ABSTRACT

ARE DISASTER RESPONSE PLANS USED DURING THE INITIAL PHASE

OF A DISASTER RESPONSE: A CASE STUDY OF THE

IMPLEMENTATION OF THE SHELTERING PLAN

DURING HURRICANE SANDY

By

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May 2015

This research examines the collaboration that took place between the American Red Cross and the City of New York in the development and dissemination prior to Hurricane Sandy, and looks at how that plan was implemented during the storm. Through the use of online surveys, participants from the American Red Cross were asked about the level of their agencies participation in the creation of the sheltering plan, the dissemination of the plan, and whether that plan was implemented during Hurricane Sandy.

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TABLE OF CONTENTS

Page

LIST OF TABLES

LIST OF FIGURES

ABBREVIATIONS

ARC	American Red Cross
IRB	Institutional Review Board
FEMA	Federal Emergency Management Agency
NGO	Non-governmental organization
NYC	New York City
OEM	Office of Emergency Management

CHAPTER 1

INTRODUCTION

Hurricane Sandy made landfall along the northern Atlantic Coast of the United

States on October 29, 2012, affecting 24 states in a disaster that covered the largest land

mass in U.S. history. Over 70 people were killed in the United States alone, and nearly

65 billion dollars in damages were reported. The hurricane hit New York City (NYC)

and the New Jersey shoreline, causing massive evacuations (CNN Library, 2014). Many

agencies ran shelters with varying degrees of success, almost all of them being in

operation for much longer than anticipated, with some staying open for nearly 2 months.

Within New York City, 73 shelters were operated by the city, housing a total of

6,800 people, with an additional 8 medical shelters serving over 2,200 people (Gibbs &

Holloway 2013). Across the entire response, the American Red Cross (ARC) provided

79,000 shelter stays (measured as one person per night, not total people) within the first

month of the storm making landfall (American Red Cross, 2012). With so many agencies

involved in large-scale, long-term sheltering, there were many opportunities to learn from

the response and improve future responses. This study examines the sheltering plan of

the ARC, how it was disseminated internally and externally, as well as its implementation

during the disaster; and areas for improvement will be identified.

Problem Justification

Disasters take many forms, from wildfires to hurricanes and earthquakes, and many occur without warning. In the United States it is the responsibility of the government, local, state and federal, to prepare for and respond to those disasters (Rubin & Barbee, 1985). Planning is done by all agencies, but is not always coordinated properly. Collaborations between governments and non-profit organizations, such as the one between the ARC and the City of New York, are necessary to provide services to the public (Becker-Birck, Crowe, Lee, & Jackson, 2013). Despite planning together prior to a disaster, when a disaster first occurs the response agencies become focused on the immediate problems in front of them, and forget to utilize the response plans previously developed.

This research will look at the relationship and collaboration between the ARC and NYC while developing the sheltering plan used during Hurricane Sandy, and the plans implementation. The research will examine how the plan was disseminated and whether it was consulted during the beginning of the response. Response agencies will be able to reflect on the collaboration process and how it can improve in the future.

Purpose

This paper examines the implementation of a disaster response plan during a major disaster. It looks at the dissemination of the plan prior to the disaster, whether other agencies were consulted during the planning for the disaster, and how the plan was implemented during the initial stages of the disaster. This thesis examines the development of the sheltering policy that was implemented during the response to

2

Hurricane Sandy. It adds to the knowledge base of the profession by providing a look into how the disaster response plan was disseminated prior to the disaster, and how that plan was put into action. The success and failures during the dissemination and implementation of this plan during the response will allow the ARC to understand how the response plans of other agencies were incorporated into the response, how those influenced its own response, and where improvements are needed in the future.

The primary research question being addressed is: how was the ARC's sheltering plan disseminated prior to Hurricane Sandy, how was it implemented, and did that plan influence the response plan of other agencies? The answers to these questions will allow the ARC to improve its current policies and procedures, and allow for a more efficient response to the next major disaster. It provides a guide for other disaster response agencies to measure their current dissemination plans and a measurement of whether that plan is viable for the next major disaster.

The analysis looks at how the plan was actually implemented during a disaster response, including whether that plan was successfully disseminated internally and externally. Analysis of what the ARC organization has done and how they were able to implement those plans during the incident, can provide a blue print for improvement planning options and policy considerations as the organization looks toward future disaster sheltering responses.

<div align="center">Research Scope</div>

The primary focus of the study is the dissemination and implementation of the emergency sheltering plan of the ARC during Hurricane Sandy. The actions of other organizations, though they contributed to how the policy was shaped, will not be

examined. Limitations of this research are the inclusion of only one response agency in the data collection and the inability to speak with people who stayed in the shelter about their experiences; it is nearly impossible to verify that the people responding actually were present at the shelter. The success of this paper will depend upon people being willing to share information. Reaching the people to survey for this research may be difficult, as some people may fear retaliation from their organization or the general public if what they have to say can be traced back to them.

<u>Theoretical Foundations</u>

The theories being explored in this paper are rooted in public policy and disaster response. Within public policy there is the expectation that governments at all levels, as well as certain non-governmental organizations, have the responsibility to plan for the protection of citizens from certain types of hazards. Governments at all levels have a responsibility to care for its citizens. At the national level, the government should create policies that protect people and prevent them from living in dangerous areas whenever possible (Basher, 2008). In the past couple of decades, local governments have assumed a larger role in preparing for and responding to disasters, often in conjunction with non-profit organizations such as the ARC (Rubin & Barbee, 1985).

Within disaster response, this paper examines the responsibility to develop response plans in collaboration with other agencies and execute them well despite adverse conditions. Collaboration between governments and non-profit organizations is vital to accomplishing disaster response. While governments have the mandate to provide for their citizens, they often do not have the knowledge and resources to respond to all types and sizes of disasters, and have to provide the basic structure for a disaster

4

response while relying upon partnerships to accomplish the work (Brandsen, Boogers, & Tops, 2006). Successful collaboration during a disaster response requires effective communication structures that are flexible enough to accommodate whatever the situation (Comfort, Sungu, Johnson, & Dunn, 2001).

Summary

Hurricane Sandy was a massive storm that hit an area that does not often see storms of its magnitude. In order to serve the population affected, over 500 organizations (Byrne, 2013) collaborated on the response. In NYC, the main partners in the sheltering operation were the ARC and NYC. This research looks at the dissemination and implementation of the sheltering plan utilized during the large disaster. It examines this through the use of emailed surveys to gain perspective from those involved in the response.

Several themes are explored within the research and data collection. The first is the responsibility of government to care for its citizens, and how that expanding role is currently is filled by a local government (Rubin, 2007), in this case NYC. The collaboration between NYC and the ARC is examined. Governments and the ARC have been collaborating on disaster relief since 1900 (Rubin, 2007) and this research examines how the communication between agencies worked prior to the disaster. The results are intended to provide a starting point for the ARC when revising their sheltering plan prior to the next disaster, taking into consideration how that plan was utilized in the onset of Hurricane Sandy, and look for ways to ensure the next plan is utilized.

CHAPTER 2

LITERATURE REVIEW

Current Research

Disaster response plans are developed by a variety of agencies, both governmental and non-profit. These organizations utilize the response plans with varying degrees of success. In the United States, it is the responsibility of the government at all levels to plan for the protection of its citizens. Because this task is too large for any one entity, governments partner with non-profit organizations such as the ARC, to help provide those services to the populations.

Many factors were present in the sheltering response to Hurricane Sandy in NYC. Several agencies had to collaborate to develop the sheltering plan, and implement that plan when faced with one of the largest storms to hit the United States. This research looks to establish what form the pre and post landfall collaboration between the ARC and other agencies took, and whether that collaboration allowed for an effective response to the storm.

Government's Responsibility to Care for its Citizens

In times of uncertainty or disaster, people turn to their government for leadership and to provide basic services to help them survive. In developed countries, the government must put in place and maintain measures that protect the citizens from disasters. The government at the national level should take the lead in creating and enforcing policies that remove people from dangerous areas (Basher, 2008) whether

through evacuation plans or moving population centers away from high risk areas. In the United States during Hurricane Sandy, the national level agency responsible for emergency management was the Federal Emergency Management Agency (FEMA; Rubin, 2007), and the local level it was the NYC Office of Emergency Management.

According to Rubin and Barbee (1985) local governments are assuming a greater amount of responsibility and role in disaster recovery than they have in the past several decades. For much of the United States history, disaster response was handled locally and in conjunction with non-profit disaster response agencies such as the ARC. The establishment of FEMA in 1979 was the first time a national governmental agency existed to take the lead in disaster response. Since that time, the role of FEMA has expanded greatly until the agency's handling of the response to Hurricane Katrina in 2005 instigated a change (Rubin, 2007).

Some of the changes instituted after Hurricane Katrina allow local governments the ability to develop a direct relationship with the federal government following a presidential disaster declaration, cutting down on the layers of bureaucracy and increasing the speed of decision making. Local governments have the responsibility to become familiar with FEMA regulations prior to a disaster occurring to help speed up recovery times. The keys to a successful recovery on a local level are the ability to act, having a reason to act, having the knowledge to know what to do, and having the political knowledge to navigate the complicated processes (Rubin & Barbee, 1985).

While governments have become more involved in disaster response, they need to go about it in a certain way to be effective (Schneider, 1992). The structure a government uses to conduct its day-to-day activities needs to be flexible and able to

7

expand into a larger structure necessary to successfully manage a disaster response. Part

of this successful structure is establishing an effective bureaucracy with the following

components: clearly stated objectives, a defined structure, a division of labor, and a set

of policies that guide its behavior. These flexible structures will allow the local

government to help its citizens return to a structured society and re-establish a normal

life. How the community defines and achieves this return to normalcy determines if the

government response is viewed as successful. In instances where the government does

not follow its established procedures, the public becomes unhappy with the response

quickly and little can be done to change that perception (Schneider, 1992).

Collaboration Between Government and Non-Profits

Governments and non-profits have been collaborating on disaster response and

relief since congress chartered the ARC in 1900, working together on disasters of all

sizes across the country (Rubin, 2007). The numbers of agencies available to collaborate

during a response has greatly increased since that time, as evidenced by the 2004

hurricane season in Florida, when 232 organizations participated in the response efforts

(Kapucu, 2006). Over 500 agencies organizations responded to Hurricane Sandy (Byrne,

2013). To effectively deal with the changing environment and increasing natural

disasters, collaboration between governments, businesses, community groups and citizens

will be required on a large scale (Becker-Birck, Crowe, Lee, & Jackson, 2013).

Successful collaborations are possible, and necessary to solve large, complex problems.

They are typically public-private partnerships, such as the one between the ARC and

NYC during Hurricane Sandy, allow for complex issues facing society to be broken into

manageable pieces, and strengthens each organization by learning to depend upon the other to meet goals (Gray, 1991).

Governments have an inherent mandate to care for their citizens; however, this does not mean that governments have all the resources and knowledge to respond to all disasters. Brandsen et al. (2006) detail how many national governments operate under the philosophy of soft governance, by which they provide guidelines for what programs are supposed to look like, but allow local governments to implement programs to meet those guidelines in their own way. This allows for unique and locally developed solutions to daily problems, but can cause problems when disasters or other emergencies arise. Often under this soft governance structure the lines of responsibility are vague, and people responsible for implementing local disaster programs may have other responsibilities that take precedence outside of disaster response. The result is that many areas are not properly prepared for disasters and do not have the experience to properly manage a disaster response (Brandsen et al., 2006).

In an attempt to provide services within strict spending and budgeting restrictions, many governments are looking to pass those responsibilities to other agencies. Cohen (2001) describes how government spending is limited by rules and restrictions, and is often not efficient. When considering whether a particular service should be performed by the government, decision makers must consider performance and financing of the venture, and whether a non-governmental organization can handle those tasks. Other considerations when deciding to collaborate with another agency should include the political environment surrounding the issue, the interaction between the customers and service provider, and the internal policy and organization structure for decision making.

Governments are usually best suited to perform functions that regulate and/or restrict the freedoms of individuals, and those that do not have a clear customer willing to pay for the services (Cohen, 2001).

Effective disaster management relies on a public-nonprofit partnership, and depends on the relationships between the agencies involved (Kapucu, 2006). An effective partnership benefits not just the organizations involved, but the community they are serving. Pressure is increasing on all organizations as technology changes and becomes an increasingly large part of people's lives, demands for innovate solutions increase, organizational decision making structure changes, and organizations become more interconnected with each other. Organizations have to communicate with each other during non-emergency times to build trust and ensure that when an emergency occurs everyone will have a clear understanding of their role (Kapucu, 2006).

Complex organization structures rely on the ability of each individual piece to communicate and act effectively. Responses are better when critical information is shared at the onset of the disaster. The efficiency of the response increases with the more jurisdictions/agencies that are involved (Comfort, Ko, & Zagorecki, 2004). During the response to Hurricane Sandy the use of social media as a means to communicate with the public increased dramatically, with the ARC responding to 2,386 inquiries on social media sites, and providing a free smart phone application helping people prepare for and recover from the storm (Cohen, 2013).

Collaboration often begins when one sector is unable to solve a particular problem on its own. Different organizations are brought together by someone in a position of power, and the problem facing the group is defined (Bryson, Crosby, & Stone, 2006).

10

Effective collaborations have diversity in the groups participating, and they need to be

dependent upon each for the collaboration to work. The communication between

partners much be filled with trustworthy and accurate information (Booher & Innes,

2002). Partnerships between public agencies and non-profits allow organizations to build

capacity and provide a greater level of service to the community than one agency would

be able to provide on its own. During a disaster, communication and coordination

between all responding agencies will determine the success of the response (Kapucu,

2006).

How non-governmental organizations (NGO) fit into the overall disaster response

team is not always well documented, and is often left to the organizations to determine

their response structure and how they will interact (Chandra & Acosta, 2009). Different

organizations may take the lead in different parts of the response. During Hurricane

Sandy the ARC played a support role to NYC during the initial onset of the response

(Gibbs & Holloway, 2013).   All responding organizations need to be incorporated into

the government plans and the level of responsibility needs to be clearly defined.

Governments typically focus on economic recovery and infrastructure following a

disaster, and neglect the human recovery aspect of the disaster, relying on NGO's to fill

those gaps. This reliance should also be clearly understood and delineated in the

government plans (Chandra & Acosta, 2009).

An example of non-profit and government partnership following a disaster

response is NYC following the September 11, 2001 terrorist attacks. Following that

event, NYC capitalized on the billions of dollars in federal aid, not only for the expected

projects run by FEMA and the repair of transportation infrastructure, but also for

programs that were designed to help rebuild the economy. Businesses and community associations were included in planning how the funds were to be spent. This group eliminated the traditional tax benefit offered after a disaster, and implemented spending programs designed to help recovery (Gotham & Greenburg, 2008).

Disasters responses are complex and require many agencies to work together efficiently, often with little time to set up communication structures. It is necessary prior to a disaster to design a system that is able to adjust and allow for the needs of this particular disaster. Comfort (1994) wrote:

How a system designs its information flow and exchange, both among its constituent parts and between the whole system and its external environment, serves as the primary factor in determining its capacity to reduce future risk and create a sustainable relationship with its environment. An adequately specified information structure is one that enables the system to learn in a changing environment.

It is very difficult to coordinate a response between multiple agencies, and the initial response is often disjointed and lacks interagency communication. The communication and organization structures set up prior to the disaster must be able to accommodate a variety of factors or the response will not be successful (Comfort et al., 2001).

Hurricane Sandy happened at a unique time in United States disaster response history. After the terrorist attacks of September, 2001, emergency management's focus shifted, leading to a declining focus on mitigation while increasing emphasis on a strict response structure (Comfort, 2007). Hurricane Katrina in 2005 highlighted the problems with a strict response structure, as people, organizations, and aid were turned away

12

because they did not fit within the specific structure. Those involved with the development of the sheltering plan in NYC had years to learn from both responses and develop the common language and response goals necessary for a successful collaboration (Comfort, 2007).

To maintain effective partnerships, they must be evaluated regularly to ensure both parties are getting their needs met. These evaluations should occur along timelines that seem natural to the organizations involved, such as along calendar years, disaster seasons or at certain response milestones. Even if the stated goals of the collaboration are not met, value can be found in partnerships, through access to resources that may not have been available to only one organization (Kelly, 2012).

Mitigation of Hazards

Known and perceived hazards for a specific area need to be addressed when preparing for disasters (Adikari, Osti, & Hiroki, 2013). Prior to a disaster, governments need to examine the risk faced by their low-lying coastal areas, high wildfire danger, earthquake fault zones and similarly at-risk areas, and take steps to protect their citizens from those hazards. Mitigation prior to a disaster will increase the overall resiliency of an area. Whether the cost of disasters is really increasing, or the reporting of disasters has become more accurate, it is still an increasing burden upon the populations least likely to be able to withstand the financial burden (Adikari et al., 2013). Hazard reduction has yet to gain popular support. When it comes to reducing risks from weather related hazards the need for change often gets confused in the climate change debate. While it may be impossible to retrofit an entire city or region, important structures can be upgraded, and new construction can be held to higher standards of safety (Basher, 2008).

A major push was made by FEMA in the 1990s to shift the focus of disaster funding towards mitigation; yet, most of these programs were dropped within a decade (Alexander, 2006). International cooperation is necessary for successful mitigation of large, widespread hazards such as hurricanes and flooding. Through the World Bank, countries are now able to undertake large mitigation projects they were previously unable to fund. These projects are required to follow mitigations practices that have been agreed upon by the international community, ensuring that consistent work is done (Tolentino, 2007).

Conclusion

Disaster response is an ever-changing landscape. The role of governments at all levels in the United States has changed repeatedly within the century. Initially led by local governments, a shift towards national regulation was made; however, the responsibility for responding to disasters is currently moving back towards local governments. Throughout any disaster response, collaboration between all levels of government and non-profit agencies is necessary for a successful response. The most prevalent collaboration is with the ARC, but there are a multitude of other agencies involved in every phase of the disaster. Prior to Hurricane Sandy, agencies in the NYC worked together to develop response plans, which were put to the test during the storm response.

CHAPTER 3

METHODOLOGY

Planning and collaboration are important to disaster response, but when a disaster occurs those plans may not necessarily be put into practice. The purpose of this research was to determine whether disaster response plans are utilized in a major disaster response by looking several factors surrounding the sheltering plan utilized in NYC during Hurricane Sandy. The research looks at how collaboration with multiple agencies played a role in developing the disaster response plan, how those plans were disseminated within the agency and with partners, and whether those plans were consulted when a disaster occurs.

Research Design

This research project idea came from the researcher's professional experience in disaster response with the ARC. The initial observation was that a great amount of time is spent developing detailed disaster response plans, these plans are not consulted when a disaster response is initiated. The researcher wanted to examine whether this trend was universal or limited to specific individuals within the disaster response community. This idea developed into an examination of whether disaster response plans are consulted when a large disaster hits, and, to what extent the dissemination of the plan affects its use and effectiveness.

15

Because this research examines the disaster planning and response of the ARC, the organization where the researcher works in a disaster planning and response capacity, it is difficult not to let some bias affect the design of the research. The researcher's personal experience with disaster response, both in large scale and smaller scale responses has been that response plans are not utilized during the onset of no-notice events, such as a flash flood or wildfire. The initial assumption that these plans were not utilized was carried over when initially designing this research, which focused on a different type of event, which due to the nature of hurricanes, was able to be forecast days in advance.

The primary question this research addresses is: how was the ARC's sheltering plan disseminated prior to Hurricane Sandy, how was it implemented, and did that plan influence the response plan of other agencies? The answers to these questions will provide insight into a major disaster response that involved a number of agencies, and will help identify the effectiveness of pre disaster planning and the communication strategies utilized for dissemination of the plan. The results will help identify whether the established plan was utilized during the response and will allow the ARC to improve its current policies and procedures, allowing for a more efficient response to the next major disaster.

A literature analysis was conducted to find current thinking about the roles of government and non-government organizations in disaster response to care for people affected by a disaster, and how those plans are supposed to be executed in a disaster. Additionally, media accounts of Hurricane Sandy and the conditions in the shelters were

reviewed to provide background of the response and what people being sheltered had to say about their experiences.

After the literature review was completed, the development of the data collection instrument began. A variety of data collection methods were considered, and because potential respondents were located across the United States and the researcher was working full time, the decision was made to use an online survey collection tool. Among the online survey tools, SurveyMonkey.com was selected for the ease of use and wide range of question development options available.

Ethical Considerations for Research

To ensure this research project would not cause harm to any of the participants, the research survey and information about the projected participants was submitted to the Institutional Review Board (IRB) at California State University, Long Beach for review and consideration. Because the research project consisted of approaching employees and volunteers of various organizations, the IRB required a letter of approval from each organization allowing their employees and volunteers to be approached prior to sending out the survey. This requirement limited the potential participating agencies to one, as the researcher was only able to obtain consent from the ARC.

There were two main ethical concerns addressed in the design of this research project and reviewed by the IRB. The first concern was that participants could face retaliation from their employer for participating in the research project, as the organizations could be afraid of negative publicity for their handling of the response. This could only be accomplished through a breach of confidentiality or a compromise of the electronic survey system utilized to collect responses. Participants were informed at

the beginning of the survey that confidentiality will be maintained to the degree permitted by the technology used and no guarantee can be made regarding the tracking or interception of responses by any third parties. This concern was further mitigated by not collecting names from participants in any point in the process, and while anonymity cannot be 100%, tracing a response back to a particular person will be extremely difficult. The survey's multiple choice questions provide full anonymity with their non-personalized selection of answers. There is only one open ended question, where the possibility of identifying information is possible. This information will be carefully scrutinized to remove any identifying language or thoughts before including this in the data analysis.

The second ethical concern was that participants could experience some psychological discomfort when answering questions about the response. They may be uncomfortable answering questions about their specific role in the response or that of their agency, especially if they felt there was a problem with the response in some way. To mitigate this concern, none of the questions in the survey were made mandatory, each question contains a decline to answer option, and participants could opt out of the survey at any time.

<div align="center">Assumptions</div>

This research is being conducted by electronic survey distributed through email. It is assumed the response rate will be low, as the typical response rate for email surveys is around 15% for external surveys (PeoplePulse). It is also assumed that those receiving the survey invitation are motivated to complete the survey because it intersects their own career and interests closely. Finally, it is also assumed that the questions are answered

truthfully without any attempts to sabotage the research in an effort to make themselves and/or their organization look good.

Survey Instrument Development

The questionnaire utilized in this study (see Appendix C) was developed by the researcher in consultation with the thesis director and other members of the graduate school cohort. The survey instrument was designed to specifically address the research questions: when participants learned about the disaster response plan and whether they consulted the plan during the initiation of the sheltering response

The researcher reviewed survey questions utilized in published disaster research and developed an initial set of questions. A mix of qualitative and quantitative questions were developed to both collect specific metrics relating to the development and implementation of the response plan and allow respondents to provide their perspective on the response. This initial set of questions was revised multiple times with the assistance of the thesis director and colleagues within the emergency services administration program. The questions were then built into the online survey tool and distributed to the researcher's colleagues at the ARC who did not meet the criteria for participation in the final research for validation. Participants in this preliminary test of the survey questions provided feedback on the wording and order of the questions, identifying questions that were not gathering the intended information and needed to be streamlined.

Data Collection

Once the literature review was completed and the survey instrument developed, the next step was to determine the ideal population for this research and begin collection

of the data. Because contacting every person involved in the sheltering response during

the storm was not feasible, a sub set of that overall pool of potential participants had to be

developed, and the survey distributed to them. The online tool for distributing the survey

allowed for invitations to participate to be sent directly to email addresses, and reminders

to be sent specifically to those who had not yet completed the survey while still keeping

the identities of specific respondents anonymous.

Population

      The pool of potential participants was narrowed down to anyone involved with

the ARC, as a paid staff or volunteer, who participated in the response to Hurricane

Sandy. American Red Cross internal documents showed over 16,000 people participated

in the total response across the United States, but does not specify how many people were

in NYC. The initial list of potential participants was developed from the list of staff and

volunteers with redcross.org email addresses in the New York state area as available

through the internal ARC rosters in June 2014. Secondly, the researcher added in the

email addresses of specific individuals that were known to have been involved in the

response and those of people recommended to the researcher through contacts within the

ARC. Finally, the researcher made posts in Facebook groups dedicated to the ARC

asking people to self-select into the research project if they felt they fit into the criteria of

having been active in the sheltering response to Hurricane Sandy in NYC. A total of 108

potential participants received the initial email invitation to participate in the research.

Procedures

      The survey was distributed through the online survey tool SurveyMonkey.com.

The use of the online site allowed respondents the option to opt out of the receiving

further emails about the study, and allowed them to participate without revealing their

identity. The 108 potential participants received an email inviting them to participate in

the survey (Appendix C), and a link to the survey on the surveymonkey.com website.

The survey was left open for ten week to provide ample time for people to participate.

After the initial invitation email, potential participants who had not completed the survey

received an email reminding them to participate after four weeks. Another reminder was

sent out four weeks after the first, letting potential participants know they had two weeks

left to complete the survey. After this window the data was extracted from the website

and analyzed.

Response Rate

The survey invitation was emailed to 108 potential participants. The survey was

left open for ten weeks, and participants received three emails encouraging them to

participate. An opt-out option was included on each email, allowing participants to easily

stop any future communications regarding the survey. The final response rate was

15.7%, with a total of 17 people responding.

Respondents were asked to identify their agency affiliation at the time of

Hurricane Sandy (Table 1) and whether they were paid staff or a volunteer (Table 2). Of

those respondents, 70% (n=12) were affiliated with the ARC at the time of Hurricane

Sandy, 23.5% (n=4) were affiliated with another agency, and 6.5% (n=1) of participants

declined to state the agency they were affiliated with. Of those affiliated with the ARC at

the time of the storm, the respondents were evenly distributed between employees and

volunteers.

TABLE 1. Responses

Total responses	ARC affiliate	Other agency affiliation	Decline to state affiliation
15.7 (*n*=17)	70% (*n*=12)	23.5% (*n*=4)	6.5% (*n*=1)

TABLE 2. Respondent Affiliation

Total responses	ARC employee	ARC volunteer
12	41.7% (*n*=5)	58.3% (*n*=7)

Respondents who indicated their affiliation with ARC were asked how their specific department was involved in the development of the sheltering plan (Table 3). Of those respondents affiliated with the ARC, 41% (*n*=5) indicated their department was very involved in the development of the ARC's sheltering plan.

Methodology for Data Analysis

Once the survey was closed, the data was downloaded into an excel file and a quantitative analysis was performed. Within each question was the ability to indicate uncertainty, and the responses within each question were sorted into answers to the question and the respondents who indicated uncertainty. The answers to each question were analyzed to see how they individually contributed to answering the research question and whether a pattern existed across the answers. Once the quantitative analysis of each individual answer was completed, the findings were examined to see how the research question was answered.

TABLE 3. Department Involvement

How involved was your specific department in the development of the sheltering plan?	Very involved	Somewhat involved	Not involved at all	Uncertain of involvement
Number of responses	41.7% (*n=5*)	16.7% (*n=2*)	25% (*n=3*)	16.7% (*n=2*)

The quantitative aspect of the responses were then analyzed in relationship to internal ARC documents to see if the respondents provided consistent information to different researchers, and if the time that has passed since the event affected their memory of or feelings towards the event. Further analysis is conducted for overall implications of the data. Documents internal to the ARC response were also analyzed to look at trends and observations that organization made about its activities during the response.

<u>Summary</u>

Hurricane Sandy was a major disaster that offers many lessons in disaster planning and response. This research project was initially designed around the researcher's personal experiences in disaster relief and planning, and looked at the collaboration in the planning of the response, and how that plan was implemented. Respondents were recruited from several sources, and were only recruited from a pool of people who responded in some capacity, whether volunteer or staff, from the ARC. The survey responses were analyzed to find out what participant's perceptions were about the

level of collaboration before the ARC and NYC prior to the storm making landfall, and

whether they utilized the plan during the initiation of the response.

CHAPTER 4

DISCUSSION OF RESULTS AND ANALYSIS

This research was designed to look at the response to Hurricane Sandy, and how the agencies involved in that response collaborated during the planning phase prior to the storm. The survey was designed with several sections to measure different aspects of the sheltering plan, including how much collaboration occurred during the development of the plan, the dissemination of the plan prior to the storm, what adjustments were made in the initial response to the storm, and any notable places where the plan failed. The survey was designed to look at how members of the ARC's response to Hurricane Sandy were involved in collaboration prior to the storm, how the sheltering plan was distributed, and whether it was implemented in the response. The results discussed in this chapter will provide insight into how successful planning has been for the ARC prior to large disasters and whether those response plans are being successfully implemented during a disaster response.

The ARC and NYC formalized their partnership to provide mass care services during a disaster in a memorandum of understanding signed by officials from both agencies. This document specified that NYC would take the lead on all sheltering operations occurring within the city limits, and city employees would be trained to operate these shelters. The ARC would provide additional staff work in the shelters and provide guidance when necessary (internal ARC documents).

The size of sheltering operation in NYC was immense. In a 16 day span between

October 28, 2012 and November 12, 2012 over 6,800 people spent at least one night in

one of 73 shelters established across the city. Most of these shelters were schools that

had been pre-stocked with provisions; however, the supplies only had enough meals for 3

days and the shelters were open much longer. Several school sites did not have adequate

restroom and shower facilities, and those sites had to be moved to more appropriate

facilities as the response to the storm went on. The city also operated eight specials

needs shelters, attending to 2,236 evacuees. Overall the storm displaced 150,000 people

out of their homes long term (Gibbs & Holloway, 2013).

Results

The survey was emailed to 108 potential participants, with 17 responding. The

response rate and affiliation of respondents is discussed in chapter 3. The first questions

focused on the development of the sheltering plan, and the collaboration between

agencies during its development. Respondents were asked to identify how involved their

agency was in the development of the sheltering plan (Table 4). A majority of

respondents indicated their agency was very involved in developing the sheltering plan,

revealing that not only was the ARC involved in the overall sheltering plan, but that

participants were also aware of the agency's role in its development. This high number

indicated that many of the respondents were informed about the sheltering plan, and

aware of the collaboration between agencies. An awareness of the relationship shows an

understanding of the how the agencies intended to work together during a response.

TABLE 4. Organization's Involvement

How involved was	Very involved	Somewhat	Not involved at all	Uncertain of

your organization in the development of the sheltering plan utilized in the response?		involved		involvement
Number of responses	68.8% (*n=11*)	6.3% (*n=1*)	6.3% (*n=1*)	18.8% (*n=3*)

TABLE 5. Organizational Role

What role did your organization play in the development of the sheltering plan utilized in the response?	Attended planning meetings	Created content	Provided information about agency's procedures	Provided comment during development	Provided comment after development but prior to implementation	Attended final review meetings	Uncertain
Number of responses	8	4	5	4	4	3	6

The next question focused on the role of their organization in the development of the sheltering plan, with the option to select as many responses as necessary (Table 5). Participants indicated their agency was involved in all aspects of the developing the sheltering plan used in the response. The majority of participants (*n=8*) attending planning meetings. One third of respondents (*n=5*) indicated they provided information about their agencies procedures during the development of the sheltering plan, while additional respondents reported creating content for portions of the plan and providing comments on the plan at multiple stages of the plans development (*n=4*). The variety of roles selected indicates a high level of participation in the development of the sheltering plan by many agencies.

This finding is significant as it shows the ARC and NYC collaborated in several ways when developing the sheltering plan. Successful collaborations are built on frequent communication, and the variety of ways that agencies contributed to the sheltering plan are evidence of communication on many different occasions (Kapucu, 2006). With a history of major disasters in the NYC area, both agencies have taken the time collaborate on a sheltering plan.

TABLE 6. Sheltering Plan

Question	Yes	Uncertain	No	Decline to answer
Does your organization have a sheltering plan independent of the sheltering plan utilized in the response?	64.3 % ($n=9$)	21.4% ($n=3$)	14.3% ($n=2$)	0
Did New York City's sheltering plan influence the development of your organization's sheltering plan?	41.7% ($n=5$)	25% ($n=3$)	25% ($n=3$)	8.3% ($n=1$)

Participants were asked if their agency had a separate sheltering plan from NYC, and whether their agencies plan was influenced by that of NYC (Table 6). In addition to the sheltering plan developed by NYC, a majority of respondents indicated that their agency had a separate sheltering plan. When asked if their agencies plan was influenced by NYC's, the responses were split, with $n=4$ saying their plan was influenced and $n=3$ indicating the plan was not influenced by NYC's. The results from this question are

inconclusive. With nearly equal responses recorded it is clear that some of the participants may have more knowledge about the internal workings of their organization during the development of the response plan than others who may not have been involved with this phase of the response.

TABLE 7. Influence of NYC's Plan

Question	All aspects of the plan were changed	Major modifications were required in the plan	Minor modifications were needed in the plan	Uncertain	Decline to answer
How did New York City's sheltering plan influence the sheltering plan of the organization you are associated with?	12.5% (*n*=1)	50% (*n*=4)	0	25% (*n*=2)	12.5% (*n*=1)

The next questions focused on whether agencies altered their sheltering plan to compliment NYC's, and to what degree modifications were made (Table 7). Once NYC's plan was finalized and provided to various agencies, including the ARC, many agencies decided to adjust their own sheltering plans. Among respondents, one indicated that their agency changed all aspects of its own sheltering plan. Additional respondents (*n*=4) indicated their agency made major modifications to their own sheltering plan to align more effectively with NYC's plan.

TABLE 8. Familiarity with NYC's Plan

Question	Very	Somewhat	Not very	Completely	Uncertain	Decline to

	familiar	familiar	familiar	unfamiliar		answer
Prior to Hurricane Sandy making landfall, how familiar was your organization with the sheltering policy of New York City?	57.1% (*n*=8)	14.3% (*n*=2)	0	7.1% (*n*=1)	14.3% (*n*=2)	7.1% (*n*=1)
	Yes	No	Uncertain	Decline to answer		
Prior to Hurricane Sandy making landfall, did your agency receive a copy of New York City's sheltering plan from any city government agency?	28.6% (*n*=4)	0	71.4% (*n*=10)	0		

Respondents were asked how familiar they were with NYC's sheltering plan

(Table 8), and 71% (*n*=10) of respondents were familiar to some degree with the NYC's

sheltering plan prior to Hurricane Sandy making landfall. More than half indicated they

were very familiar with the plan. This answer indicated these respondents had read the

plan and taken the time to understand it. When asked if their agency had received the

sheltering plan prior to the storm, the majority indicated they were uncertain. This

number is at odds with the responses to the previous question, indicating the question was

not understood, or that a different set of people provided responses to the questions.

Identify the way in which your agency received a copy of New York City's sheltering plan. Select all that apply.
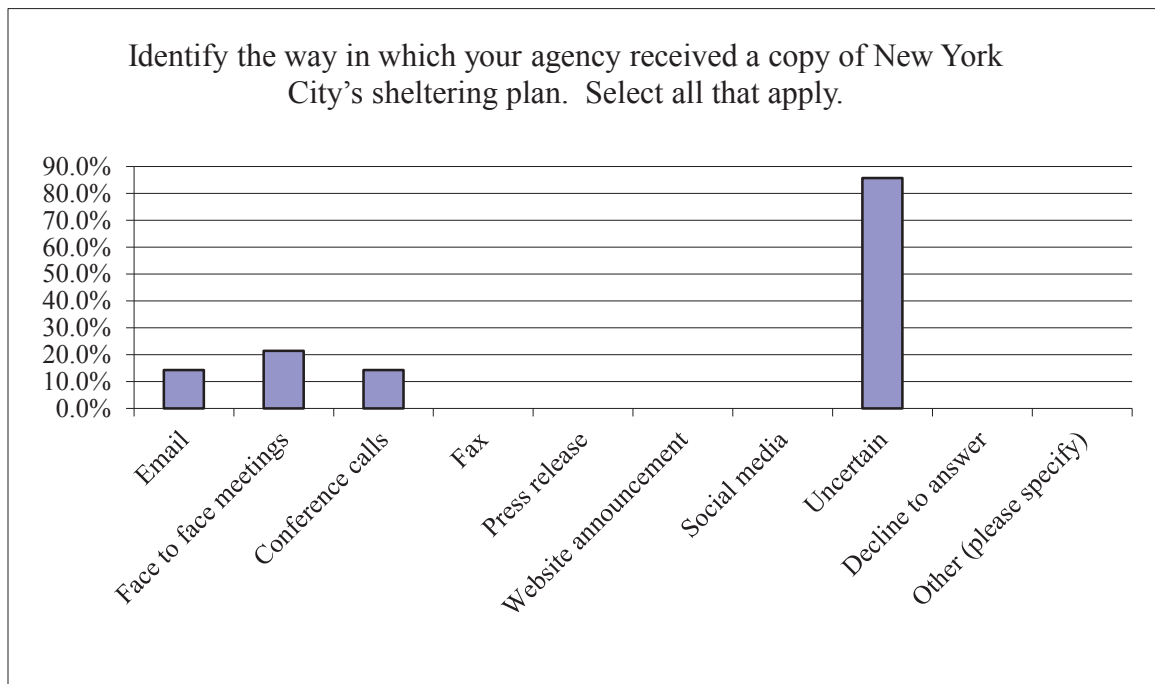
FIGURE 1. Receipt of the plan.

Participants were asked to identify the way they received a copy of the sheltering plan (Figure 1). The plan was received by the respondent's agencies in a variety ways; respondents indicating it was received equally by email or distributed during an in-person meeting. Successful collaborations rely on effective communication (Booher & Innes, 2002) and receiving the plan through a variety of channels shows an attempt to make sure the information was disseminated thoroughly. The majority of respondents indicated they were uncertain how the plan was received by their agency. These two questions did not differentiate between respondents who arrived in NYC after the storm, and those who were involved in the planning prior to storm, which could explain why so many

respondents were uncertain if the plan was received and the method in which it was

received.

TABLE 9. Plan Instructions

Question	Very detailed	Somewhat detailed	Framed with a few details	No details	Uncertain	Decline to answer
When the sheltering plan was received, how detailed were the instructions included with the plan?	14.3% (*n*=2)	14.3% (*n*=2)	7.1% (*n*=1)	0	64.3% (*n*=9)	0
	Less than 1 week	Between 1 week and 1 month	More than a month	More than a month	More than a year	Uncertain
How far in advance of Hurricane Sandy making landfall did your organization receive a copy of New York City's sheltering plan?	0	0	0	0	21.4% (*n*=3)	78.6% (*n*=11)

Participants were asked how detailed the instructions received with the plan were

(Table 9), and most respondents (*n*=9) were uncertain if it included directions for

utilizing the plan. A small number of respondents indicated the plan came with very

detailed (*n*=2) or somewhat detailed (*n*=2) directions. Respondents were asked how far

in advance of the storm they received the plan (Table 9) and indicated it was received

more than a year prior to the storm. This indicates the sheltering plan had been in place

for a while and was not something developed immediately in the face of the storm.

When asked how many meetings their organization was involved in, either

hosting or attending (Figure 2), some respondents (*n*=6) indicated their organization was

involved in 5 or more meetings, while a significant number (*n*=7) indicated they were

uncertain, indicating these respondents were likely not among those involved in the
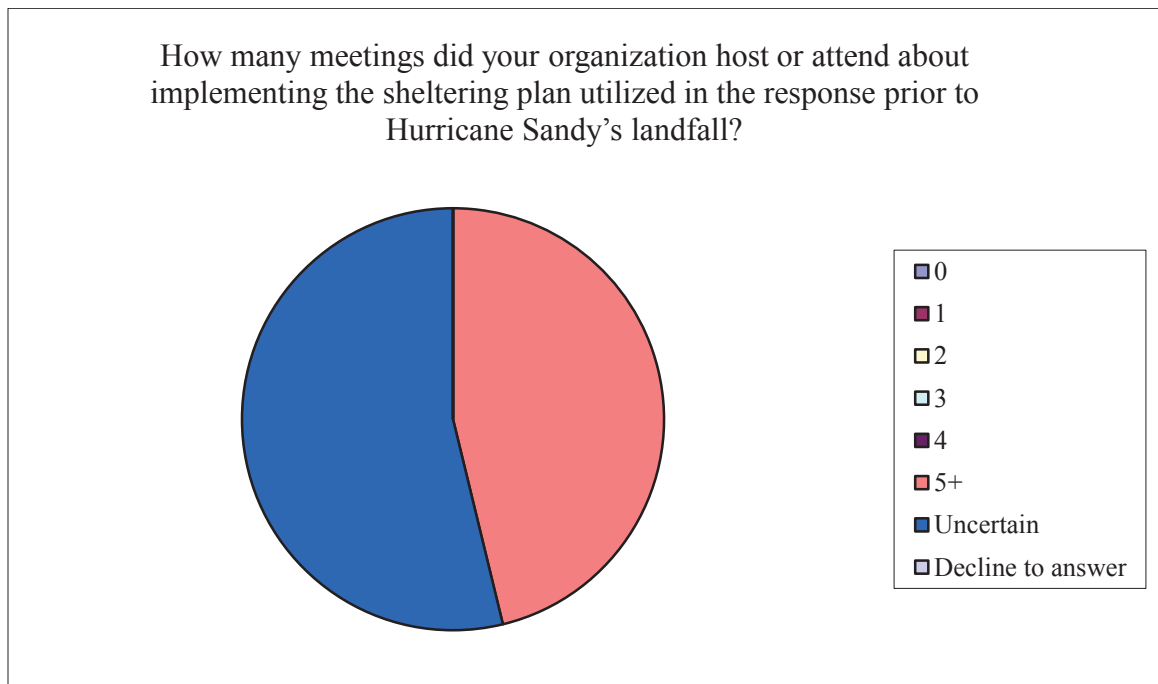
planning portion of the response.

FIGURE 2. Number of meetings held.

TABLE 10. Adjustments Made to Plan

Question	Significant adjustments	A few important adjustments	Many minor adjustments	A few minor adjustments	No adjustments	Decline to answer

Were adjustments known to be made to the sheltering plan utilized in the response as Hurricane Sandy approached land?	25% (*n=3*)	16.7% (*n=2*)	8.3% (*n=1*)	8.3% (*n=1*)	0	41.7% (*n=5*)

The next set of questions investigated whether plans were consulted and adjusted as Hurricane Sandy approached the NYC area. When asked if adjustments were made to the sheltering plan prior to the storm (Table 10), 25% (*n=3*) of respondents said that significant adjustments were made, while *n=4* respondents indicated adjustments of some type. The high number of respondents who declined to answer, *n=5*, indicates a possible reluctance to acknowledge that changes were made or a lack of knowledge of what occurred prior to the initiation of the response, or could be an indicator that this survey question was flawed and needed an option for participants to indicate they did not know the answer. For true improvement to be made in the future, participants need to feel free to express their opinions without fear of retaliation. The ability to have an open discourse about the problems within a response will allow all the problems to be addressed in future responses.

The next question was not focused on a specific agency, but whether respondents know of any adjustments being made across the response (Figure 3). These adjustments took many forms, with an increase of the number of resources, human and material the

most commonly reported. Other adjustments were to change the facilities that were

going to be used for sheltering, and to add other agencies into the sheltering response.

These responses show that agencies consulted the existing plan and compared it to the

anticipated needs the storm would cause, and made attempts to scale the response plan to

accommodate the size of response that would be needed. These adjustments show the

agencies recognized the existing sheltering plan would not be sufficient as written and

made attempts to account for the circumstances as the storm approached.

<figure>
What form did these adjustments take? (select all that apply)

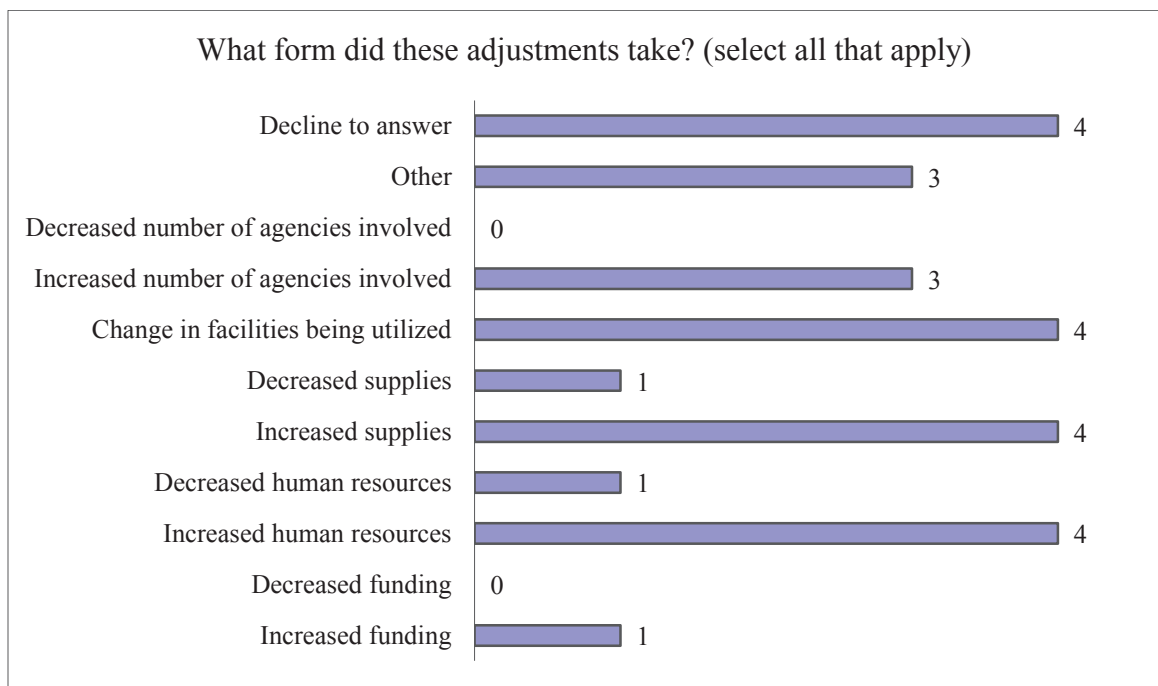| Category	Value
Decline to answer	4
Other	3
Decreased number of agencies involved	0
Increased number of agencies involved	3
Change in facilities being utilized	4
Decreased supplies	1
Increased supplies	4
Decreased human resources	1
Increased human resources	4
Decreased funding	0
Increased funding	1
</figure>

FIGURE 3. Type of adjustments made.

Respondents were asked to identify what changes their agency specifically made

to their own sheltering plan as the storm approached (Figure 4). Most (*n*=3) indicated

that they either changed their sheltering strategy in some way or increased the number of

human resources being utilized in the response efforts.
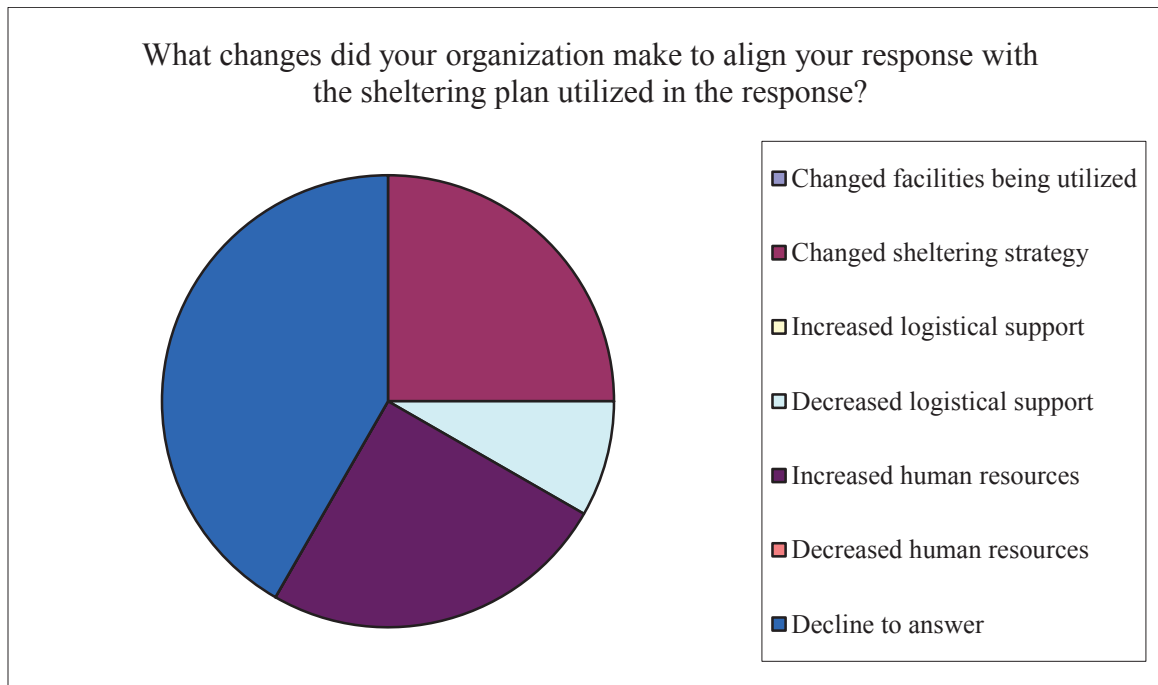
FIGURE 4. Changes made to align with sheltering plan.

When attempting to implement the sheltering plan, respondents encountered a

number of barriers (Figure 5). Inadequate knowledge of the sheltering plan was a barrier

identified by respondents ($n=2$), as was inadequate funding ($n=1$). The two barriers

identified most frequently ($n=3$) were inadequate human resources to implement the plan

and the logistical challenges presented by Hurricane Sandy. Provided with the option to

fill in their own response, one respondent indicated that inadequate planning for the

number of people that would utilized the shelters was a significant barrier in the implementation of the plan. The initial sheltering plan did not anticipate that sheltering operations would be occurring in many states simultaneously, creating a strain on the ability of the ARC to mobilize needed human resources. The size of the storm limited the movement of supplies in from other areas of the country, and those supplies had to be prioritized and distributed across several states.
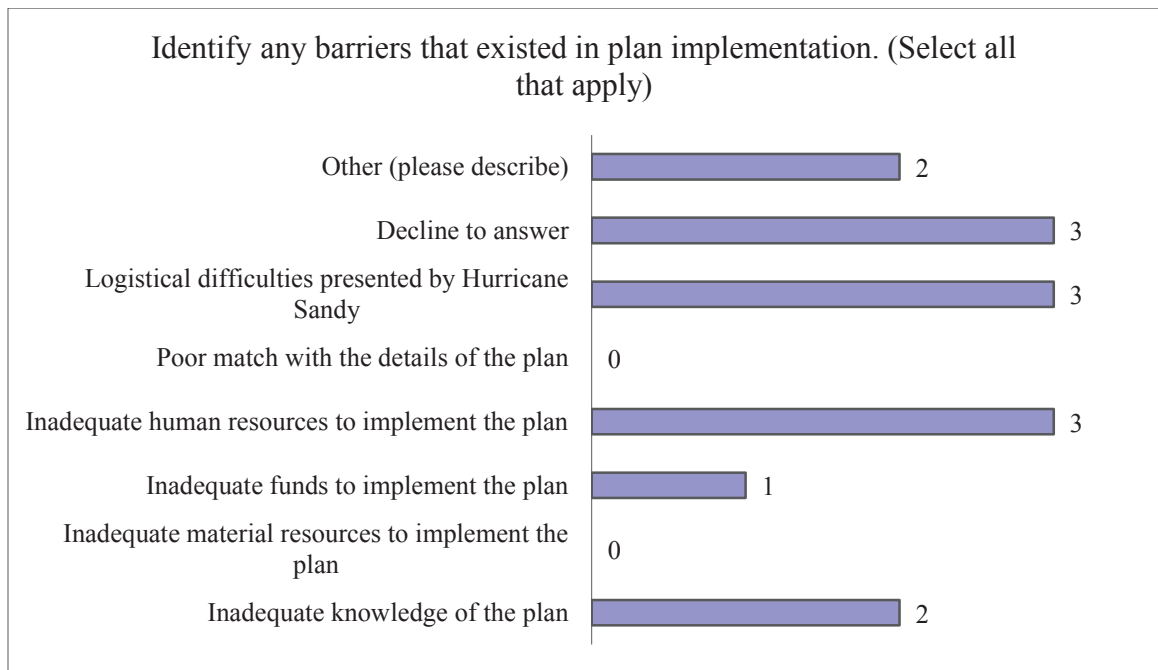

FIGURE 5. Barriers to implementation.

Once the response was initiated, 45% (*n*=5) of respondents indicated their agency was asked to make significant changes to their response to comply with the sheltering plan utilized in the response (Table 11), and 9% (*n*=1) reported being asked to make minor changes to their response. The type of changes requested was not captured. Once

a response is initiated, change can be difficult to implement, and significant changes take a long time. Significant changes made during a response can indicate the response is not going well, and the needs of the displaced are not being met.

TABLE 11. Changes Made to Plan

Question	Significant changes	Minor changes	No changes	Uncertain	Decline to answer
After Hurricane Sandy made landfall, what changes were you asked to make to your response to comply with the sheltering plan utilized in the response?	45.5% (*n*=5)	9.1% (*n*=1)	0	45.5% (*n*=5)	0

Respondents were asked to identify challenges their agency faced during the response, and the responses were varied (Figure 6). The most common challenged identified (*n*=7) was logistical challenges, followed by the strength of the storm (*n*=6) and not enough people to work in the shelters (*n*=6). The size and strength of the storm made the movement of supplies from other areas difficult, and those challenges were compounded by the snow storm that followed the hurricane. Roads and bridges were destroyed, and power outages made pumping gasoline impossible, further restricting the movement of people and supplies (CNN Library, 2014). American Red Cross disaster workers are volunteers who leave their lives for three weeks with 24 hour notice. A total

of 16,322 disaster workers were deployed to the response between October 2012 and

December 31, 2012, (ARC, 2014) and had to be spread out across multiple states.

Identify any challenges that may have occurred during the sheltering response. (Select all that apply)

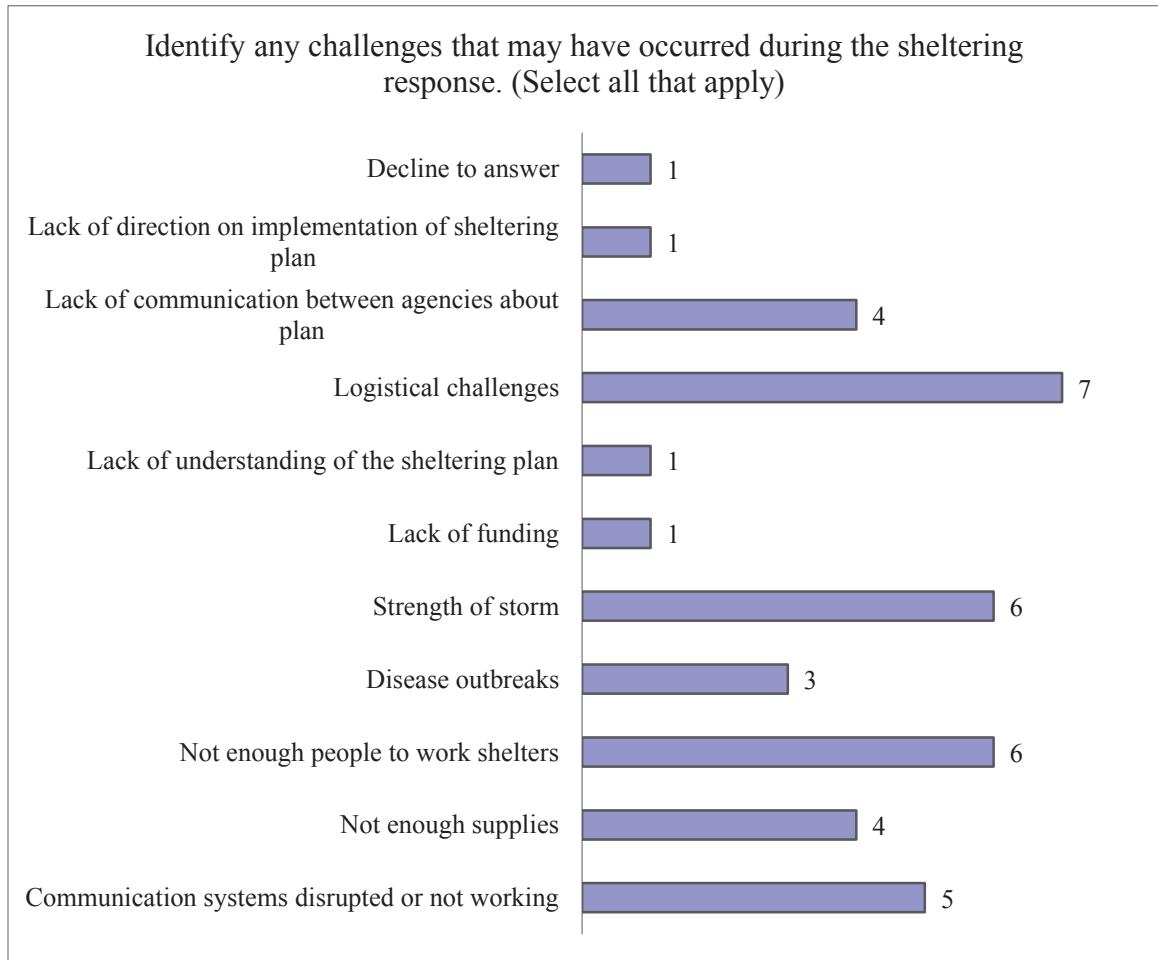| Challenge	Count
Decline to answer	1
Lack of direction on implementation of sheltering plan	1
Lack of communication between agencies about plan	4
Logistical challenges	7
Lack of understanding of the sheltering plan	1
Lack of funding	1
Strength of storm	6
Disease outbreaks	3
Not enough people to work shelters	6
Not enough supplies	4
Communication systems disrupted or not working	5

FIGURE 6. Challenges during response.

Other commonly selected challenges were communication systems not working

(*n*=5) and not enough supplies (*n*=4). What is significant in this question is what is not

selected as a challenge; the option for lack of understanding of the sheltering plan was

only selected by one respondent. This indicates respondents understood the sheltering

plan as it was disseminated.

The final question of the survey was open ended and asked respondents what their

greatest challenge was during the sheltering response. The most significant response

highlights the difficulties that arose in the partnership between ARC and NYC. New

York City's sheltering plan called for the city to operate the shelters in the city, but when

the hurricane was approaching the city requested 2,000 volunteers from the ARC. This

request which was well outside what had been laid out in the original plan, and the ARC

was not able to provide that number of volunteers within the timeframe specified.

Analysis

The data from the survey, while limited by the scope of the questions, agencies

involved in the research, and response rate, shows cooperation between the ARC and

NYC in the development of the sheltering plan. This collaboration was built upon a

history of collaboration between the two agencies (Gray, 1991). The agencies attended

multiple meetings and had the opportunity to provide comments and information during

the creation of the sheltering plan, showing a level of trust between the agencies, which is

vital for a successful response and collaboration (Kapucu, 2006). When the storm

approached, the adjustments indicated by the respondents show that the ARC and NYC

consulted the response plan and began planning for the response. Adjustments were

made to the plan prior to the storm making landfall to account for the size and strength of

the storm.

The survey responses shows collaboration occurred between the ARC and the NYC during the creation of the plan, with respondents indicating they attended multiple planning meetings and provided comments and content on several occasions. The rest of the data shows that although both agencies were planning together, there was a lack of understanding on the part of both agencies as to their actual capacity to respond and how the requests made of each agency would be fulfilled if scaled to the levels needed in Hurricane Sandy.

Whether the challenges indicated by respondents during the sheltering response were the result of the size and scope of the storm or caused by the sheltering plan is unclear. Respondents indicated that the amount of human resources actually requested by NYC far exceeded what was initially laid out in the sheltering plan, and that caused significant problems. Better communications between agencies prior to the storm about their capacity to respond on this scale would lead a smoother response in the future (Comfort, Sungu, Johnson & Dunn, 2001). To address this problem in the future, both parties need to review their after action reports and have discussions about the limitations each agencies face. These discussions should result in a new sheltering plan based on the lessons learned and include ways to solve the problems faced by the response to this storm.

Prior to the approach of the storm, results indicate that the sheltering plan was not re-distributed to partner agencies, which could have made the coordination of the sheltering plan easier. If all partner agencies were working from the most current version of the plan and did not have to rely on an older copy that may have been displaced or updated. A distribution of the plan prior to the storms arrival would help solidify the role

of each agency immediately prior to assuming that role within the response (Chandra &

Acosta, 2009). Within the ARC, the plan was not well distributed to the responders at all

levels, which would have helped the responders understand the goals of the operation.

Despite this challenge, most respondents indicated that their agency did utilize the plan,

and adjust those plans to accommodate the storm. The problem with implementing the

sheltering plan, respondents indicated, was a lack of human resources, and whether this

difficulty was brought on the storm or poor planning is unclear. The agencies involved

need to evaluate their plans and decide if they are adequate for a smaller sized disaster

and how to create a plan that is scalable.

<div align="center">Summary</div>

The response to Hurricane Sandy in NYC was immense. While over 500

agencies responded, this research focused on the ARC and how that organization

collaborated and responded in conjunction with NYC. The research found the

development of the response plan was a successful collaboration in many ways; however,

there is room for improvement in the dissemination of the plan and the understanding of

the capabilities of each agency.

The developed response plans were examined prior to the storm making landfall,

as evidenced by the adjustment the ARC made to the response that was laid out in the

plan based on the size and strength of the storm, and the requests made by NYC. As both

organizations review these responses they need to adjust their sheltering plans to reflect

the need for realistic scalability with the understanding that neither organization has an

infinite number of human resources available.

CHAPTER 5

CONCLUSION

Hurricane Sandy was a massive storm, unprecedented in its size and scale.

Thousands of people were displaced into shelters across NYC. The ARC and NYC

worked together to provide sheltering, working from a plan that had been developed prior

to the storm. This research was examining whether collaboration was present during the

development of the shelter plan utilized during Hurricane Sandy, how that plan was

disseminated during the lead up to the storm, and whether it was utilized during the

initiation of the response.

<u>Outcomes</u>

The survey results showed that there was collaboration between the ARC and

NYC during the development of the sheltering plan. This collaboration took many forms,

as respondents from the ARC indicated their agency attended planning meetings,

provided information to the city about the plan, and provided comments on the final

document. This initial collaboration can be expanded upon prior to future responses, as

the planning did not take into account the capabilities of each agency during a large scale

response. The initial collaboration needs to include a contingency plan for handling a

response that exceeds the capacity of the existing plan and agency capabilities.

How the plan was disseminated prior to the storm making landfall was unclear,

with respondents reporting being uncertain of the way the plan was received. The

43

procedures for disseminating the sheltering plan need to be examined and refined. Internally the Red Cross needs to understand how it is disseminating and storing information and ensure that all staff and response leadership are able to access information easily.

Respondents were clear the sheltering plan was altered to account for the size and strength of the storm and to accommodate the plans of other agencies. The plan was utilized when planning for the storm to hit, though its feasibility in being used for a response this large was not clear. Both the Red Cross and NYC should take the opportunity to review this response and understand where the scaling of the plan went wrong and identify ways to address this issue in the future.

This research shows that collaboration is occurring in NYC between response agencies, and the developed sheltering plan was being utilized when a response is anticipated. The data shows the response plan required significant modifications when agencies were attempting to implement the plan. The data showed the response plan was not distributed well within the ARC, leading to potential confusion about the overall response plan and goals. Both agencies involved in the development of the sheltering plan looked at in this study should review their plan dissemination strategies to ensure more people within their agencies have access to plan. The overall plan should be revisited, and issues discovered during the response reviewed and addressed.

Limitations

This research was intended to look at a specific piece, the sheltering plan in NYC during Hurricane Sandy, of a very large response. It did not incorporate the response activities happening throughout the northeast region of the United States or across the 24

states that were affected in some way by the storm. By focusing solely on the sheltering

plan in NYC the research was able to look at a very narrow cross section of the response;

yet by excluding the other activities related to the response and in such a small area, the

results are not comprehensive enough to be applied to the entire scope of the response, or

to other responses of similar scale or scope. Because this project only focused on the

ARC, it did not gain the perspective of any of the several hundred other agencies

involved in the response. Because the data is only available from the perspective of the

ARC's participation in the response, and not from a variety of sources, it is difficult to

generalize findings from this particular response to other situations.

<u>Future Research Needed</u>

Future research into this subject could take into consideration the planning going

on prior to a disaster, utilizing a similar survey to the one developed for this research to

measure the dissemination of a response plan prior to a hurricane making landfall. The

focus could be on a specific geographic area, and the survey administered prior to

hurricane season, directly before a hurricane making landfall, and following the response

to measure the effectiveness of plan dissemination.

Within the survey administered, each question contained an option to mark

uncertain or decline to answer, and within many questions as many as seventy percent of

respondents marked uncertain. Further research into a similar topic should include more

options within the uncertain and decline to answer parameters, to help understand why

participants are not choosing a specific answer. Participants may have chosen not to

answer a specific question due to worries about how their answer would affect the view

of their organization, because they were not properly placed within the organization to

know the answer to that particular question, or due to fears that they may be held responsible. With the negative press surrounding the response published by ProPublica.org in 2014 and recent re-structuring within the Red Cross, respondents may be worried that their responses could put their position within the organization at risk and ruin their professional reputation. Understanding those distinctions between those answers would provide a better understanding of how respondents are interpreting the questions being asked.

Overall Lessons Learned

This research provided insights into the overall response to Hurricane Sandy and to the research process as a whole. Agencies were more reluctant than expected to discuss the response and their internal processes for collaboration and information dissemination. This reluctance narrowed the focus to the ARC, where the researcher was able to leverage existing relationships to get approval for the research. This change limited the scope of the research, and prevented the results from being applicable to other disasters. Future studies of this kind will need more time and resources to provide comprehensive results.

APPENDICES

APPENDIX A

INSTITUTIONAL REVIEW BOARD APPLICATION

APPLICATION FOR CSULB IRB REVIEW

09/16/13

Copies of this application form and other IRB resources can also be found at:

http://www.csulb.edu/divisions/aa/research/our/compliance/irb/

1. REVIEW TYPE: ☐Standard, ☐Expedited, or ☒Administrative

If the research plan involves review of existing data only, do not use this form. Please use the specific IRB form for review of existing data provided in the CSULB IRBNet Research Library on IRBNet.org or at the website above.

2. PRINCIPAL INVESTIGATOR

Name(s)	Christina LeClerc
Department	
Affiliation	☒ Student ☐ Faculty ☐ Staff ☐ Other, describe:
Mailing address	6000 Montano Plaza DR NW Apt 14E, Albuquerque, NM 87120
Telephone Number	661-619-7313
E-mail	Christina.leclerc@gmail.com

3. EDUCATIONAL REQUIREMENT

☒ I have completed the Social & Behavioral Research - Basic training module located at: https://www.citiprogram.org/ (CITI)

☐ I have not completed the above module.

Note: The CSULB Federal Wide Assurance issued by the US Office of Human Subject Research Protections and CSULB Executive Order 890 both require that researchers engaged in human subject research receive appropriate education regarding protection of human research subjects. Beginning Fall Semester, 2013 all individuals applying to the CSULB IRB will be required to complete the above training or its equivalent.

4. ADVISOR/FACULTY SUPERVISOR OF STUDENT THESIS/PROJECT

☐ Not applicable; or complete below:

Name:	Shirley Feldmann-Jensen
University Phone No.	562-985-7489
Faculty e-mail address:	shirley.jensen@csulb.edu

5. TITLE OF PROPOSED RESEARCH STUDY:

Are disaster response plans used during the initial phase of a disaster response? A case study of the implementation of the sheltering plan during Hurricane Sandy.

6. JUSTIFICATION FOR ADMINISTRATIVE REVIEW IF REQUESTED

☐ Not applicable

OR, check the category below that qualifies this IRB protocol for administrative review:

☐ Research conducted in established or commonly accepted educational settings, involving normal educational practices, such as (a) research on regular and special education instructional strategies, or (b) research on the effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods.

☐ Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless (a) the information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and (b) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

☐ Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior

that is not exempt under paragraph 2 of this section, if (a) the human subjects are elected or appointed public officials or candidates for public office; or (b) federal statute(s) require(s) without exception that the confidentiality of the personally identifiable information will be maintained throughout the research and thereafter.

☐ Research, involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects.

☒ Research and demonstration projects which are conducted by or subject to the approval of government agencies, and which are designed to study, evaluate, or otherwise examine (a) public benefit or service programs; (b) procedures for obtaining benefits or services under those programs; (c) possible changes in or alternatives to those programs or procedures; or (d) possible changes in methods or levels of payment for benefits or services under those programs.

☐ Taste and food quality evaluation and consumer acceptance studies, (a) if wholesome foods without additives are consumed or (b) if a food is consumed that contains a food ingredient at or below the level and for a use found to be safe, or agricultural chemical or environmental contaminant at or below the level found to be safe, by the Food and Drug Administration or approved by the Environmental Protection Agency or the Food Safety and Inspection Service of the U.S. Department of Agriculture. [45 CFR 46.101 (b) (1) through (6)]

7. HUMAN CONTACT

a. Will there be contact of any kind with living human beings, including: interviews, surveys, mailed surveys and questionnaires, etc., in the course of this research?

☒   Yes

☐   No

NOTE: Use special IRB form for research using Existing Data

8. USE OF OTHER INFORMATION

a. Other than the information and data created and produced by this research project, will the researcher(s) have access to records or to other forms of information (including previous research data) about the human subjects participating in this research?

☐   Yes

☒   No

   1) If yes, please explain here:

   2) If yes, provide in an appendix signed permission letter(s) from the agency/researchers holding and providing access to such records and information.

9. HUMAN SUBJECT CHARACTERISTICS:

a. Describe specifically the number of subjects studied of each gender and their expected (estimate if necessary) age range.

Gender	Number	Age Range
Female	50	18-80
Male	50	18-80

b. If children under 18 are involved, describe the legal parent/guardianship status of the children:

c. Is any adult subject under any form of legal guardianship?

☐ Yes

☒ No

If yes, Standard Review *is* required.

Please make sure that Standard Review is selected in Item # 1 above and provide detailed description of the special characteristics of the subjects in section (e.) below.

d. If human subjects are not under legal guardianship, is there evidence that any human subjects have developmental disabilities, mental illness, or are there any other unusual circumstances whereby individuals' ability to grant fully informed consent for themselves might be compromised?

☐ Yes

☒ No

If yes, Standard Review *is* required.

Please make sure that Standard Review is selected in Item # 1 above and provide detailed description of the special characteristics of the subjects in section (e.) below. *(Do not attach grant applications or thesis proposals, although you should excerpt from them as necessary.)*

e. Describe any other human subject characteristics common to participants that are relevant to being selected as a potential participant or relevant to the research question.

10. PURPOSE(S)

a. Briefly describe the purpose(s) of the study, including research hypotheses, if any.

The purpose of this study is to provide a program improvement in the delivery of

disaster relief programs provided as a public service by the American Red Cross.

11. SPONSORSHIP AND COLLABORATION

a. If the research is sponsored by a non-University source, indicate below the title of the

grant, the funding source, total funding, and time period of the grant or contract.

☒   Not applicable; or complete below:

Grant/Funding information:

Title:	
Funding Agency:	
Total Funding	
Time Period:	

b. If the research is part of a larger study, please describe the circumstances, including any prior approvals by the CSULB or other IRB.

☒	Not applicable; or describe below:

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(Do not attach grant applications or thesis proposals, although you should excerpt from them as necessary). Attach other IRB approvals if applicable as an appendix.

12. RECRUITING SOURCE(S)

a. Identify the source(s), e.g., hospitals, institutions, schools, classes, shopping malls, etc. from which subjects will be recruited into the research.

```
Participants will be recruited from the American Red Cross, paid staff and volunteers,
who participated in the sheltering response to Hurricane Sandy. A participant list will be
developed using the rosters of staff and volunteers that participated in the response.
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b. Appendix A: Original letters of approval from all participating organizations (must be on letterhead and indicate specific classes, units, etc. affected). You must append at the end of this application letters of approval from the faculty of any class section, or the appropriate official of any institution or building in which any part of the selection of subjects or the actual research will be carried out, typed on their official letterhead. The

13. RECRUITING PROCESS AND INFORMED CONSENT:

1. Participant list will be developed from contacts at the potential participating agencies.

2. Potential participants will receive an email containing the invitation (appendix A) and the survey link

3. The first page of the survey is the introduction and informed consent page.

   It is requested that the signature requirement for Informed Consent be waived by the IRB as the survey will be conducted via Survey Monkey and the researcher will have no link to any identifying information of the participants to ensure confidentiality.

b. Attach proposed Informed Consent form(s) as an appendix. Append copies of all consent forms in all languages used necessary for the subject pool.   Include all required elements of informed consent (see example provided in the *CSULB IRBNet Research Library on IRBNet.org*).

14. HUMAN SUBJECT PARTICIPATION

a. Describe what you will do with the human subjects once informed consent has been obtained. Include complete, step-by-step, sequential detail regarding what will happen to the subjects when the research procedures are carried out. Provide separate descriptions for each unique group of subjects if two or more groups are participating.

1. Receive email inviting them to take survey

2. First part of survey is the informed consent page

3. Continue onto the online survey and answer questions

4. This survey will take approximately 15 minutes to complete

15. POTENTIAL RISKS

a. Describe the potential risks this research present to the dignity, reputation, rights, health, welfare, or psychological well-being/comfort of the subjects.

Number each risk so that you can address how you are minimizing each risk in item 16 below.

1. Retaliation from employer due to comments provided in the survey questionnaire

2. Slight discomfort possible when answering questions about their agencies specific role in the disaster response

3. Breach of confidentiality

16. PROTECTING AGAINST OR MINIMIZING RISKS

a. Describe the measures you will take to protect against or to minimize each numbered risk noted above.

1. Names will not be collected on the informed consent. Subjects will be told via the consent letter that the researcher cannot guarantee confidentiality or anonymity with online surveys.

2. No questions in the survey are mandatory, and participants will be able to decline to answer any question they are uncomfortable answering.

3. Confidentiality will be maintained to the degree permitted by the technology used. No guarantee can be made regarding the tracking or interception of responses by any third parties.

b. Describe: (1) security and storage, and (2) disposal of research materials by completing the items below.

NOTE: Title 45, PART 46, PROTECTION OF HUMAN SUBJECTS, §46.115 stipulates that "…records relating to research which is conducted shall be retained for at least 3 years after completion of the research. All records shall be accessible for inspection and copying by authorized representatives of the Department or Agency at reasonable times and in a reasonable manner."

(1) Security and storage

☒ I will store both consent forms and raw data in a secure location for three years after completion of the research.

Describe location and security:

Data collected from the online survey will be downloaded and saved as a password protected file only Professor Feldmann-Jensen and myself will be able to access.

Describe who will have access.

Only Professor Feldmann-Jensen and myself will have access to the data.

(2) Disposal of research materials

What will happen to the consent forms and raw data after the three year period?

☒ I will destroy the consent forms & the raw data after three years;

OR explain alternative:

c. If your research project includes a medical, pharmacological, or behavioral

intervention or therapy, which is intended to improve the physical or mental health of the

subject, then provide a complete "data and safety plan," which includes a Data and Safety

Monitoring Board, "stop rules," and explicit provisions for reporting adverse events to the

IRB (email to research@csulb.edu).

☒   Not applicable;

OR describe data safety plan:

17. BENEFITS

a. Describe any benefits to the subject(s) which may reasonably be expected from the

research.

The results of this research will be shared with the organizations participating, and the participants will be able to learn how the overall response initiation aligned with the response plan.

b. Describe benefits, if any, to others, including summary of research findings where

appropriate for professionals and participating organizations.

This project will add to the knowledge base of the emergency management profession by providing a look into how the American Red Cross worked in conjunction with other emergency response agencies to provide sheltering on a large scale. It can provide the affected public an evidence based view of how the sheltering response was handled in relationship to the plan.

18. RESEARCH DATES AND LOCATION

NOTE: Initial contact cannot occur until after IRB Approval. Initial approval is for one year only. A renewal application (provided in the CSULB IRBNet Research Library) must be completed for projects lasting more than a year.

Approximate Start Date:	7/1/2014
Approximate End Date:	4/1/2015
Location(s):	

19. DATA COLLECTION INSTRUMENTS/MATERIALS APPENDIX

a. In a labeled Appendix attach a copy of all tests, questionnaires, surveys, or other instruments and materials to be used.

b. List here each test, questionnaire, survey, or other instruments and materials to be used, providing full publication/bibliographic information.

c. If you have adapted or made changes in any of these materials, indicate the changes.

<div style="border:1px solid black; height:80px;"></div>

d. Indicate which instruments, or portions of instruments, you have created.

> I have created a survey that will be emailed to participants, the survey is included in this packet and can be viewed at: https://www.surveymonkey.com/s/LeClercResearchStudy

20. DEBRIEFING OF SUBJECTS AFTER PARTICIPATION

☒ Not applicable; or describe the nature of any debriefing of subjects *after they have completed the procedures:*

<div style="border:1px solid black; height:100px;"></div>

21. RESEARCHER QUALIFICATIONS

a. Briefly describe the training and experience that qualifies you to carry out the proposed research.

> I have completed the coursework portion of the Masters of Science in Emergency Services Administration program, advancing to candidacy at CSULB, and have worked in this field for three years. This research is being conducted for my thesis.

22. REFERENCES

☐   Not applicable; or provide a reference list of all sources *cited or otherwise*

identified in this application, excluding those in Item 19.

A list of preliminary references is provided in Appendix D

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23. LIST APPENDICES ATTACHED BY LABEL (e.g., A, B, …) AND TITLE

Appendix A: Invitation to participate in research

Appendix B: Informed Consent

Appendix C: Survey

Appendix D: Preliminary list of references

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24. SUBMISSION

This application must be submitted electronically through IRBNet (irbnet.org).

Documents requiring letterhead and signatures, such as agency approval letters or faculty

supervisor forms, must be scanned and attached via IRBNet along with your other

application materials.

For information on how to register as an IRBNet user or how to submit applications,

please contact:

Office of Research & Sponsored Programs

Research Compliance

FO5-111

irb@csulb.edu

562-985-8147

Appendix A: Invitation to participate in research study

You are invited to participate in a survey looking at whether disaster response plans are implemented during a disaster response, with a focus on the response to Hurricane Sandy in NYC. This research is being conducted by Christina LeClerc, a Master's student at California State University, Long Beach, Emergency Services Administration program. The results of this survey will inform a graduate thesis.

You were selected as a potential participant because of your affiliation with an organization that was active in Hurricane Sandy disaster response in NYC in 2012. Your insight and review of the process will help toward future improvement planning and implementation process.

The purpose of this study is to measure the alignment of the disaster shelter implementation during Hurricane Sandy with NYC's existing sheltering plan. Additionally, this study will evaluate the planning process to see if it influenced the disaster response.

Consideration will be given to the plan as it was developed prior to Hurricane Sandy making landfall, the development of the plan, and the process of implementing the plan.

The goal of the study is to provide insight into the way response plans are or are not implemented during a major disaster response, and seeks to identify sheltering implementation barriers that may have occurred during Hurricane Sandy. The findings may then be applied by professionals in the emergency management field in future

disaster preparedness and response efforts, and the public will benefit from learning how

organizations are working to improve responses in the future.

Appendix B: Informed Consent

Research study title: Are disaster response plans used during the initial phase of a disaster response? *A case study of the implementation of the sheltering plan during Hurricane Sandy*.

Procedures: To participate in this survey please follow this link to the online survey: https://www.surveymonkey.com/s/LeClercResearchStudy

Answer the questions to the best of your ability (this will take approximately 10-15 minutes)

Submit the survey

Potential risks: Names will not be collected on the informed consent. The researcher cannot guarantee confidentiality or anonymity with online surveys. Confidentiality will be maintained to the degree permitted by the technology used. No guarantee can be made regarding the tracking or interception of responses by any third parties. If any question makes you uncomfortable, it can be skipped without a negative impact to the survey and the ability to answer other questions.

Payment: No compensation will be given for participation in this research study.

Participation and withdrawal: All participants may decline to answer any question they are not comfortable answering. Participants may exit the survey at any time, regardless of how many questions have been completed.

Identification of investigators

If you have any questions, feel free to contact the investigators at any time.

Principal Investigator: Christina LeClerc, Christina.leclerc@gmail.com, 661-619-7313

Faculty sponsor: Professor Shirley Feldmann- Jensen (562) 985-7489

Shirley.Jensen@csulb.edu

Rights of research subjects

You may withdraw from this research at any point during this research study without penalty. By participating in this research study you are not waiving any legal rights or claims. For more information about your rights as a research subject, contact the Office of University Research, CSU Long Beach, 1250 Bellflower Blvd., Long Beach, CA 90840; Telephone: (562) 985-5314 or email to ORSP-Compliance@csulb.edu.

Appendix C: Survey

Research study title: Are disaster response plans used during the initial phase of a disaster response? *A case study of the implementation of the sheltering plan during Hurricane Sandy.*

Survey Questions

1. What type of agency were you affiliated with at the time Hurricane Sandy made landfall?

   - City government
   - County government
   - State government
   - Federal government
   - American Red Cross (please proceed to question 1A if selecting this answer)
   - Non-profit agency active in disaster
   - Military or National Guard
   - Other
   - Decline to answer

1A. At the time Hurricane Sandy made landfall, what was your affiliation with the American Red Cross?

   - Employee
   - Volunteer

   Please proceed to question 3 if you did NOT select city, county or state government.

2. (City, county and state government employees only) How involved was your specific department in the development of the sheltering plan?

   - Very involved
   - Somewhat involved

- Not involved at all
- Uncertain of involvement
- Decline to answer

3. How involved was your organization in the development of the sheltering plan utilized

in the response?

- Very involved
- Somewhat involved
- Not involved at all
- Uncertain of involvement
- Decline to answer

4. What role did your organization play in the development of the sheltering plan utilized

in the response? (select all that apply)

- Attended planning meetings
- Created content
- Provided information about agency's procedures
- Provided comment during development
- Provided comment after development but prior to implementation
- Attended final review meetings
- Uncertain
- Decline to answer

5. Does your organization have a sheltering plan independent of the sheltering plan

utilized in the response?

- Yes
- Uncertain
- No
- Decline to answer

If you answered No, proceed to question 7

6. Did New York City's sheltering plan influence the development of your organization's sheltering plan?

- Yes
- Uncertain
- No
- Decline to answer

If Yes, proceed to question 7.All other responses, proceed to question 8.

7. How did New York City's sheltering plan influence the sheltering plan of the organization you are associated with?

- All aspects of the plan were changed
- Major modifications were required in the plan
- Minor modifications were needed in the plan
- Uncertain
- Decline to answer

8. Prior to Hurricane Sandy making landfall, how familiar was your organization with the sheltering policy of New York City?

- Very familiar
- Somewhat familiar
- Not very familiar
- Completely unfamiliar
- Uncertain
- Decline to answer

9. Prior to Hurricane Sandy making landfall, did your agency receive a copy of New York City's sheltering plan from any city government agency?

- Yes
- No
- Uncertain
- Decline to answer

If you answered No, proceed to question 14

10. Identify the way in which your agency received a copy of New York City's sheltering plan. Select all that apply.

- Email
- Face to face meetings
- Conference calls
- Fax
- Press release
- Website announcement
- Social media
- Uncertain
- Other
- Decline to answer

11. How far in advance of Hurricane Sandy making landfall did your organization receive a copy of the sheltering plan utilized in the response?

- Less than 1 week
- Between 1 week and 1 month
- More than a month
- More than a half year
- More than a year
- Uncertain
- Decline to answer

12. When the sheltering plan was received, how detailed were the instructions included with the plan?

- Very detailed
- Somewhat detailed
- Framed with a few details
- No details
- Uncertain
- Decline to answer

13. How many meetings did your organization host or attend about implementing the

sheltering plan utilized in the response prior to Hurricane Sandy's landfall?

- 0
- 1
- 2
- 3
- 4
- 5 +
- Uncertain
- Decline to answer

14. Were adjustments known to be made to the sheltering plan utilized in the response as

Hurricane Sandy approached land?

- Significant adjustments
- A few important adjustments
- Many minor adjustments
- A few minor adjustments
- No adjustments
- Decline to answer

15. What form did these adjustments take? (select all that apply)

- Increased funding
- Decreased funding
- Increased human resources
- Decreased human resources
- Increased supplies
- Decreased supplies
- Change in facilities being utilized
- Increased number of agencies involved
- Decreased number of agencies involved

- Other
- Decline to answer

16. What changes did your organization make to align your response with the sheltering plan utilized in the response?

- Changed facilities being utilized
- Changed sheltering strategy
- Increased logistical support
- Decreased logistical support
- Increased human resources
- Decreased human resources
- Decline to answer

17. Identify any barriers that existed in plan implementation. (Select all that apply).

- Inadequate knowledge of the plan
- Inadequate material resources to implement the plan
- Inadequate funds to implement the plan
- Inadequate human resources to implement the plan
- Poor match with the details of the plan
- Logistical difficulties presented by Hurricane Sandy
- Other (please describe)
- Decline to answer

18. After Hurricane Sandy made landfall, what changes were you asked to make to your response to comply with the sheltering plan utilized in the response?

- Significant changes
- Minor changes
- No changes
- Uncertain
- Decline to answer

19. Identify any challenges that may have occurred during the sheltering response.

(Select all that apply)

- Communication systems disrupted or not working
- Not enough supplies
- Not enough people to work shelters
- Disease outbreaks
- Strength of storm
- Lack of funding
- Lack of understanding of the sheltering plan
- Logistical challenges
- Lack of communication between agencies about plan
- Lack of direction on implementation of sheltering plan
- Decline to answer

20. Please describe your greatest challenge during the sheltering response portion of

Hurricane Sandy after landfall.

Appendix D: Preliminary Reference List

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APPENDIX B

INSTITUTIONAL REVIEW BOARD APPROVAL LETTER

CALIFORNIA STATE UNIVERSITY, LONG BEACH

OFFICE OF RESEARCH & SPONSORED PROGRAMS

DATE: June 25, 2014

TO: Christina LeClerc
FROM: California State University, Long Beach (IRB)

PROJECT TITLE: [599773-2] Are disaster response plans used during the initial phase of a
       disaster response? A case study of the implementation of New York City's
       sheltering plan during Hurricane Sandy.
REFERENCE #: 14-258s
SUBMISSION TYPE: Revision

ACTION: APPROVED
APPROVAL DATE: June 24, 2014
EXPIRATION DATE: June 23, 2015
REVIEW TYPE: Administrative

This is to advise you that the Institutional Review Board for the Protection of Human Subjects (IRB) of
California State University, Long Beach, has reviewed your protocol application.

Your application is approved. The requested modifications have been received, reviewed, and accepted.

Approval is for a period of one year and conditional upon your willingness to carry out your continuing
responsibilities under University policy. If you would like to continue this research after this one year
period, please submit a renewal application and an annual report to the Office of Research & Sponsored
Programs two months prior to your expiration date of June 23, 2015.

1. You must clearly indicate in the header or footer of each page of your approved Informed Consent
   Form the approval and expiration dates of the protocol as follows: **"Approved from June 24, 2014
   to June 23, 2015 by the CSULB IRB"**.

2. You are required to inform the Director or Senior Associate Director, Office of Research &
   Sponsored Programs, in writing (email is acceptable) or through IRBNet within twenty-four hours of
   any adverse event in the conduct of research involving human subjects. The report shall include the
   nature of the adverse event, the names of the persons affected, the extent of the injury or breach of
   security, if any, and any other information material to the situation.

3. You may not change any aspect of your research procedure involving human subjects without
   written permission from the Director, Office of Research & Sponsored Programs or the Chair of the
   IRB. Please use the Protocol Modification Form on IRBNet to request any changes.

Generated on IRBNet

APPENDIX C

SURVEY INSTRUMENT

Research study title: Are disaster response plans used during the initial phase of a disaster response? *A case study of the implementation of New York City's sheltering plan during Hurricane Sandy*.

You are invited to participate in a survey, conducted by Christina LeClerc, a Master's student at California State University, Long Beach, Emergency Services Administration program. The results of this survey will inform a graduate thesis.

You were selected as a potential participant because of your affiliation with an organization that was active in Hurricane Sandy disaster response in New York City in 2012. Your insight and review of the process will help toward future improvement planning and implementation process.

The purpose of this study is to measure the alignment of the disaster shelter implementation during Hurricane Sandy with New York City's existing sheltering plan. Additionally, this study will evaluate the planning process to see if it influenced the disaster response.

Consideration will be given to the plan as it was developed prior to Hurricane Sandy making landfall, the development of the plan, and the process of implementing the plan.

The goal of the study is to provide insight into the way response plans are or are not implemented during a major disaster response, and seeks to identify sheltering implementation barriers that may have occurred during Hurricane Sandy. The findings may then be applied by professionals in the emergency management field in future

disaster preparedness and response efforts, and the public will benefit from learning how organizations are working to improve responses in the future.

Procedures: To participate in this survey please follow this link to the online survey: https://www.surveymonkey.com/s/LeClercResearchStudy

Answer the questions to the best of your ability (this will take approximately 10-15 minutes)

Submit the survey

Potential risks: The data collected will be kept separate from any way to identify individuals who have provided the responses. The names of those participating in this research study will only be collected for the purposes of tracking informed consent, but will not be tied to the data, making it impossible to single out particular responses. If any questions make you uncomfortable, it can be skipped without a negative impact to the survey and the ability to answer other questions.

Payment: No compensation will be given for participation in this research study.

Participation and withdrawal: All participants may decline to answer any question they are not comfortable answering. Participants may exit the survey at any time, regardless of how many questions have been completed.

Identification of investigators

If you have any questions, feel free to contact the investigators at any time.

Principal Investigator: Christina LeClerc, Christina.leclerc@gmail.com, 661-619-7313

Faculty sponsor: Professor Shirley Feldmann- Jensen (562) 985-7489

Shirley.Jensen@csulb.edu

Rights of research subjects

You may withdraw from this research at any point during this research study without penalty. By participating in this research study you are not waiving any legal rights or claims. For more information about your rights as a research subject, contact the Office of University Research, CSU Long Beach, 1250 Bellflower Blvd., Long Beach, CA 90840; Telephone: (562) 985-5314 or email to research@csulb.edu.

Survey Questions

2. What type of agency were you affiliated with at the time Hurricane Sandy made landfall?

- City government
- County government
- State government
- Federal government
- Non-profit agency active in disaster
- Military or National Guard
- Other
- Decline to answer

Please proceed to question 3 if you did NOT select city, county or state government.

2. (City, county and state government employees only) How involved was your specific department in the development of the sheltering plan?

- Very involved
- Somewhat involved
- Not involved at all
- Uncertain of involvement

- Decline to answer

3. How involved was your organization in the development of New York City's

sheltering plan?

- Very involved
- Somewhat involved
- Not involved at all
- Uncertain of involvement
- Decline to answer

4. What role did your organization play in the development of New York City's

sheltering plan? (select all that apply)

- Attended planning meetings
- Created content
- Provided information about agency's procedures
- Provided comment during development
- Provided comment after development but prior to implementation
- Attended final review meetings
- Uncertain
- Decline to answer

5. Does your organization have a sheltering plan independent of New York City's

sheltering plan?

- Yes
- Uncertain
- No
- Decline to answer

If you answered No, proceed to question 7

6. Did New York City's sheltering plan influence the development of your organization's

sheltering plan?

- Yes
- Uncertain
- No
- Decline to answer

If Yes, proceed to question 7. All other responses, proceed to question 8.

7. How did New York City's sheltering plan influence the sheltering plan of the organization you are associated with?

- All aspects of the plan were changed
- Major modifications were required in the plan
- Minor modifications were needed in the plan
- Uncertain
- Decline to answer

9. Prior to Hurricane Sandy making landfall, how familiar was your organization with the sheltering policy of New York City?

- Very familiar
- Somewhat familiar
- Not very familiar
- Completely unfamiliar
- Uncertain
- Decline to answer

9. Prior to Hurricane Sandy making landfall, did your agency receive a copy of New York City's sheltering plan from any city government agency?

- Yes
- No
- Uncertain
- Decline to answer

If you answered No, proceed to question 14

10. Identify the way in which your agency received a copy of New York City's sheltering plan. Select all that apply.

- Email
- Face to face meetings
- Conference calls
- Fax
- Press release
- Website announcement
- Social media
- Uncertain
- Other
- Decline to answer

11. How far in advance of Hurricane Sandy making landfall did your organization receive a copy of New York City's sheltering plan?

- Less than 1 week
- Between 1 week and 1 month
- More than a month
- More than a half year
- More than a year
- Uncertain
- Decline to answer

12. When the sheltering plan was received, how detailed were the instructions included with the plan?

- Very detailed
- Somewhat detailed
- Framed with a few details
- No details
- Uncertain
- Decline to answer

13. How many meetings did your organization host or attend about implementing New

York City's sheltering plan prior to Hurricane Sandy's landfall?

- 0
- 1
- 2
- 3
- 4
- 5 +
- Uncertain
- Decline to answer

14. Were adjustments known to be made to New York City's sheltering plan as

Hurricane Sandy approached land?

- Significant adjustments
- A few important adjustments
- Many minor adjustments
- A few minor adjustments
- No adjustments
- Decline to answer

15. What form did these adjustments take? (select all that apply)

- Increased funding
- Decreased funding
- Increased human resources
- Decreased human resources
- Increased supplies
- Decreased supplies
- Change in facilities being utilized
- Increased number of agencies involved
- Decreased number of agencies involved
- Other
- Decline to answer

16. What changes did your organization make to align your response with New York City's sheltering plan?

- Changed facilities being utilized
- Changed sheltering strategy
- Increased logistical support
- Decreased logistical support
- Increased human resources
- Decreased human resources
- Decline to answer

17. Identify any barriers that existed in plan implementation. (Select all that apply).

- Inadequate knowledge of the plan
- Inadequate material resources to implement the plan
- Inadequate funds to implement the plan
- Inadequate human resources to implement the plan
- Poor match with the details of the plan
- Logistical difficulties presented by Hurricane Sandy
- Other (please describe)
- Decline to answer

18. After Hurricane Sandy made landfall, what changes were you asked to make to your response to comply with New York City's sheltering plan?

- Significant changes
- Minor changes
- No changes
- Uncertain
- Decline to answer

19. Identify any challenges that may have occurred during the sheltering response. (Select all that apply)

- Communication systems disrupted or not working
- Not enough supplies
- Not enough people to work shelters

- Disease outbreaks
- Strength of storm
- Lack of funding
- Lack of understanding of the sheltering plan
- Logistical challenges
- Lack of communication between agencies about plan
- Lack of direction on implementation of sheltering plan
- Decline to answer

21. Please describe your greatest challenge during the sheltering response portion of

Hurricane Sandy after landfall.

APPENDIX D

LETTER OF SUPPORT FROM AMERICAN RED CROSS

American Red Cross

June 23, 2014

Christina,

I would like to express my strong support for your research project: Are disaster response plans used during the initial phase of a disaster response? A case study of the implementation the sheltering plan during Hurricane Sandy.

As the purpose of this research is to look at the process of implementing a disaster response plan, with a focus on the American Red Cross's response, we are happy to allow you to anonymously interview our employees and volunteers. Participation in this survey by the individuals approached will be voluntary, and as the names of the participants will not be captured in this survey, no action will be taken towards individuals who choose to participate. I look forward to reading your case study. Please let me know how we can help you further in the report.

Jesett Valdez Negley
Division Director, SAF
American Red Cross
720-320-7489

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