

*Home alone:  
Disasters, mass emergencies, and children in self-care*

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**ABSTRACT**

*Currently, there is a lack of research on emergency preparedness training for children in self-care. To compensate, and to serve as an interim guide until sufficient resources and research exist, the authors reviewed relevant studies on emergency skills training for children home alone. They use these findings to outline possible training approaches and recommend strategies to validate locally-designed efforts. The authors call for further research that can be used by emergency management, education, and child-care communities.*

**INTRODUCTION**

On any given day, up to 1.6 million children aged five to 14 are home alone.<sup>1</sup> Imagine a seven-year old watching a video, unaware of an approaching storm. Or, visualize a young teenager lacking transportation to leave the area during a hazardous material spill. How would a child home alone respond to a riot or massive blackout? Commonly referred to as latch-key children, the current census-based term for children home alone is self-care, defined as a child “between the ages of approximately six and 13 who spends time at home alone or with a younger sibling on a periodic basis.”<sup>2</sup> Children in self-care typically spend five to 10 hours per week unsupervised by adults or teens.<sup>3</sup>

Studies reveal that parents overestimate their child’s response capability for emergencies while home alone.<sup>4,5</sup> Lizette Peterson and her colleagues documented that “not only were [unsupervised children] unable to recall their parents’ rules, they failed to recognize what behaviors were and were not acceptable...parents are very likely to be unaware of

their children’s need for such training.”<sup>4</sup> In short, Peterson says that children’s preparedness for self-care is “overestimated, under-rehearsed, and unsafe.”<sup>6</sup>

Detailed research specific to children in self-care during disaster situations does not exist. Some training materials (e.g., Web sites, videos, handouts) are available, but their effectiveness is not documented. To begin to fill this gap, this study reviews relevant research on children in self-care and emergency situations, describes potential applications, and suggests both policy and research needs.

This article grew out of a project designed to prepare children in self-care to respond to potential emergencies at a chemical weapons storage facility near their home. We reviewed existing research, corresponded with other researchers, and assessed resources such as Web sites, videos, and training manuals. Several caveats should be identified before we report on our view of the literature. First, most studies on children in self-care and emergencies were performed in the 1980s, and replication has not been attempted since then. Second, research usually focuses on home safety topics, such as fire scenarios, which may not be applicable to other types and sizes of hazards. Third, earlier researchers relied on small, relatively homogeneous samples that may limit their generalizability. Only one of the studies considered children with disabilities. These earlier studies did not identify or consider developmental levels. Finally, most studies were based on experimental research designs that may not translate well to real situations.

Nonetheless, the research did produce some potentially useful principles that may prove useful in training children while more detailed research is conducted.

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Reliance on these studies is presumably wiser than assumptions about what might work, particularly because the principles are consistent with theories of behavioral modification. Therefore, the principles presented in this study are suggestions for future research and an interim guide for emergency managers.

## RESULTS

Research demonstrates that training based on specific techniques can promote safer behavior among children in self-care. This section breaks down the small body of research into concrete principles related to trainers, training, resources, and validation strategies.

### *Trainers*

Who should train children in self-care to respond to emergencies or disasters? Lizette Peterson and her colleagues at the University of Missouri used graduate students to train children. Peterson then compared preschool teacher training under professional consultation versus teachers using a training manual alone. They found no difference, suggesting that train-the-trainer models could be used with teachers, child care workers, teaching assistants, parents, or even community response teams.

However, the trainers may not be as relevant as the training techniques.<sup>5</sup> Peterson's experimental *Safe at Home* game did not require formal training, relying instead on information that trainers drew from manuals.<sup>7</sup> In another study, schools provided homework cards for parents to supplement training efforts.<sup>8</sup> Furthermore, trusted neighbors could be enlisted as partners in training and as safety buddies during actual events.<sup>9</sup>

### *Training*

How long will it take to train children in safety skills, and what kind will they need? Where should training take place? Will information about disasters cause negative emotional reactions in children?

Research suggests that time spans may be age-specific. Younger children may need longer training times because training must be broken down into sequential learning steps. As a general rule, the

younger the child, the shorter the time spent on the individual step and the longer the training time span overall.

Several studies demonstrate this principle. First, Russell Jones effectively trained four- and five-year-old children to dial for emergencies in 15 to 20 minute sessions spread over two weeks.<sup>10</sup> Subsequently, Jones and colleagues prepared six- and seven-year-olds in two 20-minute sessions per day, within a nine-day median timeframe.<sup>11</sup> Older children (in this case, third graders) may be able to engage in self-instruction, if training includes behavioral rehearsal supplemented by continual maintenance.<sup>12</sup> Peterson trained eight- to 10-year-olds in sessions averaging 40 minutes, suggesting that home safety skills "can be acquired in less than 10 hours of instruction and maintained at safe levels through intermittent booster sessions."<sup>5</sup>

Although one-on-one training yields the best results, small group training can be viable, perhaps as part of a regular school curriculum.<sup>13</sup> Ronan and Johnston compared the hazard and emotional focus of 11- to 13-year-olds participating in a six-week module on disasters incorporated into a year-long reading and discussion program. While one group covered material dealing only with the nature of disasters and hazards, a second treatment group received additional information on emergency preparedness. In the short-term, the second group showed higher knowledge levels in mitigation and response activities.<sup>14</sup>

Classrooms with simulated settings are considered ideal as training locations, a strategy similar to the familiar mobile smoke or earthquake houses. Some schools have built simulated bedrooms and successfully trained children in fire safety skills. Simulations involving telephones to teach dialing skills have also proven effective. Thus, using realistic settings is recommended.

Will training cause children to worry or become fearful? Peterson discovered that "a slight decrease was seen on most of the measures of anxiety."<sup>15</sup> Ronan and his colleagues indicate that children trained in emergency response tend to be less fearful than those without training.<sup>16</sup>

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### Approach

What kinds of teaching strategies work best with this population and within an emergency skills context?

Using a problem-solving approach that actively engages the child promotes learning and may generate cross-hazard application.<sup>5</sup> Even more important, providing a rationale for the desired behavior produces closer adherence to a training regimen.<sup>17</sup> In short, children acquire skills best through a combination of reflective and experiential learning.

Behavioral training, where trainers describe a situation, model the behavior, explain what to do, and then rehearse the scenario with the child surpasses verbal training alone.<sup>18</sup> For example, elementary school students perform more effectively after practicing the desired fire emergency skills.<sup>17</sup> Practice should be broken down into a series of steps. Trainers should correct errors by having the children repeat the desired behavior and reinforce correct responses with verbal or tangible rewards (e.g., stickers for younger children, making sure rewards are age-specific).<sup>13</sup> In short, break the training into steps, then practice, reward, and repeat.

Follow-up training, consistent with reinforcement theories, is crucial because children lose skills over time. Jones found that “follow-up assessment five months after training indicated that the emergency escape responses were maintained only at relatively moderate levels.”<sup>19</sup> Further study showed that “retraining resulted in only a temporary return to the high levels of correct responding necessary for emergency skills.”<sup>12</sup> Peterson concluded that “children may require frequent booster sessions to maintain high levels of skill acquisition, particularly for situations they may encounter very infrequently, if at all, such as emergencies.”<sup>15</sup> Such booster sessions could take as little as one hour.<sup>20</sup> A one-time training session is insufficient—emergency managers should develop long-term maintenance programs.

### Resources

Though dated, Peterson’s *Safe at Home* represents the only scientifically validated resource for teaching home safety to children in self-care. Conversely, popular resources exist mainly in the form of Web sites provided

by police agencies. As one alternative, *Wally Wise Guy*<sup>21</sup> was developed by a consortium of local emergency planning committees along the Houston Ship Channel to show children how to shelter-in-place during a chemical emergency. Wally’s message is designed to reach children from kindergarten to fourth grade through videos, public service announcements, and a variety of education and outreach materials. Wally is used by 87 organizations in 21 states and has been adopted as part of the public education strategy by the US Army’s and FEMA’s Chemical Stockpile Emergency Preparedness Program.<sup>22</sup> However, few additional resources exist for those seeking to prepare children in self-care for emergencies, and none to date have been supported through rigorous research.

The American Red Cross provides a broader curriculum tied to National Education Standards. Nearly 400 teachers evaluated *Masters of Disasters*<sup>23</sup> during pilot testing, and input was obtained from emergency management agencies and organizations such as the National Weather Service. This award-winning, packaged set of materials includes exercises, activities, videos, stickers, and an instructor’s manual. It is segmented into three age groups: kindergarten through second grades, third through fifth grades, and sixth through eighth grades. Though school-centered, *Masters of Disaster* could be adapted for use in worship centers, after-school programs, and scouting organizations.

FEMA has created a user-friendly Web page called FEMA for Kids that includes materials for teachers and parents. Though not age-specific, activities are in place that could benefit children in self-care.<sup>22</sup> Some materials from both FEMA and the American Red Cross are available in Spanish.

### Validation

Because of the lack of validated, replicated, and updated resources specific to children in self-care, communities may find it necessary to develop their own. To verify that the behaviors and steps in any training scenario are appropriate, local agencies and departments can be recruited to participate. In several studies, firefighters and telecommunicators participated in validating exiting behaviors, developing simulations, and

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suggesting steps for emergency dialing skills.<sup>11,18</sup> Those same validating agencies can also participate in pre- and post-tests that measure outcomes.<sup>18</sup>

### *Summary*

To summarize, research has not sufficiently examined or validated efforts to prepare children in self-care for major emergencies or disasters. However, existing studies on emergency skills suggest that the following principles may be useful within an overall training strategy:

- break down the desired behavior into a series of steps;
- validate the steps with local responders and emergency managers;
- train trainers and provide additional homework materials for reinforcement;
- provide rationales supplemented with problem-solving scenarios;
- teach the steps sequentially, paying attention to age levels and time needed;
- train one-on-one or, if individual training is not possible, in small groups;
- model the appropriate behavior;
- use repetition to train;
- use simulated settings;
- provide reinforcement for correct behavior;
- repeat training every four to six months; and
- evaluate the training to assess its effectiveness using pre- and post-tests.

In addition to ideas generated from research, practitioners might consider creating:

- after-school phone services and crisis lines for children home alone;
- children in self-care awareness week;
- survival checklists for children outlining steps for specific emergencies;
- parent training manuals;
- outreach to recreational programs that target children in self-care;
- safety-care cooperatives among parents and neighbors; and
- Web sites designed especially for children in self-care.

### **CONCLUSION**

Emergency managers lack a scholarly body of knowledge relevant to children in self-care facing mass emergencies and disasters. Although we can articulate principles that should be transferable to this at-risk population, children home alone deserve the best that science can offer. Thus, this paper serves as a call for all-hazards research, effective practice, and new policies and programs on and for children in self-care.

### *Research*

Researchers question whether children can generalize from specific training to other hazards or will use their training at all in actual situations. As Peterson pointed out nearly two decades ago, “proof that children will access the behaviors they know to be correct during actual emergencies awaits further research.”<sup>20</sup> Taking cues from research on warning compliance behavior, researchers might examine social and physical cues, hazard knowledge, community involvement, family status, gender, and resource levels.<sup>24</sup> Deductively-based research guided by social psychological theories could enhance such an effort.

Furthermore, a need exists to validate the principles outlined in this article within a disaster context. These principles, based mostly on studies of emergency skills,

represent variables and implicit hypotheses for updated research. Additional research needs to include a diversity of children in self-care, given the homogeneity of existing research samples.

### Practice

Research has not assessed emergency management practice that targets children in self-care. Knowing if one's efforts represent a best practice, then, seems problematic. Understanding that 1.6 million children are home alone in the United States every day suggests urgency in addressing this gap between research and practice.

Filling this gap by generating and practicing evidence-based training should work. Studies report that children in self-care tend to become "more independent, self-reliant, and resourceful than peers."<sup>25</sup> These qualities suggest that emergency and disaster training can be worthwhile. Furthermore, proof exists that children can not only comprehend hazards education but pass it along to their families.<sup>26</sup>

### Policies and programs

Policies that mandate training can and do result in increased preparedness training; consequently, concerned readers need to influence their legislators and policy-makers.<sup>27</sup> Granting agencies and foundations that offer funding on children, disasters, terrorism, and education could easily modify requests for proposals to highlight the needs of children home alone. Researchers and emergency managers could serve as advocates for renewed attention to this at-risk population.

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