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# Disaster Preparedness in a New York Community after 9/11

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## Abstract

**Objective:** The purpose of this study was to determine the level of individual household preparedness for a disaster.

**Methods:** A prospective survey of a convenience sample of English speaking adults in the emergency department waiting room over a 12 month period in 2004. The survey asked: demographics; specific disaster plan and essential supplies at home.

**Results:** Total of 1,272 surveys was completed. We obtained the following results: 40% had implemented specific disaster planning for the household. Households with children report having done more specific disaster planning than households without children (47% vs. 34%,  $p < 0.0001$ ). 60% of participants with children in the household are aware of their school or daycare disaster plans.

**Conclusions:** Most households have not planned for a disaster at home, and are not aware of a work place plan for a disaster. Households without children seem to be the least prepared for a disaster. The majority of people do not have a designated place to meet in case of an emergency as has been recommended by government and non government agencies.

## INTRODUCTION

Devastating events such as fires, mudslides, floods, blackouts or acts of terrorism have many people concerned about the degree of emergency preparedness of individual households. The possibility of additional terrorism on U.S. soil has become a significant concern. Billions of dollars have been allocated for homeland security and public health readiness. Disaster planning by families can ensure that the unique needs of children and their families are addressed. Our study investigated the current status of family disaster preparedness in a community outside of New York City by sampling our emergency department patients and visitors. We were specifically interested in determining whether families with children were more or less prepared for a disaster based on published guidelines.

## METHODS

### DESIGN

This was a prospective survey of a convenience sample of adults (18 yrs and older), visitors and patients, in the emergency department waiting room from January to December 2004. The study was approved by the

Institutional Review Board of the participating institution.

### SETTING AND POPULATION

This study was conducted in a semi-urban, tertiary care, teaching hospital with an ED census of 60,000 patients per year. Any person > 18 years old during selected shifts was eligible. We excluded non-English speaking individuals who could not fill out the information form that was written in English, those who left the ED before they could be surveyed, and those judged incompetent to answer. Incompetent subjects were defined as those subjects so cognitively impaired either medically, psychologically, or chemically who were unable to fill in the survey themselves.

### STUDY PROTOCOL

The emergency medicine research interns distributed the survey to patients and visitors in ED waiting room during designated shifts. No written consent form was needed, as the survey was anonymous. Participants were informed in standardized fashion about how to complete the survey, and verbal consent was obtained. At the beginning of the survey form was a statement summarizing the purpose of the

survey. It stated that we wished to evaluate how well prepared individuals households are for a disaster. To maintain anonymity, we asked subjects not to put either name or other identifiers on the survey.

The survey asked for the following information: demographics; whether the individual had a specific disaster plan in effect for their family, and any knowledge of a disaster plan at their place of work, and/or their children's school/daycare center. The survey asked if they had essential supplies at home: food, water, medications, batteries, battery-powered radios, flashlights and first aid kit. This selection of questions was based on current recommendations by the Department of Homeland Security and the American Red Cross. (1, 2)

**DATA ANALYSIS**

We calculated frequencies on all variables. We determined differences in responses between households with and without children living in the household using confidence intervals.

**RESULTS**

**OVERALL RESULTS**

A total of 1,272 surveys were completed at the time the analysis was done. We had the following results: 74% reported their age to be between 30 and 69, 56% female, 68% Caucasian, 62% married, 87% with a high school or greater level of education, 34% reported having a household income between \$50,000 and \$100,000 per year, 11% did not provide income information and 49% reported having children living in the household. In those households with children 28% had children less than 5 years old.

Forty percent reported having done specific disaster planning for the household; however, after the extensive blackout in the Northeast in 2003, 50% reported having changed their degree of preparedness. Forty five percent are aware of guidelines for household preparedness.

At home, of the 40% who had done some disaster planning, 30% had a portable easy-to-carry container with essential supplies, 82% reported having a battery- powered radio, and 91% reported having a flashlight. 53% of participants who had done some disaster planning reported having “special needs” items such as formula and medications in the house in case of an emergency. (Table 1)

**Figure 1**

Table 1: If Disaster Preparedness has been Implemented At Home (Only 40% of the total group)

|  | With children<br>N=292<br># (percentages)* | Without children<br>N=221<br># (percentages)* | Confidence Intervals  |
|--|--|---|-----------------------|
| At Home:   |  |   |                       |
| Battery powered radio                                  | 238 (82)                                   | 180 (82)                                      | 0.1% (-6.7% to 6.8%)  |
| Flashlight   | 267 (91)                                   | 200 (91)                                      | 0.9% (-4.1% to 6%)    |
| First aid kit  | 244 (84)                                   | 144 (66)                                      | 18.4% (10.8% to 26%)  |
| *Special needs* (medications/formula) for emergent use | 159 (55)                                   | 113 (51)                                      | 3.3% (-5.4% to 12%)   |
| 3 day supply of food                                   | 211 (79)                                   | 146 (65)                                      | 6.2% (-1.9% to 14.3%) |
| 3 day supply of water                                  | 199 (76)                                   | 135 (62)                                      | 7.1% (-1.3% to 15.4%) |
| Replace food/water every 6 months                      | 167 (58)                                   | 104 (47)                                      | 10.1% (1.4% to 18.8%) |
| Cash   | 214 (74)                                   | 172 (78)                                      | -4.5% (-12% to 2.9%)  |
| Copies of essential documents                          | 140 (48)                                   | 106 (48)                                      | 0.0% (-8.7% to 8.7%)  |
| Tools (shut off wrench)                                | 213 (73)                                   | 146 (66)                                      | 6.9% (-1.2% to 2.9%)  |
| Knowledge of how/when to turn off utilities            | 182 (62)                                   | 136 (62)                                      | 0.8% (-7.7% to 9.3%)  |

\* Percentages listed are for the particular group and not out of the total number of people Surveyed, since only 40% reported having done disaster preparation

**HOUSEHOLDS WITH CHILDREN**

A total of 60% of households with children at home were aware of disaster plans at work and the same percentage was aware of their children's school or daycare disaster plans. Families with children in the household have done more disaster planning for the family as compared with families without children (47% vs. 34%, p=<0.0001). If some disaster planning had been done, 71% households with children had a designated place to meet outside the house in case of a disaster and 50% had a designated place to meet outside the neighborhood.

In our sample, households with children under 10 years of age: 82% of households taught the children to dial 911; in 74% of households the children were taught the best routes to get out of the house in case of a fire; in 26% of households the escape routes were reviewed with children every 6 months. (Table 2)

Figure 2

Table 2: Households with Children

|   | Have Children in Household<br>N=627<br>#(percentages) | Have Children in Household Under Age 5<br>N=176<br>#(percentages) | Have Children in Household Under Age 10<br>N=325<br>#(percentages) |
|---|---|---|--|
| School/Work has Contact Numbers             | 533 (85)  | 159 (90)  | 297(91)  |
| Knowledge of School/Day Care Emergency Plan | 373 (60)  | 109 (62)  | 223 (69)   |
| Teach Children to Dial 9-1-1                | 484 (77)  | 129 (73)  | 267(82)  |
| Child Proof/Safety in Home                  | 424 (68)  | 141 (80)  | 262 (81)   |
| Determine Best Escape Routes                | 434 (69)  | 126 (72)  | 239 (74)   |
| Quiz Kids Every 6 Months                    | 146 (23)  | 41 (23)   | 85 (26)  |

**LIMITATIONS**

The patients captured in this survey were English speaking only, had higher levels of

Education and were affluent. Our sample may have been biased since we only surveyed

people associated with a family member or significant other ill enough to present to our emergency department. We did not keep demographic information on the people that refused to take the survey and the reasons why they declined to participate.

**DISCUSSION**

In the public health arena, household disaster preparedness has been an important issue for decades. In recent years, there have been significant government efforts to develop and propagate information regarding household preparedness for disasters and several government and nongovernmental organizations have published information on their web-sites regarding specific steps families should take to prepare their household in case of a natural disaster or a terrorist attack in the community (1,2,3,4,5,6,7,8).

It has been suggested that health care professionals, such as physicians should give anticipatory guidance to families on home disaster preparedness. (9,10,11) Adults can actively seek help, children cannot; they depend on the adults in their lives to provide them with the assistance they need. Parents should be encouraged to talk with their children about a specific household emergency plan that includes things to do in the case of fire, natural disasters such as floods, tornados,

hurricanes, or a blackout or a terrorist incident, whom to go to for help, safe places to seek, and other steps that can be taken at home, school, and in the community (1,2,3,4,5,6,7,8). By using specific plans to ensure safety, the goal of these discussions should be to help the child feel potentially in control of a threatening situation and also to convey that the parents are in control. (12, 13)

Most troubling is that we found that a large percentage of households in our survey have not done any planning for a disaster at home, are not aware of a work place plan, and are not aware of their children's school or daycare plan for a disaster. We found that a significant percentage of participants do not have a designated place to meet in case of an emergency as has been recommended by several government and non government agencies. We found that households with children seemed to be better prepared than households without children for an emergency, in terms of having a disaster plan; however, the majority of families with children living at home are still not adequately prepared for a disaster based on present recommendations. In households with young children, there has been significant preparation to teach children skills such as dialing 9-1-1 and escapes routes in case of an emergency; however, there is lack of reinforcement of skills every 6 months.

**CONCLUSION**

Although there have been significant government efforts to improve disaster planning at the state and federal level, most households have not planned for a disaster at home, and are not aware of a work place plan or a disaster plan at their children's school or daycare. We found that households without children seem to be the least prepared for a disaster. We also found that the majority of people do not have a designated place to meet in case of an emergency as has been recommended by government and non government agencies.

**FUTURE DIRECTIONS**

We plan to implement this survey in different geographic areas within our state and in different states with a different population mix to achieve greater representation and generalization. We feel that it would be important to provide educational materials either in the emergency department or through other outreach programs.

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