

Research Report 2006-2

*Children and Earthquakes:
Protective Measures for Child-Care Providers
And Teachers with Students in Primary School*

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Prepared for:

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Intent of Report

Through this report, we hope to discuss events and other hazards associated with an earthquake which may affect children. This will enable us to identify items which will need to be part of an emergency preparedness kit specific to young children and care providers. By addressing special considerations for certain young ages of children which will require more attention than older children, we hope to shed light on special considerations which will apply to private care providers and teachers.

Our overall goal is to provide teachers and child care providers more specific information on caring for children before, during and after an earthquake to improve their ability to care for and protect children through times of crisis.

IREM Mission

The Institute for Rural Emergency Management (IREM) at Central Missouri State University was established in June 2005 to meet a demonstrated need for technical assistance in rural communities. CMSU is the only University in the U.S. to create a community outreach center focused on the emergency management needs of rural America, which are distinct from the needs of urban and suburban communities. The Institute (IREM) gathers best practices from successful rural projects and develops guidelines and targeted information to distribute to elected officials and community leaders. In rural areas human resources are often limited, so IREM provides supervised student interns and researchers to complete vital projects, implement new programs, and deliver training workshops and exercises.

Earthquake Characteristics

1. An earthquake is a sudden, sometimes violent movement of the earth's surface from the release of energy in the earth's crust (SEMA, 1).

2. Earthquake deaths and injuries are seldom caused by the actual movement of the ground, but rather from falling objects and debris. Injuries at home are caused by partial building collapse, flying glass, overturned bookcases, furniture, appliances, and fires from broken chimneys, broken gas lines, and downed electrical lines (Renton, 1).

New Madrid Fault Zone

The New Madrid Seismic zone lies within the central Mississippi Valley, extending from northeast Arkansas, through southeast Missouri, western Tennessee, western Kentucky to southern Illinois. Historically, this area has been the site of some of the largest earthquakes in North America. Between 1811 and 1812, 4 catastrophic earthquakes, with magnitude estimates greater than 7.0, occurred during a 3-month period. Hundreds of aftershocks followed over a period of several years. The probability for an earthquake of magnitude 6.0 or greater is significant in the near future, with a 50% chance by the year 2000 and a 90% chance by the year 2040. A quake with a magnitude equal to that of the 1811- 1812 quakes could result in great loss of life and property damage in the billions of dollars. Scientists believe we could be overdue for a large earthquake and through research and public awareness may be able to prevent such losses (UALR, 1).

Preparing for and Responding to Earthquakes

1. *Practice "duck, cover, and hold" drills at home with your family, at work and at school.*
 - Injuries and deaths during earthquakes are caused by falling objects and collapsing structures. Knowing how to protect yourself when the shaking starts may save your life. Show children safe areas to duck and cover.
 - Practice counting to sixty seconds. Most quakes do not last that long, and it will help you to keep calm when a real earthquake strikes.
2. *Develop an earthquake plan at home, in your neighborhood, at school, and at work.*
 - Determine the safest places in your home, at work and at school. These should be away from heavy furniture or appliances, woodstoves, fireplaces, open shelves, and bookcases, and large panes of glass, pictures, or mirrors.
 - Find out the policy of your local school concerning release of children after an earthquake. Arrange with neighbors to watch out for your family and property in case you are not at home (UAF, 1).
3. *Construct emergency earthquake kits, with the items that will be listed in following sections.*
4. *Where to Go During an Earthquake*
 - Stand or crouch in a strong supported doorway

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- Get under a sturdy table / desk with strong supports
 - Hold on to table legs to maintain your balance
 - Brace yourself in an inside corner of the house
5. *Hold Surprise Drills*
- At random times yell EARTHQUAKE and have children, teachers, assistants or care providers respond as they would normally.
 - Occasionally simulate a practice drill by calling parents or guardians on the alert roster to verify contact information. These should follow the exact notification policies which are to be followed in case of emergency at your school or care center.

Special Concerns for Young Children

1. *Emergency Preparedness Items for Kit*
- Food and Water for a minimum of 3 days, preferably 7 days
 - Basic medications, such as aspirin
 - Special medications as required by individual children (1 week's worth)
 - Basic First Aid Kit
 - Flashlights and spare batteries
 - Diapers and personal hygiene items
 - Formula (canned, no glass containers)
 - Favorite Snacks
 - Comfort items (blankets and toys)
 - Activities, such as coloring books to occupy time and distract children from some of the dangers the environment might contain
 - If possible, have all parents write a note to their child telling them to behave and listen to their teachers / care providers. Put these notes in envelopes addressed to the child and store them with the emergency kit in waterproof bags or containers. This will help put the children at ease and provide them with some direction from an authority figure immediately following the crisis
2. *Contact Lists*
- Easily accessible contact list for parents and guardians of all children
 - Emergency contact list for local Police and Fire units to advise them of your status and prioritize any injuries
 - For schools, Principal / Vice Principal contact info

- As quickly as possible, tape a message for incoming calls with updates containing good news for all parents. Contact parents who need to be informed of injuries or other status changing events directly and immediately.

Special Needs Children Concerns

1. This group of children already requires a great deal of special attention and care. Adequate planning and preparation will need to be done in order to best protect these children, and planning will depend on the needs of the child.
2. Ensure that appropriate areas for wheelchairs or other assistive devices to be placed during emergencies are clearly marked and well known to any person, care giver or student who can move that chair or device.
3. Children with special needs may be harder to extract from hiding places and shelters for a variety of reasons, including unwillingness to move and the physical challenge of moving themselves. Extra effort will need to be made to keep these children calm and in good spirits.

Additional Earthquake Materials

1. *Be Ready 1-2-3 Workbook:*
 - 8-page workbook that helps children ages 5-8 learn about home fires, earthquakes, and winter storms through activities and demonstrations led by "experts" Cool Cat (Home Fires), Ready Rabbit (Winter Storms) and Disaster Dog (Earthquakes).
 - Local Red Cross chapters can order packages of 25 as stock number A5017 for a nominal fee.
 - Also available on-line in English, Spanish, and Vietnamese.
2. *After The Earthquake Coloring Book:*
 - Designed for use by children ages 3-10 and an adult or older youth "helper" who can discuss the child's feelings about an earthquake and his or her recovery process.
 - NOT designed for earthquake preparedness. (Recovery item)
 - Local Red Cross chapters can order as stock number A2201 in packages of 25 for a nominal fee (American Red Cross, 1).

Conclusions

1. *All small children will have a similar scope of requirements during periods of emergency, but their needs will not be the same.*
 - While there will be slightly different requirements based on the ages and special needs of the children, all children need close attention.
2. *Involvement of parents by encouraging good response behavior at home will help improve response behavior at school / day care.*
 - The involvement of parents in preparing the children to respond to emergencies can not be understated.
3. *Proper planning and organization of supplies and notification lists will ease the burden on care providers, children and parents during crisis.*
 - Parents must be made to supply current contact information, and care providers must continually check that information to ensure accuracy.
4. *It is imperative that care providers maintain a calm, friendly and caring demeanor in order to put the children at ease.*
 - If care providers remain calm, easygoing and friendly, it will enable the children to draw strength from them during a time of crisis.
5. *Practice is vital to performance during crisis, and should be conducted by children and care providers on a regular basis.*
 - Making a game of practicing will motivate children to respond. Effort should be taken to coordinate responses at school and home in order to improve both responses and improve communication between parents and care providers.

Works Cited

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