = several days; 2 = more than one half of the days; 3 = nearly every day. A score of 3 or more is a positive screening result with a sensitivity of 83 percent.

Information from reference 27.

EDUCATION

Family physicians should educate themselves thoroughly about disaster-related physical and mental health threats. There are many articles and books available.^{6-8,33-36} Many Web sites also provide information about disaster-related resources and service opportunities (*Table 5*).

All physicians should know about threats that may impact a community, including bioterrorism, terrorism, and mass casualty events. Physicians within certain geographic regions also should educate themselves regarding natural disaster events particular to their area.

LINKING

Many opportunities exist to proactively apply professional knowledge and skills by becoming involved in existing disaster preparedness efforts. Because the scope of many disasters exceeds local health care capacity, it is

TABLE 5

Internet Resources for Disaster Services and Disaster-Related Health Materials

<i>Organization</i>	<i>Web address</i>	<i>Comment</i>
American Academy of Family Physicians (AAFP)	http://www.aafp.org	Type "disaster response" into the search function to obtain a listing of AAFP-related resources, which include fact-based articles, training courses, and service opportunities
American Medical Association (AMA)	http://www.ama-assn.org	Type "disaster response" into the search function to obtain a listing of AMA-related resources, which include training courses, information about the health impact of disaster, summaries of current AMA disaster activities, and other Web site links
American Red Cross	http://www.redcross.org	"Disaster services" link provides full access to Red Cross disaster activities, which include related news stories and tips on preparedness and coping with disasters
Centers for Disease Control and Prevention	http://www.cdc.gov	"Emergency preparedness and response" link provides health information on a full range of disasters; useful handouts include helping families cope with the stress of relocation, tips for talking about disasters, and self-care tips for coping with stress
National Center for Post-traumatic Stress Disorder	http://www.ncptsd.va.gov	Comprehensive list of clinical and research resources, including handouts to assist in working with disaster victims of all ages
United Way of America and Alliance for Information and Referral Systems	http://www.211.org	This site and the associated 2-1-1 phone number service approximately 193 million Americans (more than 65 percent of the population) in 41 states; they provide information and referrals to persons needing help and persons wanting to provide help

important for family physicians to become embedded in organizations that are most likely to be called on to meet post-disaster community health needs.

Opportunities at a local or state level include disaster response teams or planning committees at local hospitals, county and state medical societies, and local and state health departments. To find opportunities at a national level, contact the medical organization of the affected states (who are often looking for outside help), the American Academy of Family Physicians, the American Medical Association, the Centers for Disease Control and Prevention, or other national-level organizations. The American Red Cross and a variety of religious denominations and organizations also have national disaster-response activities.

LOGISTICAL PREPARATION

Within each organizational response unit (e.g., clinic, hospital, community health center), a several-week supply of frequently needed items should be available (e.g., medications for common medical and psychiatric problems; suture, splint, and casting materials; educational materials). Outside sources of help are typically unavailable or unreliable for several weeks to one month after a disaster, so the availability of local health care resources is crucial to community well-being.

PERSONAL PREPARATION

Family physicians who practice within disaster-stricken communities have a dual role. As disaster victims, physicians and their families will be vulnerable to the

same physical and mental health outcomes faced by other victims. On the other hand, physicians will want to continue their medical practice for practical and altruistic reasons. It is important to seek a balance between taking care of oneself and one's family versus taking care of patients.

Family physicians should be prepared to work with other health care professionals in the community to share the collective load in meeting post-disaster health needs; such partnerships should be established well in advance of a disaster. The physicians in a community should be prepared to reach out to and accept assistance from health care professionals outside of the community as well.

The authors thank William J. Hueston, M.D., and Clive D. Brock, M.B., Ch.B., for assistance with the manuscript.

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Author disclosure: Nothing to disclose.

REFERENCES

1. International Federation of Red Cross and Red Crescent Societies and the Centre for Research on the Epidemiology of Disasters. World Disasters Report. Norwell, Mass.: Kluwer Academic Publishers, 1993.
2. Norris FH. Disasters in urban context. *J Urban Health* 2002;79:308-14.
3. Green BL, Solomon SD. The mental health impact of natural and technological disasters. In: Freedy JR, Hobfoll SE. *Traumatic Stress: From Theory to Practice*. New York, N.Y.: Plenum Press, 1995:163-80.
4. Freedy JR, Resnick HS, Kilpatrick DG. Conceptual framework for evaluating disaster impact: implication for clinical intervention. In: Austin LS. *Responding to Disaster: A Guide for Mental Health Professionals*. 1st ed. Washington, D.C.: American Psychiatric Press, 1992:3-23.
5. Dorn T, Yzermans CJ, Kerssens JJ, Spreuwenberg PM, van der Zee J. Disaster and subsequent healthcare utilization: a longitudinal study among victims, their family members, and control subjects. *Med Care* 2006;44:581-9.
6. Norris FH, Friedman MJ, Watson PJ, Byrne CM, Diaz E, Kaniasty K. 60,000 disaster victims speak: part I. An empirical review of the empirical literature, 1981-2001. *Psychiatry* 2002;65:207-39.
7. Norris FH, Friedman MJ, Watson PJ. 60,000 disaster victims speak: part II. Summary and implications of the disaster mental health research. *Psychiatry* 2002;65:240-60.
8. Norris FH, for the Dartmouth Medical School and National Center for PTSD. Range, magnitude, and duration of the effects of disasters on mental health: review update 2005. Accessed December 12, 2006, at: <http://www.redmh.org/research/general/effects.html>.
9. Sanders S, Bowie SL, Bowie YD. Lessons learned on forced relocation of older adults: the impact of Hurricane Andrew on health, mental health, and social support of public housing residents. *J Gerontol Soc Work* 2003;40:23-35.
10. Freedy JR, Donkervoet JC. Traumatic stress: an overview of the field. In: Freedy JR, Hobfoll SE. *Traumatic Stress: From Theory to Practice*. New York, N.Y.: Plenum Press, 1995:3-28.
11. Carver CS, Scheier MF, Weintraub JK. Assessing coping strategies: a theoretically based approach. *J Pers Soc Psychol* 1989;56:267-83.
12. Lazarus RS, Folkman S. The coping process: an alternative to traditional formulations. In: *Stress, Appraisal, and Coping*. New York, N.Y.: Springer, 1984:141-80.
13. Freedy JR, Shaw DL, Jarrell MP, Masters CR. Towards an understanding of the psychological impact of natural disasters: an application of the Conservation of Resources stress model. *J Trauma Stress* 1992;5:441-54.
14. Smith BW, Freedy JR. Psychosocial resource loss as a mediator of the effects of flood exposure on psychological distress and physical symptoms. *J Trauma Stress* 2000;13:349-57.
15. Freedy JR, Saladin ME, Kilpatrick DG, Resnick HS, Saunders BE. Understanding acute psychological distress following natural disaster. *J Traumatic Stress* 1994;7:257-73.
16. Norris FH, Byrne CM, Diaz E, Kaniasty K. Psychosocial resources in the aftermath of natural and human-caused disasters: a review of the empirical literature, with implications for intervention. U.S. Department of Veterans Affairs. Accessed February 20, 2006, at: http://www.ncptsd.va.gov/ncmain/ncdocs/fact_shts/fs_resources.html.
17. U.S. Department of Veterans Affairs. Effects of traumatic stress in a disaster situation. A National Center for PTSD fact sheet. Accessed February 20, 2006, at: http://www.ncptsd.va.gov/ncmain/ncdocs/fact_shts/fs_effects_disaster.html.
18. Young BH, Ford JD, Watson PJ. Survivors of national disasters and mass violence. A National Center for PTSD fact sheet. U.S. Department of Veterans Affairs. Accessed February 20, 2006, at: http://www.ncptsd.va.gov/ncmain/ncdocs/fact_shts/fs_survivors_disaster.html.
19. Centers for Disease Control and Prevention. Surveillance for illness and injury after hurricane Katrina—New Orleans, Louisiana, September 8-25, 2005 [Published correction appears in *MMWR Morb Mortal Wkly Rep* 2005;54:1057]. *MMWR Morb Mortal Wkly Rep* 2005;54:1018-21.
20. Ahern M, Kovats RS, Wilkinson P, Few R, Matthies F. Global health impacts of floods: epidemiologic evidence. *Epidemiol Rev* 2005;27:36-46.
21. Centers for Disease Control and Prevention. Epidemiologic notes and reports surveillance of shelters after hurricane Hugo—Puerto Rico. *MMWR Morb Mortal Wkly Rep* 1990;39:41-2,47.
22. Centers for Disease Control. Preliminary report: medical examiner reports of deaths associated with Hurricane Andrew—Florida, August 1992. *MMWR Morb Mortal Wkly Rep* 1992;41:641-4.
23. Centers for Disease Control and Prevention. Self-reported increase in asthma severity after the September 11 attacks on the World Trade Center—Manhattan, N.Y., 2001. *MMWR Morb Mortal Wkly Rep* 2002;51:781-4.
24. Centers for Disease Control and Prevention. Vibrio illnesses after Hurricane Katrina—multiple states, August-September 2005. *MMWR Morb Mortal Wkly Rep* 2005;54:928-31.
25. McFarlane AC. Helping the victims of disaster. In: Freedy JR, Hobfoll SE. *Traumatic Stress: From Theory to Practice*. New York, N.Y.: Plenum Press, 1995:287-314.
26. Van den Berg B, Grievink L, Yzermans J, Lebert E. Medically unexplained physical symptoms in the aftermath of disasters. *Epidemiol Rev* 2005;27:92-106.
27. Whooley MA, Avins AL, Miranda J, Browner WS. Case-finding instruments for depression. Two questions are as good as many. *J Gen Intern Med* 1997;12:439-45.
28. Prins A, Ouimette P, Kimerling R, Camerond RP, Hugelshofer DS, Shaw-Hegwer J, et al. The primary care PTSD screen (PC-PTSD): development and operating characteristics. *Prim Care Psych* 2004;9:9-14.
29. Adams WL, Barry KL, Fleming MF. Screening for problem drinking in older primary care patients. *JAMA* 1996;276:1964-7.
30. Aithal GP, Thornes H, Dwarakanath AD, Tanner AR. Measurement of carbohydrate-deficient transferrin (CDT) in a general medical clinic: is this test useful in assessing alcohol consumption? *Alcohol Alcohol* 1998;33:304-9.
31. Bradley KA, McDonnell MB, Bush K, Kivlahan DR, Diehr P, Fihn SD. The AUDIT alcohol consumption questions: reliability, validity, and responsiveness to change in older male primary care patients. *Alcohol Clin Exp Res* 1998;22:1842-9.
32. King M. At risk drinking among general practice attenders: validation of the CAGE questionnaire. *Psychol Med* 1986;16:213-7.
33. Lopez-Ibor Alinifo JJ, Christodoulou G, Sartorius MMN, Okasha A, eds. *Disasters and Mental Health*. Hoboken, N.J.: Wiley, 2005.
34. National Child Traumatic Stress Network and National Center for PTSD. *Psychological first aid: field operations guide*. September 2005. Accessed December 12, 2006, at: http://www.ncptsd.va.gov/pfa/PFA_9_6_05_Final.pdf.
35. Ursano RJ, Fullerton CS, Norwood AE. *Terrorism and Disaster: Individual and Community Mental Health Interventions*. New York, N.Y.: Cambridge University Press, 2003.
36. Caffo E, Belaise C. Psychological aspects of traumatic injury in children and adolescents. *Child Adolesc Psychiatr Clin N Am* 2003;12:493-535.