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Disaster Medical Preparedness in the Birmingham Metropolitan Community

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DISASTER MEDICAL PREPAREDNESS IN THE BIRMINGHAM METROPOLITAN COMMUNITY

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ANTHROPOLOGY OF PEACE AND HUMAN RIGHTS

ABSTRACT

This research study aims to determine the presence of disaster medical preparedness in residents of the Birmingham metropolitan area. A concurrent collection of qualitative and quantitative data analysis was used to assess the perceived risk of a natural disaster, determine the socioeconomic status of residents, evaluate the health needs of residents, and examine the presence of disaster medical preparedness. Face-to-face interviews of research participants were conducted for six weeks at five churches: 6th Avenue Baptist Church, Avondale Church of Christ, Mountain Brook Community Church, Southside Church of God, and True Love Church of Ensley. In analyzing the results of the research survey and comparing them to the information gathered from previous studies conducted on the recent natural disasters in the Birmingham area, most reliable sources for information on disasters and emergencies, and risk perception, conclusions were drawn about how prepared the interviewed participants were for a disaster or emergency. The results indicate that the health literacy level of participants was high but risk perception for the likelihood of a natural disaster was low among Birmingham area residents. Building trust in communication between health care organizations, local government, and the community is essential in bridging this gap to increase disaster medical preparedness.

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INTRODUCTION

Natural disasters have the potential to leave people without necessities in the blink of an eye. A natural disaster could happen quickly, such as the formation of tornadoes and hurricanes, or develop slowly and increase over time, such as droughts and heavy rains that cause flooding. The loss of homes, material possessions, food, clean drinking water, and electric power are some of the first shocks that come to mind immediately following a natural disaster. The effects on lifestyle interruption and possible displacement following natural disasters could endure for months or years, if those affected ever recover at all (Ferris, 2008). Ferris also states that refugees of natural disasters share much in common with refugees of conflict, especially in terms of the element of displacement. Displacement can be internal, meaning a forced relocation of people from their homes to another area within their state or country, or external, signifying the forced relocation of people from their homes to another state or country. A lack of infrastructure and necessities in the aftermath of a natural disaster also extends to public resources, such as medical care. Following a natural disaster, individuals with health problems have a harder time recovering due to the disruption of community support services (Franks et al, 2017). The study done by Franks analyzed how a community partnership response in times of disaster could help to decrease the mortality rate of those lacking proper medical resources and cited a call for more effective communication between health organizations, local government, and the community. The purpose of this research study was to assess ethnic, socioeconomic, and age differences in

disaster and medical preparedness and the information sources preferred in the event of a disaster in the Birmingham area. Research participants were Birmingham metropolitan area adult residents who attended church in the community. This study is important in understanding how a small subset of the Birmingham metropolitan community prepares for disaster medical emergencies. This study will provide insight into this small sample of the Birmingham metropolitan community's disaster medical as well as their trusted sources for communicating information about disasters in the area. The implications of this study could serve as a guide for the Birmingham metropolitan community's assessment of their current disaster medical preparedness communications and encourage further studies to assess how to improve those communication methods. By identifying areas of concern for individuals preparing for disaster medical emergencies, the Birmingham metropolitan community will be more apt to develop solutions that fit the needs of its population.

The government, news, and weather outlets all play a role in warning communities of potential, current, and threatening emergency and disaster situations. Disaster preparedness is defined as measures taken to prepare for and reduce the effects of disasters, to predict and mitigate their impact on vulnerable populations, and effectively respond to their consequences (International Federation of Red Cross and Red Crescent Societies, 2016). Disaster preparedness includes the formation of an emergency plan and the acquisition of food, water, and necessary medical supplies. National government agencies such as Federal Emergency Management Agency (FEMA), non-profit organizations such as the Alabama Red Cross, and local government agents such as the City of Birmingham, the National Weather Service Birmingham, Birmingham

Regional Emergency Medical Services System, and local news channels all play a role in disaster preparedness. The Alabama Red Cross offers shelter for individuals forced to evacuate their homes in the event of a natural disaster (American Red Cross, 2018). As flooding and high winds resulting from severe thunderstorms and tornados often affect roadways, evacuation routes are usually indicated at the designated time by local news channels in accordance with local chapter of national services, such as the Birmingham area National Weather Service. For the purpose of this research endeavor, an operational definition of a natural disaster will be made in accordance with the natural extremes index of events likely to affect the Birmingham metropolitan area (U.S. Tornado and Weather Extremes database, 2010). As such, the term natural disaster will be referring to tornados and severe thunderstorms resulting in high winds and flooding respectively. Severe thunderstorms and tornados are prevalent natural disasters that have affected the Birmingham metropolitan community significantly in recent years. In 2011, a plethora of tornados swept across the southeast, most notably affecting the Birmingham and Tuscaloosa areas in the state of Alabama. The Tornados of 2011 were classified as category one natural disasters by the federal government, the same ranking given to Hurricane Katrina that took place in 2005 (WBRC, 2011). In the same article "Alabama tornado disaster as bad as Katrina, 9/11" by WBRC, there was a reported 250 fatalities and 1,700 injuries as a result of the tornados. 1,700 injured individuals is a staggering number of people requiring immediate medical attention, even for expansive metropolitan health care systems such as those serving the Birmingham community. In addition to the medical resources needed to meet this sudden demand, many Birmingham

area residents were left without power or a home for weeks at a time despite dedicated volunteers and workers from organizations such as FEMA.

In recent years, as local news outlets have expanded from radio only transmissions for relating information to dedicated channel outlets, there has been an increase in the use of cell phone applications for local news stations to give updates directly to cell phone users. This technological advancement in communication could be imperative in alerting residents in advance to allow them as much time as possible to prepare any last-minute resources in the event of an oncoming disaster. Having a dedicated phone application that is able to give notifications rather than relying on finding the most current news cycle or social media outlet with accurate news and preparation information could make the difference in how people prepare for disasters and emergency medical situations for themselves and loved ones.

There are numerous media outlets for relaying information about severe weather and natural disasters. Weather updates and information on emergency community resource accessibility can be made public quickly and efficiently through radio, newspaper, social media outlets, television stations, cell phone messages and calls, and emails. The amount of trust placed in the media varies from each source, and a lack of trust could correlate to a lack of preparedness in times of disaster relief. In fact, a study conducted in Italy on the risk perception of flooding found that there was a positive association between disaster preparedness and risk perception (Miceli et al, 2008). In America, there have been multiple research studies done to assess how people currently access their news and trust the news that they receive. According to a survey conducted in 2016, local news organizations are the most trusted source of news; local news

organizations ranked higher than national news organizations, family, friends, and social media (Mitchell et al, 2016). In the event of a disaster, communication channel infrastructure can become damaged or lost, thus making social networks a viable method of sharing information about disasters (Simon et al, 2015). In August of 2017, sixty-seven percent of Americans reported that they received part of their news information via social media (Shearer & Gottfried, 2017). With increased use of online news outlets by local and national news organizations during disasters, it is important to note that social media ranked last in the 2016 survey conducted by Mitchell et al (Mitchell et al, 2016) in terms of trusted information. This lack of distrust in information received via social media received by the public from figures of authority during natural disasters is echoed in the "trust but verify" action of many social media users, thus delaying the call-to-action response time by the public (Grazia et al, 2015).

To implement an effective community action plan, it must be socially and culturally relevant to the population it is meant to affect. The Birmingham metropolitan area is approximately 64% White, 28% Black, 4% Hispanic, and 1% Asian and 2% other and mixed ethno-racial groups (US Census Bureau, 2016). Given this information, there has been research done to suggest that ethnicities interact differently with news media in the event of a disaster. It has been found that "racial and ethnic minorities are less likely to accept a risk or warning message as credible without confirmation of the message from others (specifically interpersonal networks), thus causing a delay in response time" (Spence et al, 2007). As accurate as many news outlets would like to be, the element of distrust could extend beyond the content of the information to the way the information is presented. For example, in households where English is not the primary language,

families may not be able to understand some or any of the news about natural disaster conditions and information regarding medical resources or general safety (Donner and Rodriguez, 2011).

By examining what concerns are most prevalent among Birmingham metropolitan residents and how to best communicate with the community about medical resources and policies in the event of an emergency, disaster medical preparedness could increase. This is a difficult task as it involves "linking the realities of everyday life and culture in these communities to the question of disaster preparedness" (Taylor, Jr., 2014). While considering social and cultural diversity, age (Sattler et al, 2000) and poverty (Donner & Rodriguez, 2011) has also been found to be indicative of vulnerable populations. According to Donner and Rodriguez, the older a person is, the more likely they are to have experienced a natural disaster in the past and, therefore, have a higher level of risk perception. Yet, this higher level of risk perception in older adults (adults over the age of 50, with the mean age of study participants being 70) does not necessarily correlate with increased disaster preparedness. As people age, they are also likely to experience physical disabilities, lower disaster preparation education rates, and low income (Al-rousan et al, 2014). Since individuals in poverty often have low educational attainment rates, poverty can affect "how individuals perceive risk and how well they understand and respond to warnings" (Fothergill & Peek, 2004).

Given the previous information about how age, ethnicity, and socioeconomic status can affect the viability of disaster preparedness communication methods, risk perception for disaster medical preparedness must also be considered. Health literacy can be defined as "the degree to which individuals have the capacity to obtain, process, and

understand basic health information and services needed to make appropriate health decisions" (US Department of Health and Human Services, 2000). Health literacy levels can be measured according to a variety of scales and can be different for English and non-English speakers. For the purpose of this study, the scale provided by the Rapid Estimate of Adult Literacy in Medicine (REALM) will be most relevant (Agency for Healthcare Research and Quality, 2016). According to this scale, health literacy levels include: no health literacy (being unable to read most written materials, in need of repeated oral instructions), low health literacy (will understand some low-literacy materials but still may have trouble reading prescription labels and instructions), adequate health literacy (will be able to read low-literacy materials but will struggle with specialized patient education materials), and proficient health literacy (will be able to read and understand most specialized patient education materials). Having an adequate or high level of health literacy can be imperative in individual medical preparation for a natural disaster or emergency.

Health literacy levels impact individuals and families who seek alternative health care providers and medical services, who would like to engage in or continue chronic-disease management, or who would simply like to accurately assess their own susceptibility to disease and risk of disease. In a study conducted by the National Assessment of Adult Literacy by Kirsch et al in 1993, fourteen percent of adults were found to have below basic health literacy. Those who self-identified as having below basic health literacy also were more likely to report their health as poor and were more likely to lack health insurance than other adults who had proficient health literacy (Kirsch et al, 1993). Below basic health literacy has been linked to poor health outcomes such as

higher rates of hospitalization and less frequent use of preventative medical services (US Department of Health and Human Services, 2000). Both of these health outcomes incur higher healthcare cost as mentioned above through the discussion of the Natural History and Spectrum of Disease model proposed by Adeniran. The population most likely to experience low or below basic health literacy are "older adults, racial and ethnic minorities, people with less than a high school diploma or GED certificate, people with low income levels, non-native speakers of English, and people with compromised health status" (National Center for Education Statistics, 2006). Improving health literacy in communities begins with health care providers in public health systems working together to develop a communication system that adequately delivers health information and services in a manner that can be understood by all patients that they serve.

Healthcare providers such as nurses, doctors, and pharmacists are an excellent resource for giving instructions and recommendations for how to store medicine and important health care information, such as prescriptions. Prescriptions are likely to include the contact information for the issuing pharmacy and the name of the clinician who prescribed the medication. All of this information is useful in the event of an emergency when a patient may need to get their prescription filled at another pharmacy location. Health organizations and resources in the Birmingham metropolitan community include multiple healthcare systems (i.e. The University of Alabama at Birmingham Health System, St. Vincent's Health System), health care non-profit organizations which cater to specific and limited medical needs (i.e. Cahaba Valley Health Care), and urgent care facilities hosting both primary care physicians and pharmacists that are convenient for those without insurance (i.e. American Family Care). Birmingham and the state of

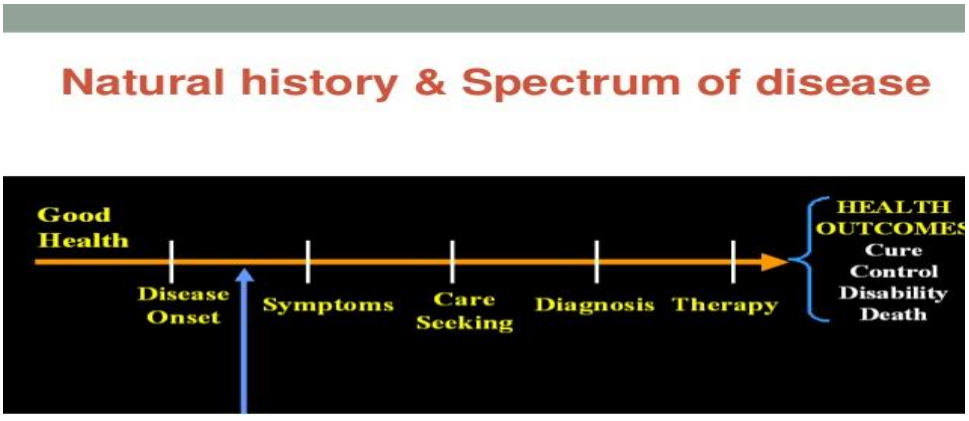
Alabama have an equal population percentage of households that have a language spoken in the home that is not English, at a total of 5.1% of both population calculations (US Census, 2017). It must be taken into account that the percent of the Birmingham population that would likely need a medical interpreter in a clinical setting stated previously will most likely account for a higher number of people than the same percentage given for the state of Alabama total population. This is a clear case for the necessity of medical interpreters to be increasingly provided by area hospitals and private companies (such as Southeastern Legal Translators and Interpreters Network) who have contracts with area hospitals and clinics. Non-English-speaking individuals and families are at higher risk for miscommunications in medical settings, which could lead to inadequate care and medical instructions (Schyve, 2007). Non-English speakers are sometimes undocumented and as a result lack health care insurance or may not seek medical care out of fear. However, the Birmingham metropolitan community has many medical resources for those without health insurance that are aimed to specifically serve non-English speakers. Cahaba Valley Health Care, a non-profit health organization mentioned above, has resources specifically for individuals of low income and low English-speaking proficiency. Cahaba Valley Health Care hosts eye care and dental care clinics for individuals who lack health insurance or the ability to afford regular physician visits.

Depending on the needs of patients with chronic illnesses that require more frequent trips to medical facilities, emergency medical preparedness resources may be more difficult to attain. For example, cancer patients receiving regular chemotherapy and radiation therapy may have a more difficult time locating and reaching a clinic in the

event that they need to evacuate their home or area during a natural disaster. For this reason, it is imperative that health care providers take an active role in preparing patients and the community for their medical needs in the event that they become separated due to a natural disaster. While individuals may rely on health care providers for regular care, medical preparedness indicates that individuals are being proactive in anticipation of their medical needs in the event of an emergency rather than making an assessment of their current health status. The term disaster medical preparedness is used rather than disaster health care preparedness for this reason. Insufficient communication about medical resources in the case of emergencies could lead to lack of medical resource preparation, and late or nonexistent medical treatment following the aftermath of a disaster situation. The spectrum of disease ranges from an individual having good health and a baseline risk of disease to various positive and negative health outcomes as seen below in Figure 1 (Adeniran, 2017).

Figure 1

Natural History and Spectrum of Disease



This research study is focusing on the disaster medical preparedness of individuals in the event of a natural disaster or emergency. Medical preparedness affects both ends of the spectrum of disease given above as it could be a key factor in preventing disease onset and curing or controlling current disease symptoms. Medical preparedness is highly cost effective for individuals who encounter diseases they have the ability to control or cure the disease symptoms, especially when the alternative is a resulting disability or death. Medical preparedness was measured in this study through determining the health behaviors of individuals who may be at any point in this disease spectrum. Assessing health behaviors in this manner coincides with assessing an individual's health literacy and what they consider to be medical preparation for a disaster or emergency. For example, in the United States many people participate in the tradition of stocking up on perishable items such as milk and bread when they anticipate an incoming storm that could have them trapped exclusively in their homes for an extended period of time (Dove, 2012). Perishable items are any food items that have an expiration date and require electricity (i.e. to be kept in a refrigerator) to be stored for an extended period of time. Even with this fact being unescapable to most Americans in the face of a storm, non-perishable and nutritional items such as canned beans and tuna are less sought after in last minute grocery store runs. Some clinical psychologists conclude that the purchasing of perishable items in times of impending natural disasters is a psychological manifestation of optimism (Dove, 2012). It is the duty of health care organizations, the government, and news and weather sources to work diligently to communicate realistic foods and resources people should have in the event of an emergency. Health care organizations, the government, and news and weather broadcasting sources all share the

responsibility of serving public interests by providing information that allows citizens to prepare for adverse circumstances, such as natural disasters. Furthermore, these communications should include community resources for attaining bottled water, non-perishable food items (i.e. nuts, crackers, canned goods), and other safety materials like flashlights for individuals and households that may be financially unable to acquire these items on their own.

Diversity is important in health research as scientific studies are often conducted through engaging with a small portion of the overall population with the aim of applying the research results to the population as a whole (Meridien Research Group, 2014). Treatments and interventions proposed based on health research may have varying levels of effectiveness for individuals in different racial or ethnic groups and within the same racial or ethnic group. For example, creating an intervention plan for disaster medical preparedness that only includes the increased prevalence of medical interpreters may only benefit Latin American and Asian American individuals. However, Latin American and Asian American individuals could be bilingual thus negating the effectiveness of promoting the increased presence of medical interpreters in increasing their level of disaster medical preparedness. Ethnic diversity in populations affected by natural disasters has been increasingly relevant as researchers study how natural disasters impact communities of color. In the article, *Barriers to Disaster Preparedness among Medical Special Needs Populations*, Meyer et al conducted an assessment of residents in an area susceptible to hurricanes. Of the research participants studied: 92.9% were Hispanic, 51% were aged 45 years or older, and 87.6% had a household income below $35,000 with the majority of households hosting three to five people. With a predominantly low income

and Hispanic sample population, language barriers and insufficient income per household size were found to be viable explanations for the presence of disaster medical unpreparedness.

In addition to Birmingham's own experience with a category one natural disaster, the metropolitan community can glean insight into how they can improve disaster medical preparedness from another category one natural disaster that affected a United States metropolitan community: such as when Hurricane Katrina made landfall in New Orleans. In the events leading up to Hurricane Katrina, there was an abundance of media coverage that exposed the systemic racial inequality in New Orleans, Louisiana. Evacuation in anticipation of an intense natural disaster is primarily the responsibility of local and state governments (Brinkley, 2007). As FEMA reclassified Tropical Storm Katrina to Hurricane Katrina four days before its landing on the Gulf Coast, they urged residents of New Orleans to evacuate due to concerns over the city's geographical position below sea level (Frontline, 2005). Under the leadership of New Orleans mayor Ray Nagin at the time of Hurricane Katrina, the New Orleans local government experienced a complete breakdown in system efficiency at the expense of their residents (Applied Social Psychology, 2017). Multiple national and state government organizations including FEMA, the National Hurricane Center, the National Oceanic and Atmospheric Administration, and Louisiana governor Kathleen Blanco emphasized the need for New Orleans residents to evacuate. Mayor Ray Nagin hesitated to call for a mandatory evacuation until the day before Hurricane Katrina made landfall, based on assurances that disaster relief organizations and mobilizations would be swift in the aftermath of Hurricane Katrina. Available transportation resources for New Orleans residents who did

not own a vehicle were not used during the mandatory evacuation efforts, leaving multiple busses from the city transit authority and area school systems unused (Brinkley, 2007). While proper disaster preparation efforts were lacking on behalf of the local government, an environment of distrust in the government and news outlets also affected residents' risk perception of the magnitude of disaster preparedness warranted. Many residents accustomed to local government corruption were even less inclined to believe the credibility of the threat levels issued by the local government, national government, and news authorities. The information given to residents on how to pack and prepare supplies by state, local, and national authorities included generic phrases such as "Pack as though you're going on a camping trip" and "Have enough to sustain yourself, your family, and your children" (Frontline, 2005). With individuals and households lacking adequate supplies for enduring the disaster aftermath of Hurricane Katrina, many minority homeowners still chose to disregard the mandatory evacuation, resulting in unprecedented loss of life and loss of homes as a result of a natural disaster.

With over 1,000 reported deaths (Doherty, 2015), the displacement of minorities and individuals with chronic medical conditions gives a deeper perspective of the true impact of this hurricane. In addition to the widening gap of economic inequality due to this natural disaster, residents also faced tremendous medical challenges. The health systems in Louisiana ranked 49th in the nation at the time of Hurricane Katrina (President Bush, 2005). With tens of thousands of people requiring medical care and over 200,000 people with chronic medical conditions displaced by the storm and resulting flooding, the existing health care infrastructure was unable to meet to the needs of these populations (President Bush, 2005). Lack of disaster medical preparation further stresses medical

resources in the event of a disaster or emergency, creating an environment where negative health outcomes are more likely. From the inadequate evacuation of residents and insufficient pre-natural disaster risk communication to the public, the exacerbation of disaster preparedness and relief resources by the city New Orleans due to Hurricane Katrina was evident. The Birmingham metropolitan community has learned from these systemic inefficiencies as it has begun to develop its own community-based disaster preparedness plan. The University of Alabama Health System based in Birmingham has expanded its medical resource partnerships to include Birmingham Regional Emergency Medical Services System, a pre-hospital emergency medical care system.

Past studies have investigated news communication about anticipated natural disasters and the impact of a lack of medical resources in times of natural disasters independently of one another. This study aims to combine those two themes in further determining the extent to which certain factors make a population most vulnerable during a natural disaster. This scientific inquiry is consistent with a growing amount of social science research being dedicated to examining how social identities and medical preparedness resources affect individual responses to natural disasters. This study exploreed the overlap, if any, that exists between age, socioeconomic status, and ethnicity in disaster medical preparation in Birmingham. Within the subsystem of metropolitan areas and communities, "individuals and families make sense of the threats posed by environmental hazards and respond to them in ways reflective of varying social and economic resources at their disposal" (Elliot and Pais, 2006). Birmingham metropolitan area residents were the focus of this research study. This exploratory study used a sample population from local churches to gain access to willing participants through making

connections with local pastors. The engagement of pastors and church leaders by research investigators has been essential to health research study acceptance and success in minority populations (Markens et al, 2002). Targeting churches for research participants increased the likelihood of including African Americans in this research study. As studying the ethnic differences in disaster medical preparedness was imperative to this research endeavor, making efforts to include representatives from each major ethnic group in the Birmingham metropolitan area was necessary. Research participants were recruited in person for the survey. Surveys were completed in a semi-formal interview. Both men and women above the age of eighteen were considered for the study if they agree to the consent form. The ethnicity, age, and income level of the participants was recorded on the survey so that the results of the study could be analyzed according to these characteristics. Collecting both qualitative and quantitative data helped to determine not only if participants are medically prepared for a disaster or emergency, but how they receive trustworthy information on disaster preparedness. This research endeavor proposed the necessary inclusion of all ethnic groups in the metropolitan area of Birmingham in an effective disaster medical preparedness assessment. A culturally relative assessment must be designed as a partnership between the Birmingham community, local government and health institutions.

METHODS

Participants were recruited from Birmingham metropolitan area churches, to include: 6th Avenue Baptist Church, Avondale Church of Christ, Mountain Brook Community Church, Southside Church of God, and True Love Church of Ensley. Individuals who are agnostic, atheist, do not attend church regularly, or who practice other faiths (such as Buddhism) are important to include in a representative population of the Birmingham metropolitan community. However, they were not included in this study due to the time constraints of the research endeavor. Both men and women at or above the age of 18 (eighteen) were considered for the survey. Church pastors were contacted before any surveys are conducted to gain permission to speak with church members. The participants were given the survey orally during a semi-formal face to face interview before or after Sunday School or Weekly Bible Study. Interviews with participants were conducted in a remote location of the church, such as an unused room, to create an environment of privacy and security for participants as personal information such as income level will be gathered. Survey responses were recorded in written form and aggregated electronically in an excel spreadsheet. Open-ended question responses were grouped together according to recurring themes. Physical copies of surveys were stored in a secure location within the home of the graduate teaching assistant conducting the survey. Information gathered from semi-formal face-to-face interviews were analyzed in part according to the participant's ethnicity, age, and income level so that any implications about the populations most affected can be determined.

Prior to the conduction of the survey, the aims of the research study were explained orally to the participant to ensure they understand the purpose of the survey. The consent form did not require a signature; completion of the survey served as indication of consent to participate in the research study. In this manner, the targeting of participants was more inclusive as people who may have difficulty writing or reading can be included. Furthermore, the survey did not record the name, address, or social security number of the participants nor will the surveys be assigned any identification code or number. This helped to keep the identity of the research participants unknown to outside parties. A copy of the consent form with information on how to contact the principle investigator was given to participants following the survey for those that would like to receive the final results of the research study. The survey is anticipated took no longer than 5 (five) to 10 (ten) minutes for each participant to complete. No incentives were given to participants during this research project.

Information gathered in the face-to-face interview could have been gathered through an online survey service, such as Survey Monkey. Online survey services allow surveys to be distributed via email and social media. These distribution mediums allow participants to complete surveys electronically. However, this would only be effective if the target population was literate and had access to a computer. Communities with characteristic low socioeconomic status may also have low educational attainment rates. Face-to-face interviews would allow for the research study participants to be completely or partially illiterate, blind, or otherwise unable to complete a digital survey. In addition, the interpretation of questions could be effectively monitored by the graduate research assistant collecting the responses.

To assess the perceived risk of a natural disaster, determine the socioeconomic status of the residents, evaluate the health needs of residents, and examine the presence of disaster medical preparedness the exploratory sequential design model was utilized. The exploratory sequential design model allowed for the consequent collection and analysis of qualitative and then quantitative data as both were necessary to evaluate the research question proposed in this study. Qualitative data explained how the methods of communication about natural disasters influence the perceived risk of a natural disaster and the level of medical preparedness deemed appropriate based on this perception. Furthermore, qualitative data exposed any barriers that existed in preparing for the medical needs of a household in the event of a potential natural disaster. Quantitative data determined if there is a connection or correlation between the trusted method of communication for natural disaster phenomena and disaster preparedness measures taken. A survey with multiple choice and open-ended questions was used to gather data on the members of Protestant churches in the Birmingham metropolitan area. The survey was based in part on the survey used in Disasters and Vulnerable Populations: Evidence-Based Practice for the Helping Professions (Baker and Cormier, 2014). The survey collected demographic information and include questions about the different ways one can prepare for a disaster. The open-ended questions sought to investigate how people think about the personal impacts of a natural disaster and the hindrances to preparing for any medical needs in the event of an emergency. The questions and structured format of the survey were according to Disaster Preparedness Survey in Appendix B.

The Disaster Medical Preparedness survey had five sections. The first section collected demographic information about the participant including their age, gender,

ethnicity, living quarters, highest level of education, household size, and household income. Section A, Disaster Potential and Concerns, assessed the disaster risk perception of the participant. Section B, Communication, assessed the preferred methods of communication for receiving information on natural disasters. Section C, titled Disaster Preparedness, was a "yes" or "no" questionnaire gaining information about the participant's level of both disaster preparedness and disaster medical preparedness. The last section, Section D, was split into two categories of assessment. One question pertained to the participant's perception of how severely a natural disaster could affect them. The remaining two questions assessed the potential barriers to preparing for a disaster or medical emergency.

RESULTS

Four survey participants were recruited at five Birmingham metropolitan area churches, totaling twenty completed surveys. The churches included 6th Avenue Baptist Church, Avondale Church of Christ, Mountain Brook Community Church, Southside Church of God, and True Love Church of Ensley. Participants ranged in age from twenty-three (23) to seventy-two (72). There were eight men interviews and twelve women interviewed. All participants chose to disclose their ethnicity according to the options given in the survey. There were eight African Americans, ten Caucasian, one Asian American, and one Latin American interviewed. Of the living arrangement options given, seven lived in an apartment building, ten in a house, and three chose other. Given the options for the highest level of education achieved, one person said less than high school level, seven said they received a high school diploma, two said some college, nine were college graduates, and one said post graduate level. The number of persons living in each household of the participants was aggregated by number according to Table 1 below.

Table 1

Number of Persons Living in Participants' Household

Number of Persons Living in Household	Number of Participants
1 person	4
2 people	6
3 people	3
4 people	6
5 or more people	1

When participants were asked about their total household income, they estimated the amount to the nearest ten-thousand-dollar amount. The approximate household incomes recorded were aggregated according to Table 2 below.

Table 2

Estimated Household Income of Participants

Household Income	Number of Participants
$30,000	2
$40,000	3
$50,000	2
$60,000	4
$70,000	1
$100,000+	2
Retired/Fixed Income	2
Declined to State	4

In Section A of the survey, participants were first asked to determine the likelihood of certain events occurring within the next two (2) years in the Birmingham metropolitan area. The number of responses for each scale of likelihood are given below in Table 3.

Table 3

Participants' Perception of Disaster Likelihood

	Extreme Unlikely	Not Likely	Somewhat Likely	More likely than not	Very Likely
Natural Disaster such as tornado or severe weather	0	4	4	7	5
Man-made disaster	1	3	3	8	5
Power Outage	0	0	3	4	13

Outbreak of Disease	2	5	8	2	3

In response to the question "Have you or anyone in your family been personally affected by a disaster or largescale emergency?" there were 7 "yes" responses and 13 "no" responses. For those that responded with "yes," they described the situation as a house fire, flood, or tornado that damaged all or a large part of their home.

In response to the first question under Section B, "How would you find out if a disaster has occurred or is on its way?", participants responded with television, a call or text to their cell phone, a police scanner, and the radio. Given a range of answers to select from "a" through "g" for the question "What do you think would be the most effective way to be contacted?", the number and percentage of each of the communication methods chosen by participants was according to the chart below in Table 4.

Table 4

Participants' Preferred News Outlet

A. Radio	5	25%
B. Television	4	20%
C. Community Sirens	2	10%
D. Friends and Family	3	15%
E. Social Media	2	10%
F. Call or text to cell phone	4	20%
G. Email	0	0%

As a follow up question, participants were asked if they double checked the sources they listed above as their preferred method of being notified and eleven responded with "yes." Of those that responded "yes," television and radio were their preferred sources for verifying initial reports about a disaster or emergency.

For Section C, questions were answers with a “yes” or “no.” The number of each “yes” and “no” along with the percent of the total responses amassed with each “yes” or “no” responses are recorded below in Table 5.

Table 5

Tangible Disaster Preparedness of Participants

	Question	Yes (#)	% of Total	No (#)	% of Total
1	Does your household have a written Emergency Communication Plan in case you are separated during a disaster?	5	25%	15	75%
2	Does your household have a designated emergency meeting place outside of your home or neighborhood?	7	35%	13	65%
3	Does your household have a complete emergency supply kit that can last for three days?	3	15%	17	85%
4	Do you or someone in your household own a car?	20	100%	0	0%
4a*	If yes, do you keep emergency supplies in your vehicle(s)? (blankets, flashlights)	7	35%	13	65%
5.	Does your household have stored three gallons of water for each person in your household (3-day supply)?	0	0%	20	100%
6	Does your household have enough stored food that does not need refrigeration or preparation that can sustain your household for three days?	10	50%	10	50%
6a*	If yes, is the food separated from your regular food supply?	7	70%	3	30%
7	Do you have a working flashlight with an extra set of batteries in your home?	16	80%	4	20%
8	Do you have a packaged first aid kit in your home?	11	55%	9	45%
9	Do you have a container that is both fireproof and waterproof for storing important papers in your home?	12	60%	8	40%
10	Do all family members above the age of 14 know how to turn off the power, gas, and water to your house in case of an emergency?	16	80%	4	20%

11	Do all capable children over 5 years old in your house know how to state their full name, address, and phone number?	20	100%	0	0%
12	Does the household have an extra supply of medication on hand for family members requiring daily medication?	18	90%	2	10%
13	Do you have an emergency plan in place to take care of any family members with daily medical needs?	15	75%	5	25%
14	Do you have a copy of all prescriptions?	20	100%	0	0%
15	Do you have contact information for you/your family member's primary care physician?	14	70%	6	30%
16	Do you have contact information for you/your family member's specialty doctor?	10	50%	10	50%

Section D consisted only of open-ended responses so that the interviewer could gain more context and insight on the answers given as they pertained to their perception of risk severity in the event of a disaster or emergency and their perception to any barriers for preparing for disasters and emergencies. In response to the first question, "What is your worst fear for a major disaster?", answers included: dying or death, losing a loved one, being separated from loved ones in the aftermath of a disaster, losing their home, or the disaster occurring while they slept. When participants were asked "What types of issues might prevent you from preparing a disaster plan and kit?", their responses cited: panicking or being too anxious to think clearly, time, money, having a place to store the necessary items, lack of health insurance, not knowing what to get, and lacking preparation for a disaster as a priority. Lastly, the final question could have been answered with a "yes" or "no." Participants were asked, "Do you think you would be able to afford the supplies necessary to develop a kit and plan, including having extra medication?" There were fifteen "yes" responses and five "no" responses.

While all survey participants reported having a copy of their prescriptions, 87.5% of African Americans reported having an extra supply of medications in comparison to 100% of Caucasians surveyed. 50% of African Americans surveyed had an emergency medical plan, while all Caucasians surveyed reported having an emergency medical plan. 50% of African Americans interviewed had the contact information for their primary care physician and 25% had the contact information for their specialty doctor. By contrast, 80% of Caucasians had the contact information for their primary care physician and 70% had the contact information for their specialty doctor. To analyze the impact of an individual's socioeconomic status and disaster medical preparedness, household incomes were gathered in the survey. Four participants declined to state their household income, two participants gave their income as retired or fixed income, two participants estimated their house income as $30,000, and the remaining 12 participants estimated their household income at $40,000 or above. All participants had a copy of their prescriptions and 90% had an extra supply of their medications. The two individuals that did not have an extra supply of their medications also declined to give their household income. Three of the participants who declined to state their household income and/or listed their income as retired or fixed also lacked the contact information for their primary care physician and an emergency medical plan. All six of the individuals who did not have the contact information for their specialty doctor declined to state their household income and/or listed their income as retired or fixed.

DISCUSSION

In analyzing the results of the research survey and comparing them to the information gathered from previous studies conducted on the Birmingham metropolitan community ethnic demographics, recent natural disasters in the Birmingham area, most reliable sources for information on disasters and emergencies, and risk perception, conclusions can be drawn about how prepared the interviewed participants are for a disaster or emergency. Though the percentages represented by each ethnicity in the study does not exactly correlate with the ethnic demographics of the Birmingham metropolitan community, the main ethnic groups were represented. The media outlets where survey participants reported double-checking their information about disasters and emergencies were television and radio, coinciding with previous studies that television is still the most trusted source for local news stations to deliver information about current events and weather developments. The number of African Americans and Caucasians that reported double checking their initial or preferred news sources was equal, and since there was a lower number of African Americans included in this study, this coincides with the previous report by Spence et al that African Americans are more likely to double check their news sources when compared to their Caucasian counterparts.

In terms of disaster medical preparedness of participants assessed by the survey, African Americans were less likely than Caucasians to be prepared overall. As determined by the study done by Spence et al in 2007, African Americans may lack trust

in their information sources that provide communications about natural disasters. This could involve emphasis on communication channels that build trust in the African American community by providing specific criteria for how they can become prepared for a disaster. Given these results, individuals of a lower socioeconomic status may have a harder time preparing for their medical needs in the event of a disaster. It could be beneficial for future studies in the Birmingham metropolitan area to explore what disaster medical preparedness resources are available for low income individuals and how those resources can be made apparent for those in need. In the research done by the National Center for Education Statistics in 2006, individuals of racial or ethnic minorities and low socioeconomic status were identified as vulnerable populations least likely to have proficient health literacy. Future studies could be conducted to determine how well individuals in the Birmingham metropolitan community understand medical instructions to prepare for a disaster or emergency are understand by patients who are minorities or have a low socioeconomic status. This could provide information on how health care professionals could improve their communication methods about disaster medical preparedness to assess the level that is appropriate for the patient seeking to understand that information.

Seven (35%) of the survey participants stated that they had previously been affected by a natural disaster or large-scale emergency, which corresponds exactly with the number of people who answered “yes” to having a designated meeting place outside of their home, a supply of non-perishable food items separate from their regular food items, and keeping emergency supplies such as blankets and flashlights in their vehicles. This indicates that few participants were adequately prepared in the event that a natural

disaster would cause them to evacuate their home. However, there was no correlation found between age and survey participants that reported having previously been affected by a natural disaster or emergency situation and the level of disaster preparedness in this study. In addition, there was also no correlation between age and a high level of disaster preparedness. This could be due in large part to the increasing accessibility to news and weather events occurring around the world. People are able to see how natural disasters affect the lives of others without having to directly experience it for themselves through media outlets. For future studies, as a follow-up to this question presented in Section A of the survey, participants could be asked if these situations required them or their family members to relocate. This could help determine whether they consider having emergency supplies and resource would be useful as part of their individual risk perception. Of the responses given for the disasters or emergencies experienced by participants or their family members, while the house fires can be considered natural disasters, floods and tornados are consistent with the operational definition of a natural disaster relevant to the Birmingham metropolitan community due to the high likelihood of their occurrence.

In Section B, a police scanner was mentioned to be one of the first sources of information for some participants concerning an impending threat, emergency, or disaster situation. This was not given as an option in the second question in Section B, as it was also not mentioned in previous studies as even a possible source of news information. This could be possibly indicative of the trust placed in local government in delivering adequate and current news updates, even though participants in research studies may be reluctant to mention owning a police scanner. Given the choices for responses to the second question of Section B, the option “Call or Text to Cell Phone” tied for the second

highest choice with “Television.” Both of these sources fell just one choice short of “Radio.” Calls or texts to cell phones could be given by automated correspondences provided by the National Weather Service, the participant’s job, or the participant’s school or school system. Social media tied last with community sirens for this multiple-choice question as well, consistent with multiple previous studies that news received via social media was highly untrustworthy, especially in comparison to local and national news, friends, and family.

Questions twelve (12) through sixteen (16) were directly aimed to assess whether participants would be medically prepared in the event of a disaster. All five questions yielded a 50% or higher positive response by participants, indicating that majority of the participants were medically prepared in the event of a disaster. In addition to these questions, follow up surveys and research studies could include asking if the participant or anyone in their household had a previous health condition, chronic illness, or regularly took a prescribed medication. This is pertinent information as medical needs following a disaster could be the result of the disaster aftermath (for example, having a broken or bruised bone as the result of fallen infrastructure due to a tornado). Question fourteen (14) inquired whether participants had a copy of their prescriptions. While there was a 100% positive response to this question, participants also made note that their preferred pharmacy (including those that used the pharmacies provided by urgent care clinics) kept a digital record of their prescriptions which could be very useful in the event that the paper copy is not secure at the time a person needs to evacuate their home. This is relevant as a smaller number of participants, twelve (60%), reported having a fireproof or waterproof case for storing important documents.

The final section, Section D, allowed for the in-depth analysis of the participants' risk perception and allows for a comparison into the previously recorded level of preparedness of the survey participants. The first question inquiring about the participants' worst fear in the event of a disaster yielded many answers involving personal loss of life and the loss of life of a loved one. Loss of life due to untreated medical conditions, whether pre-existing or as a result of a disaster, could be prevented if medical resources are acquired and prepared in anticipation of a disaster or emergency. Of the answers given for the types of issues that might prevent survey participants from preparing a disaster plan and kit, they could be grouped by the similarly of the source of the issue. Some issues were the source of low socioeconomic status. Not having the money to acquire the needed items or the ability to afford health insurance could be great sources of an inability to prepare a disaster plan and kit. Others were the result of having inadequate knowledge about how to prepare for a disaster or medical emergency. A person would be less likely to panic or worry about the time it would take to prepare in the event of a disaster if they had a written Emergency Community Plan that detailed exactly what they needed to gather, who they needed to contact, and what they needed to do in the case of an emergency. In addition, not knowing what to get in order to prepare for a disaster or emergency situation that, though preventable, could be a source of anxiety. The remainder were the result of participants having a low risk perception of their susceptibility to a disaster or medical emergency. Of the participants who stated "nothing" was preventing them from preparing a disaster plan and kit, they often continued to expound on that answer by stating that they simply had not yet made it a priority. The last question of Section D was included in anticipation of participants being

reluctant to disclose their household income in the initial demographic assessment portion of the survey. Though an estimated or exact income amount may not have been gathered, a conclusion can still be made about the socioeconomic status of the participant. Expressing an inability to purchase the necessary items to make a disaster preparedness kit is indicative of the participant's income level as it affects the participants' abilities to engage in a preventative measure for disasters and medical emergencies.

This research study targeted participants who attended churches. Churches were chosen because they include people of all ages, genders, and races so a diverse population residing in the Birmingham metropolitan area could be achieved in this research study, even though it was conducted on a small scale. People are more likely to trust researchers or outside parties if a community leader can substantiate the purpose of their presence as genuine and lacking any threat (Ammerman et al, 2003). By going through a faith organization rather than extended relationships developed by friends or family members, the relationship between the researcher conducting the interviews and the survey participants could remain professional but comfortable to help ensure honest answers were given. Recruiting participants found through friends, family members, or co-workers could have decreased the diversity of the study participants thus diminishing the applicability of the study conclusion (Ammerman et al, 2003). As this study focuses on disaster medical preparedness, recruiting patients through health care organizations could have been an option.

Given the results of this research study, there were limits to the survey inquiries. Church members are a subset of the Birmingham metropolitan community and their

survey responses may not necessarily represent the overall disaster medical preparation and communication behaviors of the overall community. I could not enter Islamic mosques, Buddhist temples, or Catholic churches for the purposes of conducting a research survey due to the time constraints of this research endeavor. This limitation prevented me from including people from other faiths in this research study which should be done in future studies. By contrast, by targeting people who attended churches I did not gather information from individuals who were agnostic, atheist, or did not attend church regularly. These are populations of people equally important to a Birmingham metropolitan community study. For this research endeavor, church officials were contacted through email to gain permission to interview their church members ahead of the visit. For a longer study, it would be helpful to build rapport with church officials and members through two visits: the first visit to establish a relationship in person with the target church members and officials and the second visit to conduct interviews.

While the research survey interviews were conducted in churches, participants were not asked if their faith played a role in how they prepared for disasters or their emergency medical needs. For example, it could have been beneficial to ask participants if they considered prayer a mechanism for disease prevention or if they believed prayer alone could help in the event of a disaster or medical crisis. For a follow up study, it would be greatly beneficial to make this study both larger (for higher inclusivity of representatives of the Birmingham metropolitan community) and longer. In a follow up study including people of various faiths, it could also be pertinent to note differences among the participants according to their religious affiliation or lack thereof.

The small sample size was another limitation to this study. A larger scale study would give greater insight into the disaster medical preparedness needs of the Birmingham metropolitan community. Even with a larger sample size, the nature of the survey questions and research study aims will only allow for the results to give researchers a perception of those needs relative to a certain timeframe. Future results could vary depending on the occurrence of a severe natural disaster, higher access to affordable health care, or greater economic prosperity thus allowing participants to be more likely to afford items they would need in preparation of a disaster or emergency (for example, an extra supply of their prescribed medication).

CONCLUSION

The Birmingham metropolitan community, with its extensive health system and geographical location, gives health research a unique platform to study disaster medical preparedness. Birmingham is a region highly susceptible to the effects of flooding and high winds resulting from severe thunderstorms and tornados. Considering Birmingham's previous encounter with deadly tornado uprisings and the threat of floods causing significant housing damage, the city and local area organizations are apt to mitigate further large-scale property destruction, power outages, and preventable loss of life in the community. Through combining the examination of medical preparedness and news communication about disasters or emergencies, this study was able to assess the relationship between age, ethnicity, and socioeconomic status.

Though the number of participants that had a packaged first aid kit in their home only slightly outweighed those who did not, a majority of the survey participants (65-100%) had a disaster medical plan and important medical information stored and ready in the event of an emergency. Of participants surveyed, majority of them reported lacking: a written Emergency Communication Plan, a non-perishable food supply separate from their daily food supply, a designated meeting location outside of their home, bottled water, emergency supplies in their car, or an emergency supply kit in their home. In effect, while participants were likely to be prepared for a medical emergency, they were less likely to be prepared for a natural disaster which would cause them to implement a

medical emergency plan. Without having the necessary plan or kit for a natural disaster, individuals and households could render medical preparation useless if they become isolated or otherwise unable to withstand disaster aftermath long enough to reach a nearby medical resource.

In examining race and ethnicity, racial differences were apparent in how much they trusted news sources. This revelation was made evident in the open-ended responses where some participants expressed that the issue hindering them from not preparing a disaster preparedness kit or plan was not money (socioeconomic status) to gather what was needed, but rather a lack of making it a priority and a lack of knowing what would be needed. This research study cannot explain why individuals lack personal incentive to create and prepare disaster medical plans and kits or why they trust certain news sources more than others, but it can begin to give some insight about what Birmingham metropolitan community residents consider to be important in the event of an emergency. Overall, the results indicate that the health literacy level of participants may be high but risk perception for the likelihood of a natural disaster is low among Birmingham area residents. Building trust in communication between health care organizations, local government, and the community is essential in bridging this gap to increase disaster medical preparedness.

To coordinate these efforts to strengthen community ties and resources, more general efforts to improve communication accuracy through news outlets would be beneficial. As mentioned previously, social media is a popular form of communication, yet most people in this study do not consider the news they receive via this media source to be trustworthy. Organizations using social media to disseminate information could

increase their accuracy by using authentic sources, possibly accompanied by partnerships with local news and weather organizations, to create content and updates. In addition to promoting the accuracy of news sources, news and health organizations should emphasize the channels that they use to communicate disaster medical preparedness to the public, so that the correct news sources can be the primary point of access. Though this research study could not answer what would encourage people to become more educated about the likelihood of a disaster and how to be best prepared, future studies could focus on encompassing intervention methods for study populations. This study affirms that risk perception for natural disasters and emergencies is low. Future research studies could build upon this affirmation by seeking to understand how trust in government, news, health organizations, and weather sources affect the risk perception of the Birmingham metropolitan community. As this study targeted survey participants from churches, perhaps involving community leaders of religious and non-religious organizations would be effective in encouraging higher disaster medical preparedness. In this way, future research studies could reach a broader facet of the community and gain higher representation from other faiths, ethnicities, and non-religious residents.

Like Hurricane Katrina, natural disasters have the ability to expose the currently neglected societal inequities. Racial inequality, economic inequality, and the like could be intensified by strenuous circumstances and a stress on community and state resources. For a metropolitan area to ignore the possibility of preventing considerable damage done by potential natural disasters, whether personal property or personal health, is a defining characteristic of a society. Birmingham's current community partnerships indicate the potential for a systemic reduction in the likelihood of unpreparedness for medical special

needs. This is visible by the relationship between the Birmingham Regional Emergency Medical Services System and the University of Alabama Health System as a coordinated effort to improve pre-disaster emergency medical care. Capitalizing on existing partnerships in the Birmingham metropolitan community to further create a network of trustworthy news sources concerning natural disasters could bridge the gap in individuals prioritizing disaster medical preparedness.

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APPENDIX A

Disaster Preparedness Survey

Disaster Preparedness Survey

Age

Gender **Male** **Female**

Ethnicity

Living quarters **Apartment Building** **House** **Mobile Home** **Other**

Highest level of education **Less than high school** **High school** **Some college** **College graduate** **Post graduate**

Number of persons living in household

Household income

A. Disaster Potential and Concerns

Please indicate the likelihood of each of the following events occurring over the next 2 years in the area you live.

	Extreme Unlikely	Not Likely	Somewhat Likely	More likely than not	Very Likely
Natural Disaster such as tornado or severe weather					
Man-made disaster					
Power Outage					
Outbreak of Disease					

Have you or anyone in your family been personally affected by a disaster or largescale emergency?

If yes, please explain:

B. Communication

How would you find out if a disaster has occurred or is on its way?

What do you think would be the most effective way to be contacted?

a. Radio
b. Television
c. Community Sirens

d. Friends or Family
e. Social Media
f. Call or text to cell phone
g. Email

Do you double check the information that you receive from these sources?

C. Disaster Preparedness

	Question	Yes	No
1	Does your household have a written Emergency Communication Plan in case you are separated during a disaster?		
2	Does your household have a designated emergency meeting place outside of your home or neighborhood?		
3	Does your household have a complete emergency supply kit that can last for three days?		
4	Do you or someone in your household own a car?		
4a	If yes, do you keep emergency supplies in your vehicle(s)? (blankets, flashlights)		
5.	Does your household have stored three gallons of water for each person in your household (3 day supply)?		
6	Does your household have enough stored food that does not need refrigeration or preparation that can sustain your household for three days?		
6a	If yes, is the food separated from your regular food supply?		
7	Do you have a working flashlight with an extra set of batteries in your home?		
8	Do you have a packaged first aid kit in your home?		
9	Do you have a container that is both fireproof and waterproof for storing important papers in your home?		
10	Do all family members above the age of 14 know how to turn off the power, gas, and water to your house in case of an emergency?		
11	Do all capable children over 5 years old in your house know how to state their full name, address, and phone number?		
12	Does the household have an extra supply of medication on hand for family members requiring daily medication?		
13	Do you have an emergency plan in place to take care of any family members with daily medical needs?		
14	Do you have a copy of all prescriptions?		
15	Do you have contact information for you/your family member's primary care physician?		
16	Do you have contact information for you/your family member's specialty doctor?		

D. Perceived Severity (1), Perceived Barriers (2&3)

What is your worst fear for a major disaster?

What types of issues might prevent you from preparing a disaster plan and kit?

Do you think you would be able to afford the supplies necessary to develop a kit and plan, including having extra medication?

APPENDIX B

IRB Approval Letter

THE UNIVERSITY OF ALABAMA AT BIRMINGHAM
Office of the Institutional Review Board for Human Use

470 Administration Building
701 20th Street South
Birmingham, AL 35294-0104
205.934.3789 | Fax 205.934.1301 | irb@uab.edu

APPROVAL LETTER

TO: Hollowell, Angela

FROM: University of Alabama at Birmingham Institutional Review Board
Federalwide Assurance # FWA00005960
IORG Registration # IRB00000196 (IRB 01)
IORG Registration # IRB00000726 (IRB 02)

DATE: 05-Feb-2018

RE: IRB-300001309
Disaster Medical Preparedness in the Birmingham Metropolitan Community

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The IRB reviewed and approved the Initial Application submitted on 02-Feb-2018 for the above referenced project. The review was conducted in accordance with UAB's Assurance of Compliance approved by the Department of Health and Human Services.

Type of Review: Exempt (Category 2)
Determination: Exempt
Approval Date: 05-Feb-2018
Approval Period: No Continuing Review

In future submissions, please provide a point-by-point response memo to any query from the UAB IRB per our instructions on our website.

Documents Included in Review:

- consent.180202
- exempt.1800202
- porf.180202