

Emergency Preparedness to Ensure Children's Safety

By Marisa Braun, M.D., M.S., Research Associate, and Judith Farrar, Ph.D., FAACAP, Coordinator of Curriculum Development and Dissemination

The terror events of 2001 brought U.S. attention to the importance of preparedness planning and training, which subsequently has been enhanced by both natural and manmade disasters.

Preparedness starts with common-sense guidelines to ensure that communities know what to do to minimize the effects of a potential disaster. In addition, health care workers and facilities are required to have disaster plans in place to accommodate a variety of potential mass-casualty incidents—from chemical “accidents” and targeted terror attacks to natural disasters common to the locale. These plans should include special populations that are particularly vulnerable to disaster events. Children are, perhaps, the most vulnerable of these groups—both physiologically and psychologically.

This article provides an overview of some of the unique

pediatric issues that need to be addressed in disaster planning and response, including why children are more vulnerable than adults in a disaster situation.

Physiological Considerations That Make Children More Vulnerable

Respiratory rate: Children have a faster respiratory rate than adults, which means they breathe more times per minute. This makes children more susceptible to aerosolized biological or chemical agents. In other words, for comparable exposure, a child will receive a larger dose of an inhaled toxic agent compared to an adult.

Thin skin and large surface-to-mass ratio: Children have thinner skin and larger surface-to-mass ratio than adults, so it is easier for toxic compounds to penetrate.

(continued on page 3)

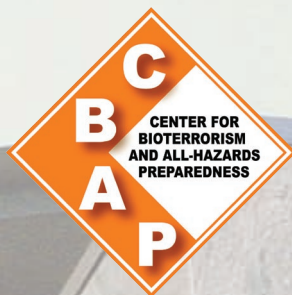


CBAP CHRONICLE EDITORIAL STAFF

Managing Editor/Graphic Designer
Scott Colton, B.A.

Co-Editors
Judith Farrar, Ph.D.
Cecilia Rokusek, Ed.D., R.D.

Contributing Writers
Sally Bragg, R.N., M.S.N.
Marisa Braun, M.D., M.S.
Jessica De Leon, Ph.D.



The *CBAP Chronicle* is produced by
NSU-COM Center for Bioterrorism
and All-Hazards Preparedness
3434 South University Drive
Fort Lauderdale, FL 33328-2018
<http://www.nova.edu/allhazards>

The *CBAP Chronicle* is produced quarterly
in January, April, July, and October.

Notice of Accreditation/Nondiscrimination
Nova Southeastern University admits students of any age, race, color, sexual orientation, pregnancy status, religion or creed, nondisqualifying disability, and national or ethnic origin. Nova Southeastern University is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools (1866 Southern Lane, Decatur, Georgia, 30033-4097; telephone number: 404-679-4501) to award associate's, bachelor's, master's, educational specialist, and doctoral degrees.



CHRONICLE CORNER



Cecilia Rokusek, Ed.D., R.D.
CBAP Project Manager

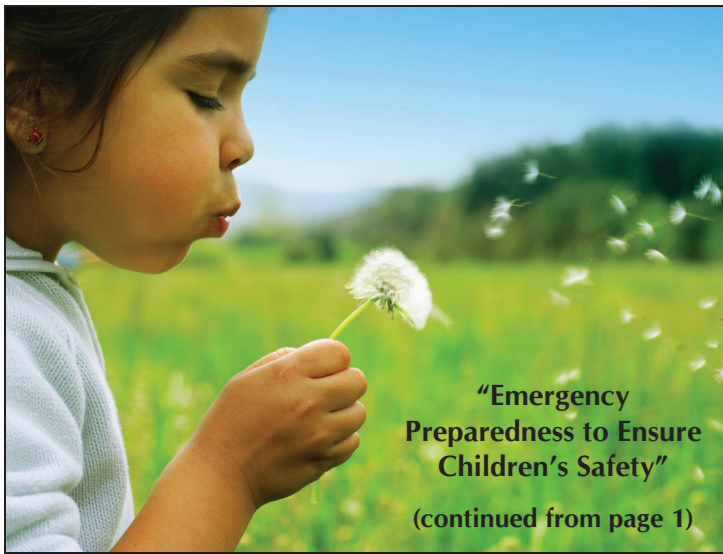
When our director of medical communications asked me to write a column for this and each subsequent issue of the *CBAP Chronicle*, I jumped at the opportunity to be able to share some thoughts and ideas I have in an area that I have become a passionate advocate for—all-hazards preparedness, response, and recovery. In my mind, the key responses to the question, “Are we prepared?” are education, practice, assessment, research, and continuing training. Whenever I am asked to do a CE/CME training program or a classroom lecture, I always open with the statement, “It’s a new world and a new day!” Who would have ever thought that 25 years ago we would be teaching all-hazards emergency preparedness?

Most of us in the field did not study this in our own formal higher education. For many of us, our advanced study and hands-on training came after 9/11. This, coupled with myriad national disasters throughout the world, has challenged a global society to realize that preparedness must be an everyday reality for everyone. For those in the health professions, those in education, and for those involved directly in community first response, prevention, preparedness, and recovery must become part of both their formal education and their ongoing continuing education and professional development.

One of my closest colleagues in the field always says, “It is not a matter of if but when a major emergency, manmade or natural, will occur.” This statement is a powerful one that must be communicated to EVERYONE—not only those of us working in the system. I struggle with the ongoing question of how to help our public at large understand the importance and absolute necessity to minimize and prevent as well as plan and prepare for the realities of a mass-emergency situation like a terrorist attack, a pandemic flu outbreak, or a major earthquake. I am convinced that we cannot as an American society depend on our local, state, or federal governments to be responsible for our personal and professional safety when a major emergency happens. It is the primary responsibility of all citizens to take care of themselves, their families, and their business foundations. This is where the planning, preparation, prevention, and minimization of possible damage come into play.

It may be trite to say, but our work has only just begun. We must have built into our planning ongoing training and education programs and ongoing research and preparedness assessment. The research is not simply addressed by looking at the training and drills we do in our training programs. I believe these issues need to be examined from a collective and comparative basis across our country and world. We have not yet reached a consensus on unified assessment protocol for preparedness of both professionals and volunteers. The other area of research that is needed is in the realm of individual professional responsiveness. We do not know or understand, for example, why professionals given years of training will not respond if an emergency occurs. Certainly family care and concern come into play, but what are the other key individual characteristics that identify those more willing to respond in a crisis? A pandemic flu outbreak would give us insights into this troubling question, which we need to get a better understanding of NOW!

I hope you will enjoy this third issue of our *CBAP Chronicle*. I look forward to hearing from you if you should have any feedback or comments on this or any upcoming issues.



**“Emergency
Preparedness to Ensure
Children’s Safety”
(continued from page 1)**

Fluid reserve: Children have less fluid reserve than adults, increasing the risk of dehydration with agents that produce vomiting or diarrhea. This can be a serious problem because a child’s condition can shift from stable to life threatening very rapidly (especially young children).

Circulation: Children have smaller circulating blood volumes than adults. As a result, relatively small amounts of blood loss can rapidly develop into a shock state.

Body temperature control (thermoregulation): Children lose body heat more quickly than adults due to some of the physiological differences described above. Thus, special considerations are necessary during decontamination, which may lead to hypothermia if warming equipment is not available.

Motor skills: Motor skills are age dependent, and young children have significant developmental weaknesses not shared with school-age children, adolescents, or adults. Young children and even school-age children who can move independently are still dependent on adults in order to escape from a threat.

Psychosocial Considerations That Make Children More Vulnerable

Children have unique mental health needs, and reactions to unexpected events will vary according to the child’s cognitive, educational, and social development levels. In general, children are highly influenced by parents, grandparents, caregivers, teachers, and friends.

Age considerations

0-1 years: In the first year of life, infants’ perceptions of reality revolves around themselves and what they can see and touch. All needs are met by others—usually the mother or other caregiver—which means separation from the mother (or caregiver) during a disaster event could have profound effects on the infant’s development and attachments.

2nd year: During this time, the child’s language ability and sense of self begin to develop, and exposure to a disaster

event could lead to significant setbacks for both.

2-5 years: Preschool children view the world in relation to themselves. They may have a difficult time separating events that they observe (e.g., on television) from reality. An example is the five-year old child who knew his mother was on a business trip and had taken an airplane to her destination during 9/11, but could not distinguish his mother’s travel from the airplanes that were shown on TV flying into the World Trade Center. He was inconsolable until “mommy” returned. Young children should not watch or listen to news events alone; exposure to disaster events on television, computer, and radio should be limited.

6-12 years: While the reality of cause-and-effect relationship is better understood during the school-age period, understanding of current events remains limited and fears may be hidden. School-age children should not watch news of disaster events alone and should be encouraged to discuss what they have seen or experienced. Questions should be answered, but without burdening the child with too much information.

12-18 years: Adolescents have the capability for abstract reasoning, problem solving, and understanding cause-and-effect relationships and can appreciate the relationships between behavior and long-term consequences. Peer considerations are very important. Adolescents often want to help and discuss what is happening; however, in a critical event, they may also withdraw.

Include Children in Family Disaster Preparedness Planning

All members of the family should be involved in creating the family disaster plan and disaster kits. This includes

- discussing and educating children about disasters as appropriate to their age
- letting children help create their own disaster kits
- answering questions that children might have about potential disasters and how to respond

There are many tools to help parents discuss preparedness with their children. Check out the following sites for more information regarding family plans that include children participation:

- local emergency management offices
- public health departments
- American Red Cross chapters
- FEMA - <http://www.fema.gov/kids>
- U.S. Department of Homeland Security - <http://www.ready.gov/kids>

Children and Disaster Events: What Parents/Caretakers Can Do

- Acknowledge the child's feelings; help him/her feel safe. Establish good communication by being honest; it is not necessary to always have the answers.
- Be prepared to deal with behavioral changes and provide extra attention for children who feel isolated.
- Provide simple explanations about what has (or could have) happened and the response.
- Limit exposure to the media, especially for the children.
- Make sure that everyone in the family is prepared for a potential disaster event.

It is also important to realize that children might be targets because of their specific vulnerabilities. Since children are more susceptible to various agents used in terror attacks, and since children occupy a unique place in family and society, they may become the specific target of a terror attack. Awareness of this possibility is another consideration for public health workers and first responders who are involved in developing disaster plans.

Some Criteria for Disaster Planning to Meet Children's Needs

All responders need to be aware of the specific physiological and psychological vulnerabilities of children in disaster events as described above. This can be accomplished by taking advantage of the many training programs that are currently offered throughout the United States. This is especially important for health care workers and first responders who might see a child first during a disaster event. These providers must be able to recognize the unique signs and symptoms in children that suggest a life-threatening situation, and they must be capable of responding accordingly with age-appropriate interventions. They need to recognize that

- a child's condition can change rapidly from stable to life



threatening, thereby mandating a prompt response

- children may resist help from strangers due to fear and lack of understanding of the situation
- the fear of being alone and separation anxiety can significantly impact how a child reacts in a disaster situation

Hospitals and clinics need to have guidelines in place that address the needs of children during disaster planning. These guidelines should address any legal issues that might arise when children become separated from their parents or when children are in a mass-care, community shelter, or decontamination situation. A plan must be in place to secure the safety of the children until government officials or extended family members can take temporary custody. Community preparedness efforts should involve pediatric health care experts, as well as facilities, institutions, and agencies that care for children. Whenever possible, local disaster teams should include pediatricians and other personnel skilled at evaluating and treating children.

What to Include for Children in a Disaster Supply Kit

All disaster kits should include basic supplies (i.e., water, food, first aid) and necessary emergency information, including health information (e.g., immunizations, tetanus-diphtheria booster shots) for each family member. A list of basic supplies and information for a disaster kit can be found at

<http://www.aap.org/family/frk/frkit.htm>

<http://www.ready.gov/kids>

<http://www.fema.gov/kids>

<http://www.nova.edu/allhazards>

Two disaster kits are usually recommended—one for the home and another to take in the event of an evacuation.

When children are in the house, each child should have his or her own disaster kit. This is in addition to the basic supply kit and might include the following:

- favorite books, crayons, and paper
- puzzles, board games, deck of cards
- favorite small toys or stuffed animals
- favorite blanket or pillow
- picture of family and pets
- other special items that will comfort children (e.g., a letter or a card from parents)

Let the child help put this kit together.

Children with Special Health Care Needs

Children with special health care needs are defined by the American Academy of Pediatrics (AAP, October 1998) as those who have (or are at increased risk for) a chronic, physical, developmental, behavioral, or emotional condition and who also require health and related services of a type or amount beyond that required by children generally. Thus, children with special health care needs have unique medical histories and require special medical treatment.

Families with these children should be educated about the resources and tools available to prepare and respond to an emergency or disaster. These include

- knowledge of the location of special-needs shelters that are equipped with medical staff and specialized equipment
- completed, appropriate medical information forms (see <http://www.aap.org/advocacy/blankform.pdf> for an Emergency Information Form from the American Academy of Pediatrics and the American College of Emergency Physicians)
- family disaster kits that include special medications or devices needed for their special-needs child.

Local Red Cross offices or local county emergency management offices can provide additional information and also pre-register for special-needs shelter.

Additional Resources

Several excellent resources and tools focusing on children's issues pertinent to disasters and disaster preparedness are available. The AAP has developed child-focused materials for disaster preparedness, and a Family Readiness Kit can be downloaded from its Web site (<http://www.aap.org/terrorism/index.html>), which also contains other important information on handling disasters as well as links to national and local resources for families.

Other Recommended Resources

- The U.S. Department of Human Services
<http://www.hhs.gov/>
- The Federal Emergency Management Agency (FEMA)
<http://www.fema.gov/>
- The Centers for Disease Control (CDC)
<http://www.cdc.gov/>
- *Florida Family Preparedness Guide*
<http://www.doh.state.fl.us/>

FREE DISASTER PREPAREDNESS TRAINING that includes working with and planning for children during disaster events is offered by the NSU-COM Center for Bioterrorism and All-Hazards Preparedness. For more information, please visit our Web site at <http://www.nova.edu/allhazards> or call the center at (954) 262-1688.

Quick Tip

In planning for an emergency, even preschool children can be taught how to dial 911 and ask for help.

References

- American Academy of Pediatrics (<http://www.aap.org/terrorism>)
- Family Readiness Kit (<http://www.aap.org/family/frk/frkit.htm>)
- CDC (<http://www.cdc.gov>)
- FEMA for Kids (<http://www.fema.gov/kids>)
- U.S. Department of Homeland Security - Ready Kids Web Site (<http://www.ready.gov/kids>)
- Florida Family Preparedness Guide* (Emergency Supply Kits)
- Pediatric Terrorism and Disaster Preparedness: A Resource for Pediatricians* (<http://www.ahrq.gov/research/pedsprep/resource.html>)
- "Four Steps to Prepare Your Family for Disasters" (Tipp, The Inventory Prevention Program)
- "Emergency Preparedness for Children with Special Health Care Needs: Instructions for Parents" (<http://www.aap.org/advocacy/epcparent.htm>)
- "New Subspecialty in Disaster Medicine Is Emerging" (American Medical Association) (<http://www.amednews.com>)
- American Red Cross (<http://www.redcross.org>)
- Jump Start, Pediatric Emergency Preparedness Lecture Series (http://www.jumpstarttriage.com/Other_Lectures.php)
- Current Pediatric Diagnosis and Treatment*, edited by William E. Hathaway, Jessie R. Groothuis, William W. Hay, Jr., and John W. Paisley.
<http://www.thepittsburghchannel.com/news/9356703/detail.html>
http://www.boston.com/news/odd/articles/2007/04/30/toddler_calls_911
<http://www.newsobserver.com/102/story/446181.html>

CBAP Mission Statement



The Center for Bioterrorism and All-Hazards Preparedness (CBAP) of Nova Southeastern University College of Osteopathic Medicine is a national center focused on interdisciplinary training, information dissemination, and technical assistance related to all-hazards preparedness in a global society.

The *CBAP Chronicle* is a quarterly publication that highlights the resources, services, and relevant information on current topics available on all-hazards preparedness in the United States for interested health care professionals and those involved in the health and safety of their communities, state, and nation.

CBAP Research Update

By Jessica De Leon, Ph.D.
Coordinator of Research and Evaluation



Since the expansion of its research team at the end of 2006, the Center for Bioterrorism and All-Hazards Preparedness is increasing its focus on course evaluation and all-hazards research.

Evaluating the Basic Awareness Course

The CBAP's All-Hazards Basic Awareness course has been available both online and live since July 2006. All trainees who participate in all-hazards basic awareness training and are applying for continuing education credits complete the Florida Area Health Education Center Network Continuing Education Program Impact Survey. This survey rates the program on

- fulfillment of its goals/objectives
- provision of relevant information at an appropriate level
- provision of a quality learning experience
- whether the offered knowledge/skills will improve patient and/or client care
- applicability to trainees' licensure/certification requirements.

The content and evaluation of school nurse all-hazards training that has been conducted throughout the state of Florida in 2006 will be presented at a roundtable discussion at this year's American Public Health Association annual conference in Washington, D.C., in November.

Trainees from Broward Community College also complete a second evaluation survey on

- how well informed the instructor was
- how well the instructor held trainees' interest
- how well organized and understandable the instructor was
- how well practical problems/examples were used
- how effectively students were involved

- how effectively the course was summarized
- how effectively instructional media was used
- how well the objectives were met
- how the classroom facilities rated
- how the trainees would rate the program overall.

In May 2007, the CBAP began conducting a follow-up evaluation of the basic awareness course with a survey to trainees exploring the longer-term impacts of disaster preparedness training. Basic awareness trainees are being asked to complete a follow-up survey up to one year post training. Attendees of live and online basic awareness courses can complete the follow-up survey online (go to http://www.nova.edu/allhazards/awareness_training/ to view the survey). Survey items include subject and course information, self assessment of trainees' personal and professional preparedness and response capabilities, need for additional training, and experiences in recent drills. Results from this survey will be presented at the Florida Public Health Association's annual meeting in August.

Vulnerable Populations

The center's focus on vulnerable populations is illustrated in several ongoing research projects. In collaboration with the Baudhuin Preschool at NSU's Mailman Segal Institute for Early Childhood Studies, the CBAP is conducting survey and focus group research to assess the needs for disaster preparedness education among primary caretakers of children with autism and professionals working with this population. Based on feedback from parents and professionals, the research team will develop, implement, and evaluate an educational program addressing the special needs of this growing vulnerable population.

By involving those who directly care for and work with autistic children in every stage of program development and implementation, this tailor-made program will aim to improve disaster preparedness and response for children with autism. A discussion of the methodology being used for this project will be presented at this year's American Public Health Association annual symposium.

In collaboration with faculty from the University of Florida, the CBAP is conducting a qualitative research project examining the hurricane experiences of elderly men and women in six Florida counties. A research poster on preparedness and response behaviors, coping mechanisms and emotional responses, evacuation experiences, health, medical, and nutritional issues, meeting the special needs of the elderly during disasters, and means of information acquisition will be presented at the Florida Public Health Association's annual meeting.

Updates on research projects and conference participation will be published in upcoming issues of the *CBAP Chronicle*. For more information on research at the Center for Bioterrorism and All-Hazards Preparedness, please contact Dr. Jessica De Leon, coordinator of research and evaluation, at jdeleon@nsu.nova.edu or (954) 262-1873.

CBAP Set to Unveil Intermediate Course



The center will soon be unveiling its Intermediate Course, which is defined by needs assessment and follows competency and best-practice standards. The course will be available to various health professionals and workers such as physicians, dentists, podiatrists, nurses, pharmacists, advanced practice nurses, and physician assistants. It also includes training that complies with

the type indicated in the Homeland Security's National Response Plan. All courses build on an individual's ability, given his or her competency level, to

- recognize the effects of an all-hazards event
- appropriately treat individuals affected while protecting self
- participate appropriately, rapidly, and effectively in an interdisciplinary team response to save lives and prevent further harmful effects
- alert the system(s) to accurately inform the public and those affected and to obtain the needed assistance and resources necessary to respond

The course also will include content on conflict resolution since recent events involving disasters have clearly demonstrated the need for systemic understandings and approaches to conflict and the need for conflict management planning.

To learn more about the CBAP and its free courses, please call (954) 262-1688 or peruse its Web site at www.nova.edu/allhazards.

Intermediate Course Objectives

- Be able to stabilize and initiate therapy to patients suffering from common chemical injuries, radiation, bacteriological pathogens, and blast injury.
- Explain the role of the local Emergency Operations Center during a disaster event.
- Explain how to use a chain of custody form for recording evidence following a disaster event.

- List four types of stress responses experienced by those exposed to a disaster event.
- Define "psychosocial first aid."
- Describe the role of mental health personnel in assisting in the emotional recovery of individuals coping with a disaster event.
- Identify systemic planning approaches to conflict management that might be useful following various types of disasters.
- Identify three strategies to manage surge capacity during a disaster event associated with mass casualties.
- Describe an effective strategy for triage and patient tracking when managing a disaster event with mass casualties.
- Describe an effective strategy for transporting patients when managing a disaster event with mass casualties.
- Describe the role of security when managing a disaster event.

FREE, continuing education for over 45 different health care disciplines is available at www.nova.edu/allhazards. Courses will be available at four levels:

- Basic Awareness Course (now available online, by CD, and as a speaker program; coming soon in Spanish)
- Intermediate Course (late summer 2007)
- Advanced Course (fall 2007)
- Executive and Hospital Administrator Course (fall 2007)



Upcoming CBAP Training Sessions

August 2007

August 2: Florida School for the Deaf and the Blind (St. Augustine) - School Safety Presentation

August 8: Winona CBAP (Minnesota) - Basic Awareness Course

August 10: Florida Summit on School Safety Presentation (Tampa)

August 17: Broward County Dietetic Association, Inc. Workshop (Partnership of IFAS Extension at UF and Broward County) (Fort Lauderdale) - Bioterrorism and All-Hazards Preparedness: Basic Awareness for Dietitians and Diet Technicians

August 27-28: NIMS Training for the National Association of Community Health Centers (Texas)

September 2007

September 5: Broward Community College (Davie) - Basic Awareness Course

September 6: Florida Osteopathic Medical Association (Tampa)

September 8: NSU Shepard Broad Law Center - Legal Seminar (all staff, including guest speakers)

September 21: Broward Community College (Davie) - Intermediate Course

October 2007

October 3: Broward Community College (Davie) - Basic Awareness Course



Center for Bioterrorism and All-Hazards Preparedness
College of Osteopathic Medicine
3434 South University Drive
Fort Lauderdale, FL 33328-2018

