Public Health Emergency Preparedness

Public Health Emergency Preparedness focuses on the ability of the Health Department to plan, respond, and recover from emergencies that pose a risk to the health of the public. This is accomplished through planning with other county and community partners on best practices, training on these plans, and exercising the plans at the appropriate time when an emergency occurs. The goal is to reduce the illness or injury risk to the community during acts of terrorism, natural disasters, and communicable disease outbreaks. This goal is accomplished through community education to promote personal and family preparedness.

This chapter includes:

❖ Public health emergency preparedness

Overview

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According to the *Prevention for the Health of North Carolina: Prevention Action Plan*[1], relying on prevention as a basic strategy can save lives, reduce disability, improve quality of life, and, in some cases, decrease costs. While the plan does not specifically address public health emergency preparedness, it is important to focus on this concept because helping the community be better prepared in emergency or disaster situations reduces the likelihood for injury or illness, and thus reduces morbidity and mortality.

Healthy NC 2020 Objective

There is not a Healthy NC 2020 Objective for Public Health Preparedness.

Secondary Data: *Major findings*

Terrorism

On September 11, 2001, the United States experienced its largest on-soil terrorist attack when terrorists used airplanes to destroy the World Trade Center and damage the Pentagon. In the months that followed the attacks of September 11, inhalation anthrax spores were released into Washington, D.C., Florida, New Jersey, and New York via the postal service, resulting in illness to many, and even deaths in some cases. As a result of these attacks, a new emphasis was placed on public health emergency preparedness.

Public health agencies at the federal, state, and local levels evaluated existing and developed new emergency response plans. The North Carolina Department of Public Health responded by developing the Office of Public Health Preparedness and Response (PHP&R) in 2002, which developed regional surveillance teams to help local health departments plan for public health emergencies, assist with training and exercises, and respond to assist during these emergencies. Local health departments from across the State (including Durham County) receive grant funding from state and federal sources to develop and/or improve emergency response plans, emergency preparedness education programs, volunteer cadres for surge capacity, and response exercises.

According to the Rand Corporation's Center for Terrorism Risk Management Policy, the most important components in assessing a region's terrorism risk are threat (the likelihood of a target being attacked), vulnerability (the amount of potential damage), and consequence (the magnitude of damage).[2] Rand states that targets that have critical infrastructure that may cause injury, loss of life, and economic damage outside of the immediate area of attack are important. Rand makes

an important assessment that density-weighted population data shows that those cities that have a higher population-density generally project to have a larger risk for terrorist activities. Rand also explains that it is also important to consider more than just population. Areas that could suffer major economic impact have major infrastructure implications for additional areas, in addition to injuries and deaths, may be a more valued target for terrorism than simply population alone.

Durham is the 6th largest county in North Carolina and approximately 85% of all Durham County residents live within the city limits of Durham. The City of Durham's population of 228,330 positions Durham as the 5th largest city in the state.[3] There are a number of major institutions within Durham County that could present as potential target for terrorism. There are multiple educational facilities, including colleges, located within Durham County, as well as major medical facilities. Also, Research Triangle Park (RTP) is partially located within Durham County, and in neighboring Wake County, and RTP is a major economic center within the state that holds a number of technology, medical, and research companies that could have a significant impact on the local, state, and federal landscape if attacked.

Because of its potentially high-value targets, as well as the higher population density for the city, Durham County should be considered to be at an elevated risk for terrorist activities.

Natural Disasters

Public health preparedness also extends to natural disasters. According to FEMA, there have been 10 major disaster declarations and three emergency declarations in North Carolina since 2001[4]. This list includes the storms of April 16, 2011, in which the state of North Carolina had a new record of 28 tornadoes that occurred during one storm system[5]. In addition to these tornadoes, our state has experienced hurricanes, severe winter storms (snow and ice), tropical storms, and flooding. Hurricanes have been one of the most common natural disasters for North Carolina, with 13 storms impacting North Carolina since 2003.[6]

The Durham County Hazard Mitigation Plan (HMP) lists 10 specific hazards as those that could impact Durham County and the city of Durham. Of these 10, eight are naturally occurring, and include earthquake, floods, hurricanes, thunderstorms, tornadoes, and winter storms.
The HMP states that while hurricanes are not frequent, and they are often moderate in their intensity, their impact can be high and pose a significant risk to the population.[7]

Communicable Disease

The possibility of a widespread communicable disease outbreak is also a public health preparedness concern. The Centers for Disease Control and Prevention (CDC) defines communicable disease as disease that can pass from a person or animal to another person. Many communicable diseases exist and the impact of each case may vary by type, geographic location, and attack rate. As with a man-made or natural disaster, emergence of a widespread communicable disease could prohibit continuity of operations for multiple sectors of society.

The threat of pandemic influenza resurfaced in 2009, as the H1N1 virus emerged as a public health emergency. As is expected with any pandemic event, the number of those who became

infected with the H1N1 virus was substantial, totaling between approximately 43 million and 89 million cases according to CDC estimates. This led to between approximately 195,000 and 403,000 hospitalizations and 8,870 to 18,300 deaths as a result of H1N1 infections. Surprisingly, unlike normal influenza statistics which impact the very young (under age 18) and the very old (over age 65), the H1N1 virus appeared to have a greater impact on what is normally considered the median population, 18-64 years old, with over 75% of the deaths occurring within this age group.[8]

Personal and Family Preparedness

Personal and family preparedness requires a series of steps taken in advance to prepare for an emergency. At minimum, individuals and families are encouraged to develop a preparedness plan that includes an emergency preparedness kit, shelter-in-place and evacuation strategies, a communication plan, and a pet preparedness plan. Community members should be ready to comply with emergency evacuation or shelter-in-place notices when ordered to ensure safety during disasters.

Primary Data

During the 2010 Durham County Community Health Opinion Survey, respondents were asked the following questions assessing their level of preparedness: (1) "In a disaster, what would you rely on the most for information?"; (2) "If you couldn't remain in your house, where would you go in a community-wide emergency?"; (3) "If there was an emergency, do you have transportation to get to someplace safe?"; and (4) "Does your household have a family emergency plan and emergency supply kit?"

The following graphs, illustrate the findings from these four emergency preparedness questions.

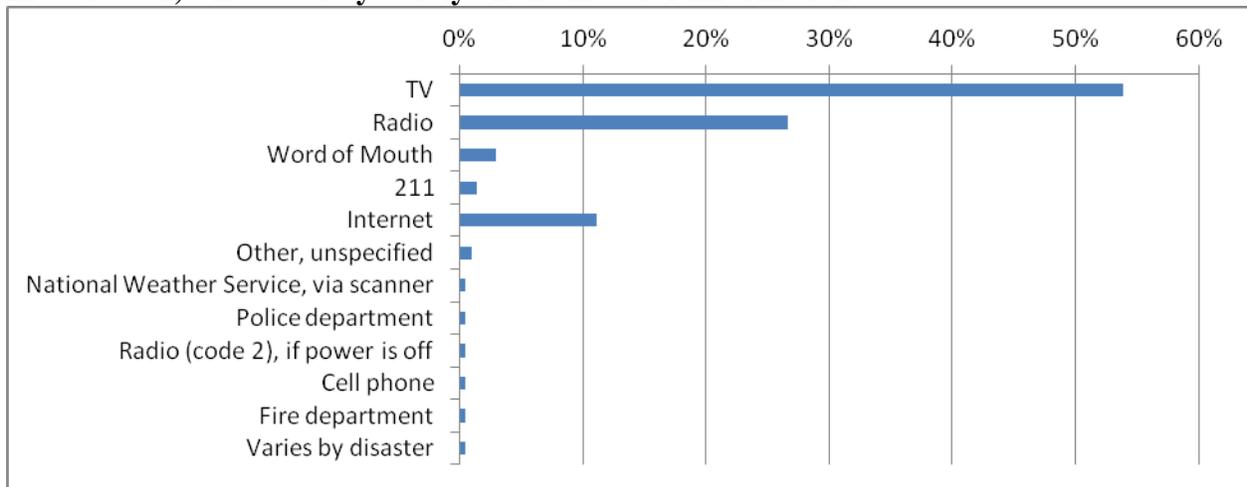**In a disaster, what would you rely on the most for information?**

Figure 12.01(a)

The vast majority of Durham County residents (53.9%) reported the TV as their primary source of information in a disaster, following by radio (26.7%) and Internet (11.2%).

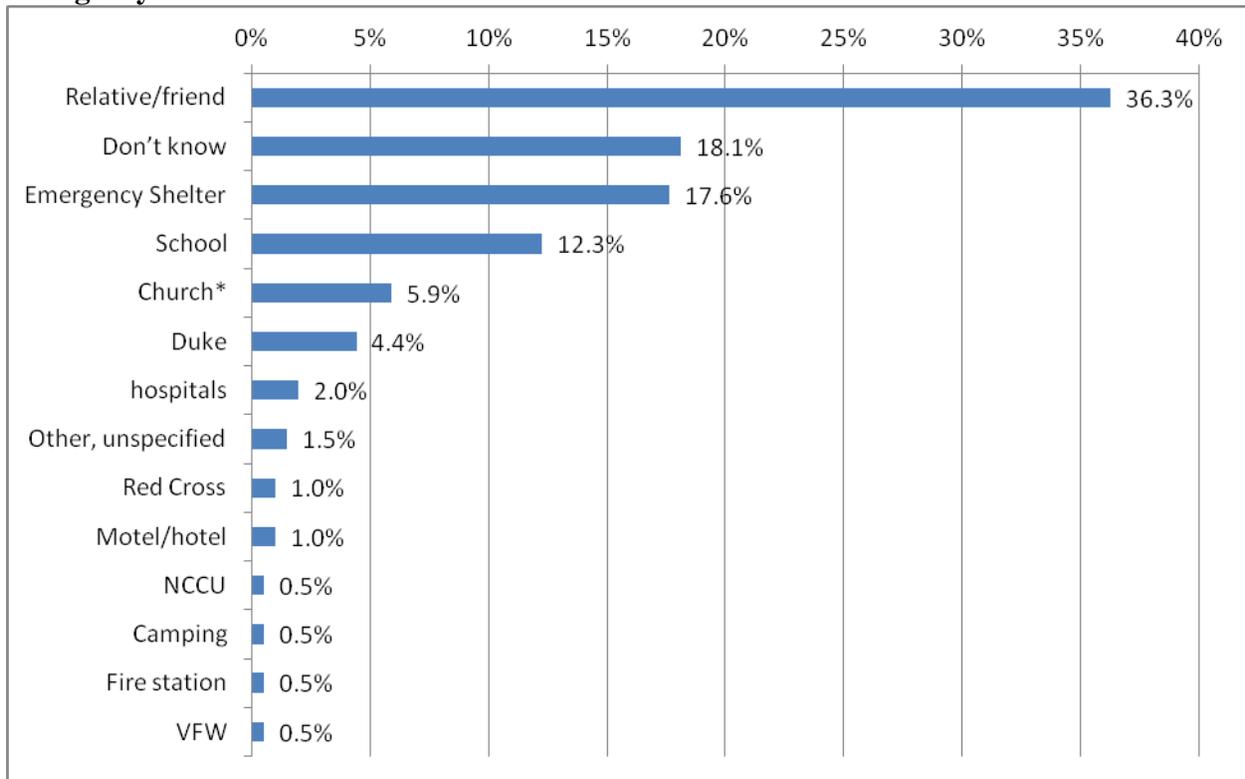**If you couldn't remain in your house, where would you go in a community-wide emergency?**

Figure 12.01(b)

Most respondents (36.5%) stated that they would go to stay with a relative/friend during a community-wide emergency if they were unable to remain at home, followed by don't know (18.2%), and emergency shelter (17.7%).

If there was an emergency, do you have transportation to get to someplace safe?

The overwhelming majority of Durham County residents (93.7%) are able to transport themselves to someplace safe in an emergency, compared to only 6.3% that are not able.
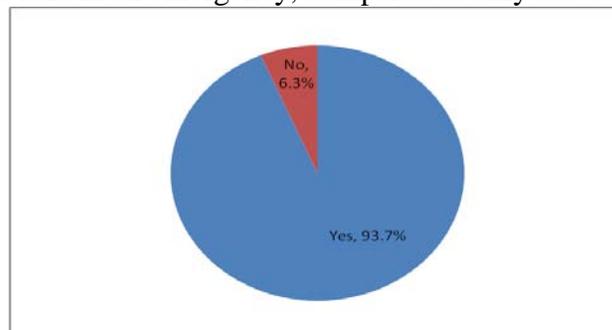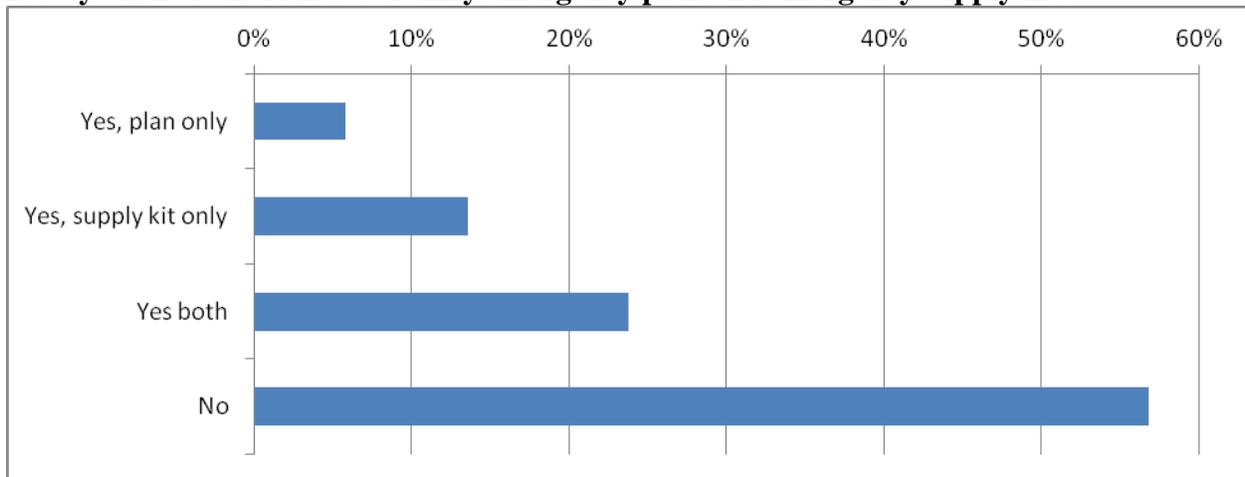

Figure 12.01(c)

Does your household have a family emergency plan and emergency supply kit?

Figure 12.01(d)

More than half (56.8%) of Durham County residents have neither an emergency plan, nor an emergency supply kit, while only 23.8% have both, another 13.6% have only an emergency supply kit, and 5.8% have an emergency plan only.

Interpretations: *Disparities, gaps, emerging issues*

Based on the 2011 Community Health Assessment survey responses, there are a number of disparities and gaps that exist within the level of preparedness within the community. The most common of these disparities are found in the participants' age, race, and income. Upon examining the data, there were three key pieces that need to be addressed in the future of the Public Health Emergency Preparedness program. These pieces are:

▪ Those at the ends of the age groups, meaning the youngest and oldest respondents, tended to be the least prepared for a community-wide emergency.

▪ On average, whites in Durham County appeared to be better prepared for a community-wide emergency than blacks.

▪ As household income increases, so does the level of preparedness of the respondents. This may be due to having more income available to spend on the resources needed to be better prepared.

Age

Information in a disaster: All age groups, with the exception of 25-34 year olds, chose TV as their primary source of information. This age group chose radio, TV, and Internet, in that respective order. As expected, those over 65 years, overwhelming chose TV and radio as their primary choices.

Where to go in a disaster: All age groups, with the exception of those over 75 years old, overwhelmingly said they would go to stay with a relative/friend. However, 52.6% of those over 75 years old did not know where they would go.

Transportation: Only 6% of individuals (n=13) reported being unable to transport themselves to a safe place in an emergency.

Emergency plan and kit: When examining all of the survey respondents, 56.8% of those surveyed have neither an emergency plan nor an emergency supply kit. Of those ages 18-34, only 26% had either a plan or a kit. The most prepared group, ages of 55-64, still only had 52% reporting either an emergency plan or an emergency kit.

Race

When examining the factor of race in the preparedness questions, we will look solely at the responses of those who reported their race as either black or white. These accounted for 194 of the 206 respondents, thus making their results statistically more reliable.
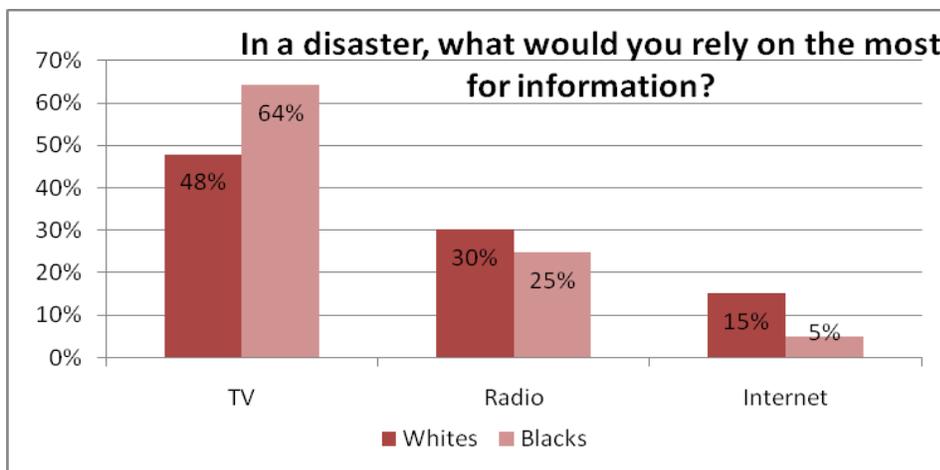
Information in a disaster:

Figure 12.01(e)

During a disaster, both white and black respondents reported that they would rely most heavily on TV, radio, and Internet, in that respective order. Whites, however, were more likley to use the radio or internet than blacks during an emergency.

Where to go in a disaster: When asked about where they would go during a community-wide emergency if they were unable to remain in their home, the differences were vast between white and black respondents. While the number of those seeking safety at a shelter was almost identical (17.7% for whites vs. 17.3% blacks), whites were less likely to not know where to go and more likely to rely on relatives/friends.

	Whites	Blacks
Stay with relative/friend	41.6%	27.2%
Stay at shelter	17.7%	17.3%
Don't know	16.8%	19.8%

Emergency plan and kit: When looking at whether their household has an emergency plan and emergency supply kit, whites are much more prepared than blacks; however, the majority of both groups did not have a plan or supply kit.

	Whites	Blacks
Emergency plan only	5%	7%
Emergency supply kit only	16%	9%
Emergency plan AND supply kit	27.4%	18.5%
None	51%	65%

Household Income

Information in a disaster: Household income appeared to have little impact on the source of information during a disaster, as TV and radio were the two highest sources regardless of the income level of the respondent.

Where to go in a disaster: Generally, as income increased, so did the number of respondents who stated they would go to stay with a relative/friend. Interestingly, those that would rely on emergency shelters decreased as household income increased, except for those in the income bracket over $75,000 annually, where that percentage nearly doubled from 12.5% in the $50,000-$74,999 bracket, to 23.4% in the $75,000 bracket.

Transportation: As income increased, the number of respondents who did not have transportation decreased.

Income	<$14,999 – $24,999	$25,000>
Have Transportation	82.4%	97.4%
No Transportation	17.6%	2.6%

Emergency plan and kit: Income played an important role in determining the level of preparedness of the respondent. Once income exceeded $35,000 annually, the percentage of those who had both an emergency supply kit and an emergency plan was steady at around 28%. Not surprisingly, once income exceeded $50,000 the percentage of those who had neither an

emergency supply kit nor an emergency plan significantly declined. Prior to the $50,000 income barrier, no income group had less than 62.9% with neither an emergency supply kit nor an emergency plan, compared to a high of only 47.4% in those over $50,000.

Recommended Strategies

The 2010 Durham County Community Health Opinion Survey data for emergency preparedness shows the need for increased community education about how to prepare for public health emergencies. The health department and partner agencies must increase promotion of educational and community service resources related to emergency preparedness.

- Community Outreach Education: The Durham County Health Department will engage in community outreach activities to promote public health emergency preparedness. These outreach activities will be targeted at specific community groups, including but not limited to senior citizen centers, schools, churches, and other civic and volunteer groups. Particular attention should be given to both age groups at the extreme ends (the young and old), as they tended to be the most unprepared.

- Community First-Aid & CPR: Offer community first-aid & CPR courses sponsored by the health department, at little or no-cost to the community. This would help the community to become more prepared, and do so without alienating low income community members who may be unable to attend at normal cost.

- Health & Information Fairs: Provide information at health and information fairs to help educate the community on the need for emergency preparedness. Particular attention should be paid to educating the community on both the importance of having an emergency supply kit and an emergency plan, as well as what the components of each of those items should include.

- Develop alternative means for disseminating emergency information other than local TV stations and educate the community on those alternatives, as those resources may not be accessible during an emergency situation. Particular attention should be paid to the development and promotion of internet and cell phone capabilities, as many phones are capable of accessing the internet or receiving text and informational messages even if other traditional methods are inoperable.

The goal for the Public Health Emergency Preparedness program is to reduce the percentage of those without an emergency plan and emergency supply kit from 56.8% to no more than 45% over the next 4 years. Included in this would be to reduce the gaps between the groups that have been outlined in the disparities section of this chapter.

Current Initiatives & Activities

- *Public Health Preparedness Planning*

The Durham County Health Department has a full-time Public Health Preparedness Coordinator who writes the Durham County Health Department's plans for responding to public health needs after natural and man-made disasters, as well as during communicable disease outbreaks. The Preparedness Coordinator also works to provide training and exercises, as well as outreach activities for Durham County Health Department, local community partners, and community groups.

Website: http://www.durhamcountync.gov/index.html
Phone Number: (919) 560-7102

Other community partners, such as Duke Health Systems, also employ personnel to handle the preparedness response for their staff and facilities, as well as the community. They work closely with the Durham County Health Department to further enhance the preparedness efforts for the community.

Phone Number: (919) 681-2933

- *Durham County Medical Reserve Corps (DCMRC)*

The DCMRC is one of the Durham County Health Department's community volunteer programs. The DCMRC mission is to build a reserve of health professionals and other community members with specialized skills that will strengthen the health department's ability to respond to local public health emergencies such as natural disasters and man-made disasters, like acts of terrorism. The DCMRC is a Medical Reserve Corps unit, which is a component of the National Citizen Corps program.

Website: http://www.medicalreservecorps.gov/detail.asp?id=938
Phone Number: (919) 560-7102

- *Central North Carolina Chapter of the American Red Cross*

The Central North Carolina Chapter of the American Red Cross provides relief to victims of disasters and help people prevent, prepare for, and respond to emergencies. The Red Cross also works to provide affected families with emergency food, clothing, shelter, and prescription medication after a disaster.

Website: http://centralnorthcarolina.redcross.org/Default.aspx
Phone Number: (919) 489-6541

Contributors

#	Name of Section	Name, Credentials	Affiliation
12	Public Health Emergency Preparedness	Matt Leicester, EMT-P, BS	Durham County Health Department, Public Health Preparedness Coordinator

Data Sources

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