Policy Statement

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The Pediatrician's Role in Disaster Preparedness (RE9702)

AMERICAN ACADEMY OF PEDIATRICS

Committee on Pediatric Emergency Medicine

ABSTRACT. This statement provides pediatricians with an overall view of disasters and disaster management and delineates the role of the pediatrician in disaster preparedness.

ABBREVIATIONS. FEMA, Federal Emergency Management Agency; AAP, American Academy of Pediatrics; EMS, Emergency Medical Services.

Dealing with disasters is not a day-to-day occurrence. Since 1987 events such as the bombing in Oklahoma City; hurricanes Hugo, Iniki, and Andrew; and the Loma Prieta and Northridge earthquakes have provided a perspective on the needs of children and the challenges facing pediatricians in event of disasters[1-4]

DISASTER TYPES, MAGNITUDE, PREPAREDNESS, AND MANAGEMENT

A *disaster* is an event that destroys property, includes injury and/or loss of life, and affects a large population or area. Disasters are usually described as natural, including earthquakes, hurricanes, tornados, and floods; and man-made, including fire, mass transportation incidents, environmental toxins, and civil unrest. More narrowly defined and distinct are mass casualty incidentsMevents that cause large numbers of injuries but do not threaten or harm large segments of the community.[5-7]

The effects of each disaster are different. Considerations are given to the size of the area involved, the extent of damage, and the effect on community resources. The extent of damage includes the physical injury to persons and damage to property, especially destruction of infrastructure (roadways, bridges, and communication lines). The effects on community resources include the absence of electricity, gas, sanitation, and potable water; the necessity for portable shelters; and the potential for recurrence (eg, earthquakes with aftershocks).[1,8]

The planning for and response to disasters traditionally have been the responsibilities of federal, state, and local governments. The Federal Emergency Management Agency (FEMA) is involved in declared national emergencies, providing Disaster Medical Assistant Teams (DMATs). [2,9,10] Other federal agencies include the Department of Transportation, Department of Defense, Department of Housing and Urban

Development, and the Federal Aviation Administration. On a regional level, state and local Emergency Management Authorities (often within the state or local department of health services) have area-wide response plans. These authorities organize emergency operation centers (EOCs), whose duties include (1) hospital damage assessment; (2) allocation, designation, and distribution of casualty collection points; (3) identification, prevention, and elimination of public health hazards; (4) coordination of activities with support departments, agencies, and public utilities; and (5) coordination of requests for mutual aid.

Hospitals are required by the Joint Commission on Accreditation of Health Organizations to have disaster plans and to practice them twice a year. These plans include the hospital's response to mass casualty incidents and internal disasters such as fire or loss of utilities. The responsibilities of physicians and other professionals are usually included in the hospital disaster plan.

Volunteer organizations such as the Red Cross and Salvation Army have key roles in disaster response. In addition, recent concepts have involved planning for disasters at the neighborhood, family, and personal level.[6,8]

THE ROLE OF THE PEDIATRICIAN

Children who have experienced a disaster may suffer a sense of loss (eg, home, family, friends, pets, and possessions), sustain physical injury, and develop stress-induced problems. An understanding of children and family dynamics is needed to deal appropriately with disaster situations. Information on the psychosocial issues can be found in the booklet entitled *Psychosocial Issues for Children and Families in Disasters: A Guide for the Primary Care Physician*, by the American Academy of Pediatrics Work Group on Disasters.[11] Pediatricians can provide the expertise to address the needs and special problems of children in all three phases of a disaster:

- before,
- during and immediately after (day 0-2),
- during aftermath and recovery (day 3 on).[12]

PLANNING BEFORE A DISASTER

Pediatricians, individually or collectively, as part of their community (eg, American Academy of Pediatrics [AAP] Chapter, local pediatric society, or hospital pediatric staff) should participate in the development of a community disaster plan. AAP members should provide input into the state and local offices of Emergency Medical Services (EMS) to assure that the needs of children are incorporated into every plan, including contingency plans for meeting the needs of critically ill and injured children. Pediatricians should take part in local community response team planning and help identify the numerous problems a disaster poses based on experiences gained from responses and drills from previous potentially similar disasters.[13]

Lessons learned from recent disasters emphasize that the fire department, police department, and other agencies that respond to emergencies may be overburdened. Neighborhood groups may have to take initial emergency response actions and fend for themselves for at least the first 72 hours after the disaster strikes.[2,3,9,14] Training

programs for community response teams in basic emergency response techniques have been developed in several areas of California to prepare for loss of community services (see Resource Directory).[15] Although physicians in the community have often volunteered after disasters, the response is often not organized or coordinated through official disaster agencies. As part of the disaster planning, arrangements need to be made to guarantee medical liability coverage for pediatricians caring for disaster victims. Pediatricians should have an ongoing role in the EMS system by training first responders in pediatric assessment, assisting in the development of prehospital pediatric protocols, helping establish protocols for dealing with minors (especially issues regarding consent and identification when parents or guardians are not available), and assuring the availability of pediatric medical equipment.

The pediatric staff should assist in developing a realistic hospital disaster plan. The pediatric staff in local children's hospitals are usually involved in the development of the disaster plan. In general hospitals this may not be the case. It is important that local pediatricians meet with the hospital staff responsible for implementing the hospital disaster plan to review it, learn their roles, and ensure that preparations have been made for the proper care of children.[12]

Pediatricians in the community can assist in both triage and treatment of patients. Important questions to ask include: (1) Where should the pediatrician go during the disaster? (2) How should pediatricians be notified that they are needed to respond to the disaster (disaster trees, check-in)? (3) How should hospital physicians be identified and notified to go to the scene to attend to victims of the disaster? (4) How should transfers of pediatric patients in the hospital and discharges be handled? In addition, alternatives need to be considered in the event of a loss of power and conventional telephone use. Backup systems such as cellular phones, direct telephone lines that are not part of the regular telephone system, two-way radios, beepers, and ham radios should be considered. In areas where pediatricians cover several hospitals, initiate pools through the county medical or pediatric society to provide uniform pediatric coverage of area hospitals.

Pediatricians can aid schools and child care centers in developing disaster plans. In California, state law requires each state-licensed child care facility and all schools to develop and maintain a disaster and mass casualty plan.

After a distaster, offices or clinics may become sites for care if area hospitals are unable to provide services. Recent experiences have demonstrated that health care may be administered in parking lots, malls, and tents using limited power and water sources. Local offices were unusable and alternative sites for primary care had to be identified. Pediatricians should prepare, regularly update, and practice an office disaster plan addressing response and recovery issues. Office training programs in emergency procedures, including first aid, cardiopulmonary resuscitation, evacuation, search and rescue, the use of fire extinguishers, and participation in community disaster drills, should routinely occur as part of the office's overall emergency preparedness.[13] It may be advisable for pediatricians to consult local building codes to ensure that their office buildings meet current structural safety standards. Agreements with vendors need to be obtained for post-disaster operations. It is important to assemble emergency kits with water, first aid supplies, radios, flashlights, batteries, heavy-duty gloves, food, and sanitation supplies.[3,16]

In many areas of the country the threat of natural disasters is ongoing, and anticipatory guidance on home disaster preparedness can be provided in the pediatric office or as a community focus. Family preparedness includes training in cardiopulmonary resuscitation, rendezvous points, lists of emergency telephone numbers, and an out-of-state friend or relative to whom all family members can contact after the event to report their whereabouts and conditions. Home preparedness such as storm shutters or earthquake proofing should be covered. Parents should maintain emergency supplies of food, water, medicine, a first aid kit, and clothing (see Table 1 and Table 2 and Resource Directory). Family members should know the safest place in the home, make special provisions, know community resources, and have a plan to reunite. Medications for chronic illness and resources for technically dependent children should be included in the action plan.

ACTION DURING A DISASTER

The pediatrician's role during a disaster will be predicated by the disaster plan; hence familiarity with the plan is paramount. Once the disaster is recognized, institute office and home disaster plans and participate in the community or hospital predesigned plan, as a scene, hospital, or clinic resource. Pediatricians may be involved in disaster triage, direct patient care (including adults), patient discharge/transfer, facilitation and reception of patients at other sites including offices, and hospital evacuation. On the basis of studies from several recent disasters, affected hospitals experienced a 15% to 40% increase in emergency department visits. Minor trauma, especially involving wounds, was the most common diagnosis, with an increased need in physician staffing. Depending on the disaster, there may be no or only a slight increase in hospitalization.[3,14]

HELPING DURING THE AFTERMATH

The length of the recovery period depends on the nature of the disaster. Pediatricians should be prepared to deal with continued disruptions of services that will affect their ability to care for patients and have plans to provide on-site emergency and primary health care at emergency shelters. Issues to be addressed include inpatient and outpatient treatment, infectious disease control, alternatives for lost services/utilities, logistics and resupply, physical rehabilitation, mental rehabilitation, and critical incident stress debriefing. Protocols for critical incident stress debriefing have been developed to help victims and health care providers cope with the emotional toll of disasters. During the aftermath, changes in practice location, a lack of refrigeration for medications and vaccines, continued disruption of communications, power outages, and lack of sanitation will force changes in practice standards and require inventiveness and flexibility. Assisting families coping with the emotional toll of the disaster may be an ongoing responsibility of the pediatrician.[3,11,12]

RECOMMENDATIONS

1. Before a disaster, pediatricians need to:

- take part in local community response team planning;
- anticipate and prepare for loss of community services;

- be involved in EMS: Be proficient in cardiopulmonary resuscitation and first aid, train first responders in pediatric assessment, assist in development of prehospital pediatric protocols, help establish protocols for consent to treat and identification of minors, and assure the availability of pediatric resources;
- assist in developing a hospital disaster plan that assures the proper care of children;
- aid schools and child care centers in developing disaster plans;
- prepare, regularly update, and practice an office disaster plan;
- provide anticipatory guidance on home disaster preparedness;

2. During a disaster, pediatricians need to:

- institute office and home disaster plans;
- participate in the community or hospital disaster plan;

3. During the recovery period, pediatricians need to:

- be prepared to deal with continued disruption of services;
- provide on-site emergency and primary health care at emergency shelters;
- continue to implement the plan as needed to address: inpatient and outpatient treatment, infectious disease control, alternatives for lost services/utilities, logistics and resupply, physical and mental rehabilitation and critical incident stress debriefing.

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REFERENCES

1. Haynes Be, Freeman C, Rubin Jl, Koehler Ga, Enriquez Sm, Smiley Dr. Medical Response To Catastrophic Events: California's Planning And The Loma Prieta Earthquake. *Ann Emerg Med.* 1992;21:368-374
2. Henderson Ak, Lillibridge Sr, Salinas C, Graves Rw, Roth Pb, Noji Ek. Disaster Medical Assistance Teams: Providing Health Care To A Community Struck By Hurricane Iniki. *Ann Emerg Med.* 1994;23:726-730
3. Quinn B, Baker R, Pratt J. Hurricane Andrew And A Pediatric Emergency Department. *Ann Emerg Med.* 1994;23:737-741
4. Van Amerongen Rh, Fine Js, Tunik Mg, Young Gm, Foltin Gl. The Avianca Plane Crash: An Emergency Medical System's Response To Pediatric Survivors Of The Disaster. *Pediatrics.* 1993;92:105-110
5. Aghababian R, Lewis Cp, Gans L, Curley Fj. Disasters Within Hospitals. *Ann Emerg Med.* 1994;23:771-777
6. Burkle Fm Jr. *Disaster Medicine. Application For The Immediate Management And Triage Of Civilian And Military Disaster Victims.* New Hyde Park, Ny: Medical Examination Publishing Co; 1984
7. Waeckerle Jf. Disaster Planning And Response. *N Engl J Med.* 1991;324:815-821
8. Auf Der Heide E. *Disaster Response Principles Of Preparation And Coordination.* St Louis, Mo: Cv Mosby; 1989
9. Pretto Ea Jr, Safar P. National Medical Response To Mass Disasters In The United States: Are We Prepared? *Jama.* 1991;266:1259-1262 10.
10. Roth Pb. Status Of A National Disaster Medical Response. *Jama.* 1991;266:1266
11. American Academy Of Pediatrics Work Group On Disasters. *Psychosocial Issues For Children And Families In Disasters: A Guide For The Primary Care Physician.* Washington, Dc: Us Dept Of Health And Human Services, Public Health Service, Substance Abuse And Mental Health Services Administration, Center For Mental Health Services; 1995
12. Leonard Rb. Role Of Pediatricians In Disasters And Mass Casualty Incidents. *Pediatr Emerg Care.* 1988;4:41-44
13. Committee On Pediatric Emergency Medicine. *Emergency Medical Services For Children: The Role Of The Primary Care Provider.* Elk Grove Village, Il: American Academy Of Pediatrics; 1992
14. Pointer Je, Michaelis J, Saunders C, Et Al. The 1989 Loma Prieta Earthquake: Impact On Hospital Patient Care. *Ann Emerg Med.* 1992;21:1228-1233
15. Schultz Ch, Koenig Kl. Earthquakes And The Practicing Physician. *West J Med.* 1992;157:591

16. Conover Wa. Earthquakes And The Office-Based Surgeon. *West J Med.* 1992;157:79-82

RESOURCE DIRECTORY

American Red Cross (please check your telephone directory or your local chapter. Publications available on request include *Adventures of the Disaster Dudes: A Children's Disaster Preparedness Program, Helping Children Cope With Disaster, Disaster Preparedness and After the Flood* coloring books).

Federal Emergency Management Agency, PO Box 70274, Washington, DC 20024 (catalog of publications available on request, *Your Family Disaster Supplies Kit* [FEMA L-189], *Your Family Disaster Plan* [FEMA L-191], *Helping Children Cope With Disasters* [FEMA L-196], *Are You Ready? A Guide to Disaster Preparedness* [FEMA H-34]).

American Civil Defense Association, PO Box 910, Starke, FL 32091

Center for Mental Health-Studies of Emergencies, National Institute of Mental Health, US Public Health Service, 5600 Fishers Lane, Room 6C-12, Rockville, MD 20857

Disaster Preparedness Office, National Weather Service, 8060 13th Street, Silver Spring, MD 20910

Disaster Research Center, Publication List, University of Delaware, Newark, DE 19716

Governor's Office of Emergency Services, Office of Information and Public Affairs, 2800 Meadowview Rd, Sacramento, CA 95832, (916) 262-1843

Community Preparedness Unit, Disaster Preparedness Division, Los Angeles City Fire Department, 543 E Edgeware Rd, Los Angeles, CA 90026

Citizens of Oakland Respond to Emergencies (CORE), 475 14th St, 9th Floor, Oakland, CA 94612

Neighborhood Emergency Response Team Training, San Francisco Fire Department, 260 Golden Gate Ave, San Francisco, CA 94102

Return to Contents