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Teaching Emergency Preparedness to Restricted-Budget Families

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ABSTRACT ***Objectives:*** To fulfill the health teaching and promotion responsibilities of public health nurses, a teaching intervention was devised to prepare low-income, low-resource families to survive a worst-case disaster scenario. The purpose of this study is to introduce that plan. ***Design:*** Teaching sessions were held to increase awareness about disaster preparedness and to provide the resources necessary for preparing disaster kits on a restricted budget. ***Sample:*** This project focused on families enrolled at the Children's Relief Nursery in Portland, Oregon's St. Johns District. ***Measurements:*** Posttest assessments and client follow-up at 3, 6, and 12 months were used to assess the effectiveness of the curriculum and follow-through on kit preparation. ***Results:*** A replicable teaching tool was successfully developed, and the interest and commitment of community partners dedicated to assisting restricted-budget families was secured. ***Conclusions:*** States' disaster plans hinge on individuals' implementation of their own survival plans, and it is vital that these individuals be made aware of their responsibility. It is truly a matter of life and death that families possess the skills, knowledge, and resources to carry out a disaster survival plan successfully, and it is the ethical responsibility of the public health nurse to intervene.

Key words: disaster, emergency preparedness, low income, preparation, teaching.

Community health nurses must fulfill the critical functions of health and safety teaching and promotion, and of encouraging community readiness for disasters. They must also provide quality services to individuals of all demographic backgrounds, including those who may not have the financial, social, or educational resources to ensure their own readiness for and safety during disaster (Williams, 2002). A recent series of especially destructive natural disasters prompts a renewed interest in preparing for local disaster, and it is the duty of community health nurses to develop culturally and developmentally appropriate teaching plans to meet these emerging community needs and interests. Such plans promote disaster mitigation, and enable preparedness for disaster in a community with limited social, financial, and/or educational resources. They also incorporate evidence-based information and advice provided by disaster-focused agencies like the American Red Cross and the Federal Emergency Management Agency.

This article presents a case study of one community in Portland, Oregon, and the emergency preparedness teaching plan developed for and with them. The community consists of families enrolled at the Children's Relief Nursery (CRN) in Portland, Oregon's St. Johns District. A discussion of the teaching plan is included; theory and evidence-based protocol used in the development of the plan are addressed where appropriate.

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The Community Described

The community of interest is unified by both geographic location and participation in the CRN, which identifies as a support network for many low-income

families and serves children aged 0–3 who are either victims of abuse or at significant risk for abuse (CRN Annual Report, 2004). This community is not typically described as close-knit, yet families are casual and congenial when dropping their children off or attending regularly scheduled parent evenings.

A windshield survey revealed that the neighborhood has easy access to city transportation with bus stops every few blocks, including a bus stop at the CRN. There are parks, schools, health and social services, grocery stores, restaurants, and neighborhoods comprised of more houses than apartments. There is a community center, retail stores, and churches of various denominations around CRN. People are typically out walking or riding bikes during daylight hours, and the appearance of the buildings conveys a sense of community trust and safety.

The CRN program manager noted that most of the parents of CRN children read at a third-grade level with little or no health literacy. While not all parents face this challenge, it was prevalent enough to address during teaching plan development. Weekly parent education classes, offered in both Spanish and English, address various topics important to parents. These weekly meetings provide an appropriate opportunity to teach about emergency preparedness.

A second key informant, a city firefighter/paramedic, emphasized that there is a lack of outreach regarding disaster preparedness at the individual level. Further, city, county, and state disaster management plans hinge on individuals' abilities to survive independently for 72 hr without public assistance. This illuminates a dangerous combination: individual safety and survival are dependent on self-care for 72 hr after a disaster, yet these very individuals are unaware of and unprepared for their responsibilities to self-manage. The weakest link in the city's disaster management plan is the fact that citizens with low socioeconomic status and low levels of education are expected to develop individual disaster plans and kits despite profoundly limited resources. Such a lack of resources and knowledge places citizens at a dramatically increased risk for becoming victims during disasters, making them vulnerable to experience more negative health outcomes. The influence of socioeconomic and level-of-education variables on negative health outcomes is further supported by Moore et al. (2004), who examined social factors that influenced readiness for and recovery from significant natural disaster.

The community consists of 62.4% Caucasian, 14.4% Hispanic, 8.9% Black, and 14.3% "other" race individuals (Portlandmaps.com, 2000). In 2004, CRN served over 135 Spanish- and English-speaking children and their families (CRN Annual Report, 2004). Twenty percent of persons living in this zip code speak a language other than English in the home. Only 66.5% of families are in the labor force, and 16% of families live below the poverty level. The percent of individuals living below the poverty level is 20%. The median household income for this zip code is $35,266, and 8% of those living in this zip code have not completed high school (U.S. Census Bureau, 2005).

Theory and Evidence-Based Teaching Protocol

Hassmiller (2002) notes that individuals and communities pass through three stages with regard to disaster: preparedness, response, and recovery. Awareness of how to transition between these stages improves the health outcomes of communities during disaster. There are four simple steps that families can follow in order to better prepare themselves in the event of a disaster. These four steps include investigating potential disasters, creating a disaster plan, completing the disaster preparedness checklist, and practicing/maintaining one's plan. These principles are used as the foundation for the goals and objectives of the present teaching plan. Further, in preparing this curriculum, it was acknowledged that Healthy People 2010 indicators that most influence CRN families in the immediate wake of disaster would include unintentional injury, occupational safety and health, environmental health, and food/drug safety (Hassmiller, 2002).

A major factor influencing the health and safety of the CRN community is low socioeconomic status, resulting in multiple financial, social, and educational stressors that can trigger helpless and/or violent responses in the face of adversity (Campbell & Landenburger, 2002). Many diagnoses and risk factors for this community are directly related to this combination of socioeconomic stressors. For example, low socioeconomic status leads to the risks of homelessness, violence, malnutrition, injury, and death, and a comprehensive detail of the interrelationships between diagnoses is presented in Fig. 1. While all of these diagnoses are important and closely linked,

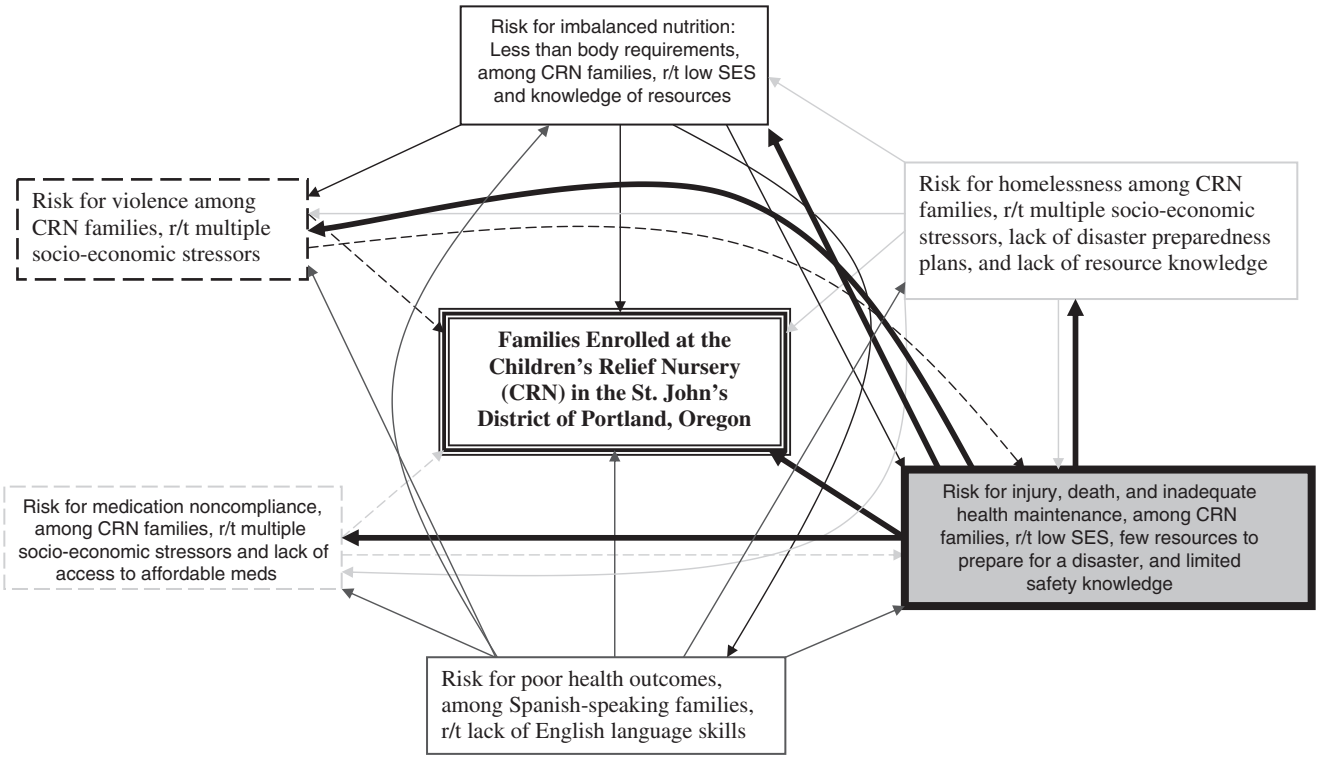

Figure 1. Web of Causality

Note the bold keystone issue "risk for injury and death." This issue influences nearly all of the other community diagnoses, but is also affected by all other diagnoses. The influence of the other diagnoses on the keystone issue will become especially pronounced during times of crisis such as a natural disaster.

"risk for injury, death and ineffective health maintenance" stands out as a keystone, as it is affected greatly by all the others, and also directly affects four of the five other diagnoses (see Fig. 1). The relationship between these diagnoses and the place of "risk for injury . . ." as keystone becomes especially apparent when considered in the context of disaster.

When considering the unsafe, inhospitable environment that disaster creates, risk for injury becomes particularly pronounced: Preexisting factors like risk for violence, malnutrition, and medication noncompliance become exceedingly prominent in the wake of disaster as people try to adapt, scavenge, and defend themselves in order to ensure their own survival (Moore et al., 2004). Other local service agencies are working to intervene with other diagnoses like violence, malnutrition, poor access to medications, and lack of English language skills, and CRN parents are given special access to these resources. However, there is a major service gap with regard to disaster preparedness for persons on a restricted budget, further accentuating the diagnosis of "risk for injury . . ." as keystone.

In preparing the teaching plan, the diagnosis of risk for injury was viewed through the lens of disaster preparedness. To reduce the risk of injury and death during a time of crisis, factors that influence that risk—lack of resources, lack of safety knowledge, and lack of disaster preparedness plans—were addressed. This teaching plan introduced a culturally and developmentally appropriate disaster preparedness resources kit that protects, prepares and informs families, and enables them to prepare safety kits on restricted budgets.

Learning Principles and Teaching Strategies

Lisa Onega (2002, p. 168) articulates how "An understanding of [the nature and domains of learning] forms the background for providing effective health education." Thus, activities that address the cognitive, affective, and psychomotor domains were incorporated into the teaching plan.

The cognitive domain of learning encompasses memory and understanding, application, and recall.

Thus, to grab and keep audience attention and increase recall, information was presented in a bold and interactive way that facilitated exploration and manipulation of material. Wherever possible, audience members were encouraged not only to learn and recall information but also to break it down into its constituent parts and implications, enabling them to adapt information to their own unique needs and situations and empowering them to apply information to unexpected situations during a disaster. To keep the audience engaged, aware, and encouraged, all written information was presented at a third-grade reading level. Facts presented in written format were also spoken aloud to facilitate learning in both visual and auditory learners. It was important to remember that low literacy did not equal low intelligence, and that audience members ought to be respected and treated as intelligent, capable adults with their own meaningful set of life experiences.

The affective domain of learning attempts to affect change by altering the learner's beliefs, attitudes, and values. While typically well-set by adulthood, these domains serve as powerful agents of change if the instructor is able to alter them (Onega, 2002). CRN audience members were thus asked to reflect specifically on how being unprepared for a disaster might influence their own lives and families; this helped them to value the theme of disaster preparedness, and to make sense of its significance. Empowerment was key. In order to address audience concerns about emergency preparedness and the preparation of disaster kits, a group discussion of emotional, financial, and spiritual concerns was promoted in order to support the emotional domain of learning by fostering a sense of group cohesion and interpersonal support.

The psychomotor domain of learning addresses skill performance. This was addressed in the adult group by actual preparation of kits, using donated disaster preparedness materials obtained from community partners. In the children's group, "practice" was a simple psychomotor task like lining up and exiting the building quietly, as might be done in a fire drill.

At the end of the presentation, audience members were encouraged to visualize their disaster plans from start to finish, while considering that they will not likely be at home when a disaster strikes. All activities in both the adult and child groups appealed to multiple senses; pictures and videos, stories, music, and art activities were used when possible.

Cultural Considerations

A detailed, informative, and engaging teaching plan holds little value if it is not culturally appropriate and consistent with the correct level of health literacy. Without such considerations, course content will be dismissed, invalidated, or misunderstood completely. When preparing a take-home instructional packet that suggests, among other things, high-calorie, nutritious foods to pack away in a kit, it was important to consider foods that were ethnically diverse. For example, whereas a White American might pack canned beef as a source of protein, a Mexican American may opt to store beans, while an Asian American may prefer fish. While one should not *assume* that tastes would be different, it must be considered. The present instructional packet thus offered multiple ethnically diverse food options for sources of protein, carbohydrates, vegetables, etc. The packet was also translated into the Spanish vernacular in order to cross dialects and reach those Spanish speakers with less education and/or health literacy. Presenters were bilingual, and a group for Spanish speakers was held separately from the group of English speakers. Finally, a simple map of local hospitals, police stations, and fire departments was included and translated in the packet.

Health Literacy and Developmental Considerations

"Nearly half of all American adults—90 million people—have difficulty understanding and using health information, and there is a higher rate of hospitalization and use of emergency services among patients with limited health literacy . . ." (Institute of Medicine, 2004). The majority of CRN families read at a third-grade level; hence the disaster preparedness instructional packet was written at this level, and incorporated pictures whenever possible. Medical "jargon" was omitted entirely from the pamphlet. Finally, parents were encouraged to ask questions and interact with facilitators to facilitate learning and to allow presenters to gauge and adapt to the audience level of understanding.

The disaster preparedness instructional packet was presented to a group of adults, who were only able to come if child care was provided on site. Instead of providing mere child care, however, a curriculum was also presented to the oldest children that CRN

serves. These children were invited to engage in simple play activities that addressed basic safety. These activities combined art, music, and play, and were 100% safe for children of this age group.

A second developmental consideration was to remind parents that disaster preparedness kits should include items appropriate for children. For example, parents should ensure that foods and medicines packed are appropriate and sufficient for the developing child. Instructors also reminded parents not to forget to pack any toys that their children may need. Packing a toy in a disaster kit serves to significantly ease a child's anxieties and fears during a disaster.

Learning Goals and Outcomes

In order for a teaching plan to be effective and replicable, clear goals and measurement tools must be defined. Goals and implementation strategies provide direction for teaching, and goals for this teaching plan are presented in Table 1.

Teaching Strategies

In order to facilitate optimal learning, a multitude of factors were considered: The teaching environment was conducive to learning and easily accessible. Appropriate facilitators, materials, and visual aids were gathered, the curriculum was organized and sequential from simple to more complex, and level of understanding was determined to be appropriate to the audience.

Families were invited to an event at CRN to introduce parents to the information packet and give away free disaster preparedness supplies. This allowed time for parents to meet with and ask questions of "disaster preparedness experts," and allowed children to participate in an activity relevant to safety. The class for English speakers was held first, followed by the class for Spanish speakers. All classes took place during evening hours, but also during hours that public transportation was still operating, allowing families dependent upon public transportation to attend. Nutritious snacks were provided to parents, children, child care providers, and guests. Because people learn better when they actively participate in the learning process, audience members were encouraged to participate throughout the discussion, while interactive activities and breakout groups were implemented when possible.

"Expert" presenters were enthusiastic, passionate, and bilingual. When invited, they were encouraged to bring stories, videos, and other visual aids, and were coached on the health literacy level of CRN families. Facts presented were simple, meaningful, and dramatic, and encouraged learners to retain information and follow through with disaster kit preparation. The presentation was limited to 2 hr to retain audience attention. The informational pamphlet was reviewed and major points were discussed. The packet was colorful, portable, and attention grabbing. It included an activity for children, and a removable "summary page" that detailed the most vital information. This page could be either hung on the refrigerator or packed away with the disaster kit itself. Finally, at the end of the presentation, participants were asked for feedback to guide the development of future groups. A posttest evaluation was provided to determine audience level of understanding and retention. CRN staff committed to

TABLE 1. *Goals of Implementation*

Implementation goals/evaluation strategies
Implementation goals
Increase awareness of the importance of self-preservation in time of emergency. Foster a sense of empowerment by providing the knowledge, tools, and encouragement necessary to prepare a disaster kit
Create a useful teaching tool to be used during a group teaching session
Teach how to create a preparedness kit that is within the financial means of the target population
Aim for 50% attendance at a teaching session within the first 6 months of tool development
Evaluation strategies
For completion: 3-, 6-, and 12-month client follow-ups Parent night sign-in sheet
For comprehension: posttest assessment about tool utility and level of understanding

a 3-month follow-up with participants to determine whether participants prepared a kit, and if the kit was not prepared, the reasons why not. If a kit was not prepared, motivation and help in finding resources was provided by CRN.

Information regarding the common environmental hazards of the area was addressed in a trifold brochure. The brochure instructed about key preparation elements, such as preparation of a 72-hr disaster survival kit and family emergency plan. This trifold brochure provided the lead-in for the home disaster preparedness packet (HDPP). Using information from the American Red Cross (2005), from the Federal Emergency Management Agency (1992), and from the Portland Fire Bureau (2005), the HDPP detailed information about the preparation of a 72-hr disaster survival kit and family emergency plan. In the HDPP, a "how to" section was included, which described how to assemble a kit, what items were needed, where to get supplies at an affordable cost, and how the kit could be stored and easily accessed. The HDPP also contained information from local agencies and the American Red Cross that described alternative ways to obtain food and water in the event of a disaster, how to disengage utilities, and how to use city and county resources available for disaster preparedness. The HDPP addressed the need for a detailed family evacuation plan, including how to decide when it is appropriate to stay home, versus when and where to rendezvous away from home if necessary. Additional pages mapped out locations of police and fire stations, ambulance services, and community centers so that they could be found if communication systems were nonfunctioning. Both the HDPP and trifold brochure were translated into Spanish. An example of a 72-hr emergency kit was available on site for demonstration purposes, and some kit preparation materials were provided on site.

Conclusions

In any community, disaster preparedness is essential, although not always possible. However, through collaboration and assessment, it is possible to create a teaching plan to meet the needs of low-resource families. When a state's disaster plan hinges on individuals' implementation of their own survival plans, it is vital that these individuals are made aware of this responsibility. It is truly a matter of life and death, and the responsibility of the public health nurse to intervene.

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