# ARE RURAL NORTH DAKOTA HOSPITALS PREPARED FOR A DISASTER? AN EXPLORATORY STUDY

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**Title**

ARE RURAL NORTH DAKOTA HOSPITALS PREPARED FOR THE DISASTER?

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**By**

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The Supervisory Committee certifies that this ***disquisition*** complies with North Dakota State University's regulations and meets the accepted standards for the degree of

**MASTER OF SCIENCE**

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## ABSTRACT

Walter, Melissa Beth, M.S., Department of Sociology, Anthropology, and Emergency Management, College of Arts, Humanities and Social Sciences, North Dakota State University, December 2009. Are Rural North Dakota Hospitals Prepared for a Disaster? An Exploratory Study. Major Professor: Dr. Daniel Klenow.

This study examined the disaster preparedness plans within selected rural North Dakota hospitals. The ultimate goal was to explore rural North Dakota hospitals' disaster preparedness plans, gathering information that would provide answers to some key disaster preparedness questions. This study looked at the steps these hospitals have taken, but also what they have planned for in terms of surge capacity, plan activation, and implementation of the disaster plan and training that goes along with it. Several themes emerged from the data that brought new light to the research. These themes included reviewing and revising the disaster preparedness plans, memoranda of understanding, disaster preparedness plan activation, all-hazards planning, training and exercising the disaster preparedness plan, liability and insurance, community representation, and surge capacity. Specific thoughts about rural hospital disaster preparedness versus urban hospital disaster preparedness were also discussed. The significance of the study and suggestions for future research were also presented.

## ACKNOWLEDGEMENTS

I would like to thank each of the respondents that I interviewed within five different North Dakota hospitals that were kind enough to schedule an interview, only to have to cancel all of them due to winter weather. They were all the more gracious to allow me to reschedule a phone interview with them instead. Without them, this study would not have been possible.

I would like to thank the members of my thesis committee: Dr. Carol Cwiak, Dr. Leretta Smith, Dr. Dennis Cooley; and my thesis advisor, Dr. Daniel Klenow, for their support, direction throughout the project, and help with revisions.

Lastly, I would like to thank my family and friends who supported me constantly throughout this entire undertaking. I would like to specifically thank my parents, Alan and Beth and my sisters, Michelle and Erin. Your unwavering tolerance and understanding throughout this process were truly appreciated. Thank you.

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# CHAPTER 1. INTRODUCTION

With the occurrence of the Trade Center terrorist attack on September 11, 2001 as well as Hurricanes Katrina and Rita in 2005, we, as a nation, have been left to wonder what we will do if the next disaster strikes close to home. A disaster to a small, rural North Dakota town could be anything from a snow or ice storm to a terrorist attack or a train derailment. While it is up to us as prepared citizens to be certain that our own homes and families are prepared for any one of these disasters, we tend to assume that hospitals, the places that take care of us when we are sick or hurt every day, have taken the necessary steps to become prepared for disasters as well. If we were to examine hospitals closely we might find that our assumptions are wrong.

These large disasters that have affected our nation as a whole have shown that hospital disaster preparedness is lacking and in some cases, nearly non-existent. Although the Joint Commission of Accreditation of Healthcare Organizations (JCAHO) requires that hospitals have emergency preparation plans and disaster preparedness plans (Cyganik, 2003, p. 81), there is no standard method currently used to assess hospital disaster preparedness (Kaji, 2007, p. 2). Because of this, disaster preparedness plans do exist, but often only exist as a formality. Another problem with the JCAHO requirements is that not every hospital is accredited. When hospitals are not accredited through JCAHO, the requirements for disaster preparedness planning become blurred.

Poor communication, lack of training, and a general lack of hospital integration into community disaster planning are all examples of what can go wrong when there is a lack of disaster planning (Kaji, 2007, pp. 1-2). A current and practiced comprehensive disaster preparedness plan needs to exist for every single hospital. Collaboration and

coordination need to occur and exist within a community, and everyone needs to know their roles and responsibilities (Rogers, 2007, p. 198). Several different types of resources, including money and staff, are needed to create and complete a working plan.

Why is disaster preparedness planning within hospitals taking a backseat to nearly every other issue facing them today? It is commonsense to realize that hospitals of every size and in every part of the country can be affected by several different types of disasters (Cyganik, 2003, p. 80). A hospital's disaster preparedness plans are vital to a community and surrounding communities.

Many North Dakota citizens tend to believe that, generally, disasters do not happen here. However, it is important to realize that there has been at least one disaster declaration in North Dakota each year for the past 15 years (Federal Emergency Management Agency: North Dakota Disaster History, 2008, p. 1). The fact is that disasters do happen in North Dakota. Floods, summer storms and winter storms are considered "normal" and are usually not seen as serious risks. North Dakotans roll with the punches and bounce back.

North Dakotans keep moving through blizzards and floods, either unwisely choosing to drive when there is no visibility or proactively sandbagging ahead of time to keep the floodwaters at bay; however, there may come a time when North Dakotans are not able to bounce back. They will not be able to keep up with the rising waters of a disaster. Citizens will turn to hospitals for the care that they need, only to find the hospital in the same boat as they are and sinking fast.

## Research Question

The overall research question that ultimately guided this study was: what types of plans are being made when it comes to rural North Dakota hospitals and their disaster preparedness levels? To gain a better understanding of the overall hospital disaster preparedness in North Dakota, this study looked at smaller, rural hospitals throughout North Dakota. The hospitals examined in the study do not have immediate access to bigger hospitals within their region. Interviews conducted explored the status of the organization's disaster preparedness.

This study not only looked at the steps that the hospital systems have taken, but it also examined the hospital personnel's perceptions of risk to their specific organization, the steps that have been taken to prepare for surge capacity situations, plan activation, implementation of the disaster plan, and training and exercise. The study also focused on whether the hospital representative interviewed believes their hospital is sufficiently prepared for disasters they are at risk for, if their facility is lacking anything within disaster preparedness planning, and if it is lacking something, why.

## CHAPTER 2. LITERATURE REVIEW

This section examines the literature relevant to this study and will touch on research and other documents that examine the current problems with hospital disaster preparedness plans, including the lack of surge capacity planning, the lack of community coordination, citizen misperceptions on hospital disaster preparedness, and the lack of resources needed to create and maintain disaster preparedness plans. The final portion of this section discusses the criteria needing to be met in order to become a Critical Access Hospital.

### Surge Capacity

Several studies found surge capacity to be a major problem that needs to be addressed during disaster preparedness planning. The American College of Emergency Physicians (ACEP) defines surge capacity as a "measurable representation of a health care system's ability to manage a sudden or rapidly progressive influx of patients within the currently available resources at a given point in time" (p. 1). This definition closely resembles the JCAHO's definition of surge capacity, "the ability to expand care capabilities in response to sudden or more prolonged demand" (Joint Commission on Accreditation of Healthcare Organizations, 2006, p. 19).

Surge capacity has become an important aspect of disaster planning, and as our society changes, hospitals need to adjust as well. According to the American Hospital Association (AHA), there are 900 fewer hospitals today than there were in 1980. That is an average of 18 hospitals per state less which means that the remaining hospitals have an increased caseload and a decreased ability to handle surge capacity (Joint Commission on Accreditation of Healthcare Organizations, 2006, p. 19).

Hospitals beginning to partner with public health entities was discussed within the literature. As Rebmann (2007, p 379) notes, "Establishing a partnership between hospitals and public health enhances the entire community's ability to respond more effectively during a disaster." Collaboration also more fully insures that critically needed resources will be made available should a hospital need them (Rogers, 2007, p. 206). The benefits of these types of partnerships are many. Sharing each other's information about the different roles they will play in a disaster results in better decisions being made before, during, and after the disaster strikes. Training and exercises would also benefit from these types of partnerships (Rebmann, 2007, p. 379). Not only would the cost decrease because it would be shared, but also problems within the plans could be worked out ahead of time between the groups taking part in the exercise.

Another study examined the Virginia Hospital Center, one of the main hospitals where victims were taken after September 11th. Several problems were found with their original emergency plan; however, it took one of the nation's largest disasters to find them. Several solutions were suggested and inserted into an updated hospital disaster plan to deal with the problems discovered during the plan's implementation. These included an increase in staff training on the usage of specific equipment, an increased emphasis on disaster drills, an increased budget for staff training and equipment, and a need for additional disaster plans (Cyganik, 2003, pp. 83-86).

## Community Coordination

Studies indicate that coordination is one of the keys to having a successful hospital disaster preparedness plan. In order to become prepared for a disaster, hospitals must begin coordinating with many different community groups and businesses as well as

with different agencies at the local, state, and federal level. If coordination does not exist, plans will fail when it is time to start using them.

Community and state leaders need to be encouraged to become engaged with hospitals in discussions regarding regionalization and coordination of care. This coordination is an important step in building infrastructure (Jagim, 2007, p. 570). The traditional separation between the medical community and the public health community needs to be bridged to create solid disaster preparedness plans (Mehta, 2006; Perry and Lindell, 2006).

Coordination with other health services and agencies was also mentioned within the literature, encouraging the idea that every aspect of healthcare needs to be included in the planning efforts. Without that, coordination will not exist within disaster preparedness plans. According to Hanfling (2004), "Coordination of first responders, first receivers, public health, law enforcement, emergency management, and other key components of the emergency response spectrum must be better facilitated. This can only be accomplished by greater regional cooperation, planning, training, and exercises (p. 129)."

The North Dakota Healthcare Association (2007) recommends that North Dakota hospitals begin and continue working with their county planners in their efforts to receive additional funding from the Department of Emergency Services (p. 1). By coordinating with other departments and agencies, collaboration occurs. Collaboration gives hospitals many different opportunities to share resources, learn from one another, utilize best practices, and combine their forces together to achieve what they would not be able to do alone (Pricewaterhouse Coopers' Health Research Institute, 2007, p. 3).

Coordination can also come in the form of memoranda of understanding (MOU), also known as mutual aid agreements (Department of Homeland Security Emergency Preparedness & Response Directorate, 2003, p. 7). MOU, or mutual aid, is the sharing of supplies, equipment, personnel, information, and other resources across political boundaries. MOU must be in place to ensure that the coordination of said mutual aid, in all forms, will be able to facilitate effective disaster response (Stier & Goodman, 2007, p. S62).

## Misperceptions

Serious misperceptions of current hospital capabilities are also occurring. Today, in the United States, citizens feel secure that hospitals will be able to care for them in a time of crisis. As Mary Jagim (2007) puts it, "Communities recognized hospitals as a safe haven and a place to seek assistance during a time of great crisis. The public expects hospitals to be prepared to respond to the emergency at hand and to care for their needs" (p. 569). Along with the misperception comes a community and government expectation that all hospitals are prepared to deal with disasters (Bartley, Fisher and Stella, 2007, p. 39).

However, the data show that the public holds a very strong misperception that all hospitals are ready for any disaster that may occur. Hospital capabilities are severely misperceived when it comes to preparedness for a disaster and a sudden surge of patients. As R. Carter Pate, the global and U.S. managing partner in health industries and government services states, "The American public is relying on a fragmented medical system to miraculously mount a swift, well-orchestrated response. Until further planning takes place, we should not be surprised if the system fails next time" (Prime Newswire,

2007, p. 2). In a similar vein, Hanfling (2004) states that "One of the fundamental issues that underlies all discussion of hospital disaster preparedness and response to catastrophic terrorism events hinges on the continued misperception of the existing capabilities of healthcare organizations, specifically the expectation that they will be prepared to handle large numbers of acutely ill or injured patients" (p. 129).

While the public and the political communities assume that hospitals are adequately preparing for the catastrophic casualty loads of a terrorism incident, the medical community is struggling just to maintain its everyday capacity (Hanfling, 2004, p. 129). These inaccurate assumptions only set back hospital disaster preparedness. Because even legislators hold these misperceptions, necessary funding is not provided.

The truth is that most hospitals, including ones located in large cities such as Washington D.C. lack a sufficient number of beds to be able to handle a surge of patients after a disaster occurs. In addition, only four in ten health professionals believe that hospitals are prepared to deal with the casualties a disaster would create (Prime Newswire, 2007, p. 1). Federal and state requirements for communities to maintain a certain level of hospital capacity for disasters are nonexistent. Due to the lack of resources available, hospitals functioning at capacity now will not be able to meet the patient needs during a major disaster (Pricewaterhouse Coopers' Health Research Institute, 2007, p. 2).

In the United States, there have been times when hospitals have not been able to provide the requisite assistance expected of them. The events of September 11, 2001 and Hurricane Katrina have left citizens wondering if hospitals are prepared, but these thoughts are often times fast and fleeting when the disaster is over.

The continuing nursing shortage within the United States will also affect a hospital's ability to perform under a maximum surge capacity. Planning becomes extremely important because it appears as though hospitals may run out of time before the next disaster hits. Many assume that there will be enough nurses and doctors to be there when they are needed. This is a misperception that could end up severely limiting hospitals in responding to a disaster.

It is clear that disaster preparedness is being discussed and thought about in every hospital in the United States. Whether that discussion elevates to disaster planning is the question. The chasm occurs because of the absence of resources that are needed, the lack of smooth coordination and memorandums of agreement, and misperceptions regarding hospital's capabilities. The leaders within the hospitals know that they need to become better prepared for disasters, but need money and other resources to complete the task.

## Training, Exercises, and Other Resources

Education and training are two types of resources are often mentioned within the literature. To be successful in disaster response, hospital disaster plans need to have a training and exercise component (Perry and Lindell, 2006, p. 119).

The Bioterrorism Planning Guide for North Dakota Hospitals (2003) states that "Pre-event interventions may include education and training. Determine what information your staff needs in order to respond appropriately to an event involving each specific biological agent. Develop a plan for disseminating the information and ensuring that the intended audience is able to apply the knowledge to their practice" (p. 7). By training staff and educating them on the different disaster situations within disaster preparedness,

a hospital can become more thoroughly prepared. This training and education is becoming a necessity that hospital leaders and the government can no longer ignore.

Pricewaterhouse Coopers' Health Research Institute reported within Closing the Seams (2007) that disaster planning needs to be treated as a living, ongoing process rather than a compliance activity. It must include exercises and a constant review of assumptions, training, and capabilities. By conducting training exercises, problems that exist within the disaster preparedness plans can be identified and fixed.

Tabletop exercises as well as full-scale exercises are the foundation of disaster preparedness and planning education. Their importance extends into providing an opportunity to test a plan and improve upon plans as well (Bartley, Fisher, & Stella, 2007, p. 42). The Joint Commission Hospital Accreditation Program requires two exercises be done annually at every hospital in the United States, one of which should be a full-scale, community-wide exercise. These types of exercises can be extremely costly; however, the realistic exercises provide for the best opportunity for learning and improvement (Joint Commission on Accreditation of Healthcare Organizations, 2006, pp. 33-34). Without exercises, hospitals simply have a written plan that leads to a false sense of disaster preparedness (Kaji & Lewis, 2007, p. 1199).

The lack of funding within the healthcare field leaves training and education at the bottom of the barrel and the very first to get cut from the budget. Functional training and the coordination of disaster training with other participants in the emergency response community need to be financially supported in order to be successful (Hanfling, 2004, p. 134). The only requirements that exist for hospital system disaster preparedness come from the Joint Commission Hospital Accreditation Program. These requirements

include the creation of plans and the conducting of exercises (2006). Although training exercises are conducted, the requirements stating what the hospital systems need to accomplish are unclear.

Disaster planners can select from a number of training methods, all of which are resource intensive. While grants cover direct costs for staff to attend disaster planning, training, or exercises, they do not cover salary and overtime to replace them while they are away (Pricewaterhouse Coopers' Health Research Institute, 2007). This results in hospitals having to spend more money to complete the training and comply with the grant requirements while planning for a disaster that may or may not occur.

Coming back to surge capacity, it is important to remember that the core dimensions of surge capacity include space, staffing, systems, and supplies (McCarthy, Aronsky & Kelen, 2006, p. 1140). These dimensions all require monetary resources that are not necessarily included in a hospital's annual budget.

Many hospitals also view certain grant's conditions as a drain on their budget, because they cost a significant amount of money to comply with (Pricewaterhouse Coopers' Health Research Institute, 2007, p. 13). Again, Closing the Seams (2007) reported that because funding is granted in one-year increments and most do not have a requirement to apply for the funding, many health system leaders do not apply at all. The cost to comply with the training and reporting requirements ends up being more than what the initial grant provides (p. 13). Many grants make complying with them extremely difficult, resulting in hospitals not applying for them at all.

Funding options do not support systematic community planning. The current annual funding cycle discourages long-term planning or development of a sustainable

response infrastructure. This leaves many hospital executives believing that the administrative costs of applying for funding are overly burdensome for the level of funding received (Pricewaterhouse Coopers' Health Research Institute, 2007, p. 16). Little can be done in today's world without resources. Emergency and disaster preparedness are no different. Resources are needed on the community level to increase the preparedness level of many rural hospital systems in America.

Hospital disaster preparedness planning must become a top priority of legislators. Disasters are not going to wait until the plans are ready to use; polished and practiced. Disasters are going to occur whether North Dakota hospitals are ready or not. From the literature it is clear that most hospitals cannot afford to take the necessary steps to become prepared. Absent ongoing resources dedicated to enhancing hospital preparedness it is unlikely that planning efforts will improve.

## Critical Access Hospitals

Each of the hospitals within this study is considered a Critical Access Hospital (CAH). A facility that meets the following criteria may be designated by the Centers for Medicare and Medicaid Services (CMS) as a Critical Access Hospital. The facility must be located in a state that has established with CMS, has a Medicare rural hospital flexibility program and has been designated by that state as a CAH. Along with that it also must be currently participating in Medicare as a rural public, non-profit or for-profit hospital; or was a participating hospital that ceased operation during the 10-year period from November 29, 1989 to November 29, 1999; or be a health clinic or health center that was downsized from a hospital (Critical Access Hospitals, 2009).

Other requirements include that the hospitals must be located in a rural area or treated as rural; and be located more than a 35-mile drive from any other hospital or CAH (in mountainous terrain or in areas with only secondary roads available, the mileage criterion is 15 miles); and maintain no more than 25 inpatient beds; and maintain an annual average length of stay of 96 hours per patient for acute inpatient care; and comply with all CAH Conditions of Participation, including the requirement to make available 24-hour emergency care services seven days per week.

There are additional conditions that adjust the inpatient bed requirements depending on the facility's setup including "swing-bed" approval for special circumstances as well as different maximum bed numbers for hospitals who have hospice located within their facility. In addition to the 25 inpatient CAH beds, these hospitals may also operate a psychiatric and/or a rehabilitation unit with up to ten beds each (United States Department of Health and Human Services- Centers for Medicare and Medicaid Services, 2009, p. 1).

In short, this section looked at the literature relevant to this study. It discussed the current research and themes that emerged from that research including surge capacity planning, community coordination, citizen misperceptions on hospital disaster preparedness, and the lack of resources needed to create and maintain disaster preparedness plans. This section also closely examined what the requirements are for becoming a Critical Access Hospital.

## CHAPTER 3. RESEARCH DESIGN

The information in this chapter is organized into three sections. First, the theoretical orientation that forms the basis for the methodology of the study will be discussed. The second section will explain the methodological approach and data collection. The third section will look at how the data analysis was completed.

### Theoretical Orientation of the Methodology

Based on Symbolic Interactionism principles (Blumer, 1969), this study was exploratory in nature. In keeping with this approach, the aim of the study was to examine rural hospital disaster preparedness within selected North Dakota hospitals.

The researcher's goal was to explore rural North Dakota hospital's disaster preparedness plans, gathering information that would provide answers to some key disaster preparedness questions. This study looked at the steps these hospitals have taken, but also what they have planned for in terms of surge capacity, plan activation, and implementation of the disaster plan and training that goes along with it.

Because this study was exploratory, it resulted in more in-depth data being gathered, which led to better and more comprehensive study results. The aim was to speak with each hospital's designated safety coordinator/manager or the person(s) who have dealt closely with the hospital's disaster preparedness plan.

### Methodological Approach and Data Collection

Upon the approval of the North Dakota State University Institutional Review Board, initial contact was made with a formal introductory letter on NDSU letterhead (see Appendix B). This letter was sent in conjunction with a letter from the President of the North Dakota State Hospital Association, Dr. Arnold Thomas. These two letters were used to make initial contact and solicit participants for the study. The researcher made

phone contact with the participants within two weeks from the initial letter being sent to arrange interview times that were convenient for the participant. Because of a harsh North Dakota winter and bad roads, the researcher was forced to conduct telephone interviews that were recorded instead of the initially planned face-to-face interviews.

The hospitals studied were chosen based on their remoteness from bigger hospitals within the state. The President of the North Dakota Hospital Association advised the researcher as to which hospitals would be best suited for this study. The theoretical rationale for allowing someone other than the researcher to choose the study sample was because Dr. Thomas has a close working relationship with each hospital in North Dakota. He was able to provide the researcher with access to solid disaster preparedness planning information.

Participant's names will remain confidential. Protection of human subjects was ensured throughout the study. Within the study results, names have been changed or omitted to protect each respondent's identity. In accordance with university policy, Institutional Review Board (IRB) approval was obtained for this research.

The interview focused on topics relevant to the research question such as surge capacity issues, plans for activating the plan, and training for implementation of the plan. A single interview instrument (see Appendix A) was used to collect data. The interview consisted of several open-ended questions supported by prompting questions that may or may not have been asked depending on the responses of the participants. The purpose of the prompting questions was to ensure that questions regarding the themes found in the literature reviews were addressed within the interview. If the initial question did not involve the answers to the prompting questions, the researcher then asked the probative

questions as outlined in Appendix A. If the initial question yielded responses that answered the questions, the researcher continued with the interview by advancing to the next question. The responses aided the researcher in assessing where the participant felt their hospital stood in regards to disaster preparedness planning.

## Data Analysis

Due to the wealth of the data collected during the study, not all respondents' answers and comments are included within the study results. Because of the richness of the data, it is essential to analyze the data in the best and most functional way possible. There are two types of written text in the sociological tradition, one being words or phrases generated by techniques for systematic elicitation and the other being free-flowing texts (Denzin & Lincoln, 2003, p. 261). These texts could be narratives, discourse, and responses to open-ended interview questions. This study will be using responses to open-ended questions as the main component of information gathered. Analysis of free-flowing texts can use methods such as key-words-in-context (KWIC), word counts, semantic network analysis, cognitive maps, and themes. These types of analyses all help to categorize the text to fundamental meanings of specific words, making it much easier for researchers to recognize similar patterns and make comparisons across the data (Denzin and Lincoln, pp. 261-272).

For this study, common themes emerged throughout the interview data. Data were analyzed by examining these themes. Because themes within data are difficult to see, and are often times somewhat abstract, themes from the literature review helped guide the researcher. However, themes found during the data collection were not overlooked simply because they were new or different.

Upon completion of the interviews, they were transcribed and each interview was analyzed for new themes as well as themes from the literature review. Upon completion of the transcription and analysis, all interview responses were grouped by question. This allowed for a more thorough analysis between each individual's responses.

## CHAPTER 4. STUDY RESULTS

As discussed earlier, the respondents were asked several questions relating to disaster preparedness within their respective hospitals in North Dakota. With these questions the research goals were to find (a) themes within the data and (b) any variations between responses from administrators. The themes found show how each hospital is organized with their disaster preparedness plan as well as the planning process. Along with themes, variation shows how similar or dissimilar each hospital is to the others in regard to level of preparedness or knowledge of the plan itself as well as the planning process on an individual level.

This chapter presents the findings of the study in two sections. First, the general demographics of the hospitals, and their respective cities, are discussed. This provides a perspective on the context of each hospital without violating confidentiality. The second section shows patterns of variation within the themes found in the interviews.

### General Demographics

To better understand the data, a general orientation of the communities in which the hospitals studied is important to know. Populations of the communities in which the hospitals in the study are located as well as whether or not each hospital is Joint Commission accredited and/or considered a Critical Access Hospital are three pieces of information that were important to examine. These key demographics help to characterize the context for each hospital. Table 1 presents a general demographic profile for each hospital.

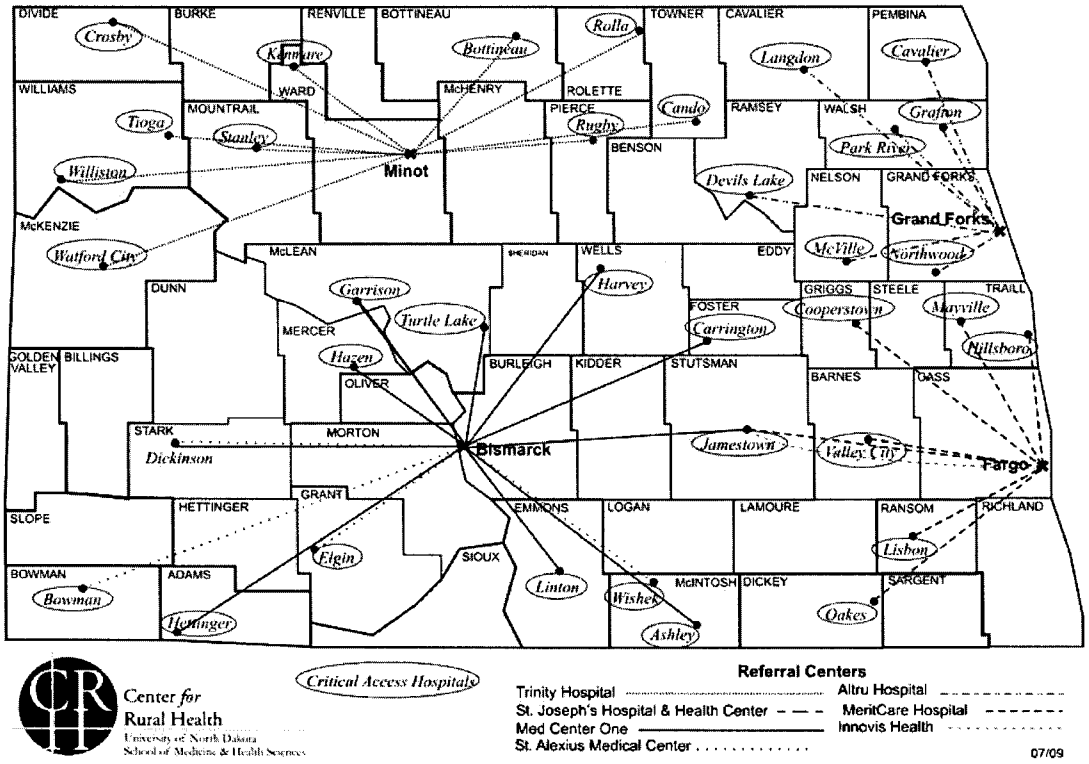
**Table 1. General Demographics of Hospitals Studied**

| Respondent | Respondent's Positions | Number of Persons Interviewed | City Population[1] | Number of Beds | Joint Commission Accredited | ER | Critical Access Hospital |
|---|---|---|---|---|---|---|---|
| 1 | Administrator/CEO for the hospital and clinic operations | 1 | 1,000 | 14 | No | Yes | Yes |
| 2 | 1) Registered nurse and CEO<br>2) Director of Environmental Services<br>3) Registered nurse and Director of Nursing Services | 3 | 900 | 24 | No | Yes | Yes |
| 3 | Emergency management coordinator, safety officer, security officer, HAZMAT and bio-terrorism coordinator | 1 | 15,000 | 56 | Yes | Yes | Yes |
| 4 | Performance improvement, risk management, emergency management | 1 | 6,700 | 25 | Yes | Yes | Yes |
| 5 | EOC Committee | EOC Committee | 700 | 26 | No | Yes | Yes |

[1] City populations have been rounded to protect the identity of the hospitals.

Figure 1 shows the location of each hospital in North Dakota, with the Critical Access Hospital locations circled. While this does not specifically state which hospitals were in the study sample, it gives an idea as to the rural location of these hospitals.

**Figure 1. North Dakota Critical Access Hospitals and Referral Centers**




Several of the respondents hold more than one position. These positions include the following: hospital administrator, registered nurse, chief executive officer, emergency management coordinator, safety officer, security officer, risk manager and members of the emergency operations center committee. This is important to know when looking at the data as it provides a context for some of the responses.

## Themes within the Data

Several themes emerged through the data. Many of the themes were identified in the literature review. This section discusses the planning process, reviewing and revising the disaster preparedness plans, memoranda of understanding within the plans, plan activation, all-hazards planning, training and exercising the plans, liability and insurance, community representation, and surge capacity issues.

### The Planning Process

First, when asked about their most recent disaster preparedness plan and how the planning process unfolded, the answers varied. Respondent 2 stated, "Basically, we have the basic disaster plan, you know, your natural disasters, flooding, fire, snow blizzards, tornados, that type of thing. That is all in place and has been in place for a long, long time." Respondent 5 also stated, "It's a continuous process. We have been working on it for four years now." Disaster preparedness planning happens continuously. Because of this, respondents consistently indicated that planning is a continuous process.

Disaster preparedness plans themselves require a significant amount of work and planning. These plans need to be updated on a continuous basis, making them quite time consuming. The following responses from Respondents 2 and 3 address the time, level of review and thoroughness of the process of putting a plan together.

> **Respondent 3**
> We had requirements for Joint Commissions for a substantial amount of time to do emergency preparedness planning at some aspect. I started about a year ago and there were actually three or four drafts for emergency planning that a plan already existed. There's been a substantial amount of work over the last six or seven years done by primarily working through those Joint Commission Standards to meet their requirements. (...) We did it based on the requirements for Joint Commission. What we did was drafted it, took it to that committee for changes, revisions, additions, and subtractions. We went through that process and that's what has been done

> the last eight years. It's been revised, added, subtracted in that committee, gone back again, approved or modified again. It's been prepared by plant management and myself for the last eight years (...) because it's been such an ongoing thing it's been something that has existed for a long time.

> **Respondent 2**
> The biggest problem with small rural facilities is finding the manpower to complete these plans and having the time to follow through. Yes we have plans and yes we have talked about the plans and ideas but it's actually finding the time because we're wearing multiple hats. We need more help and we need more money.

Variation came from Respondent 4 in regard to a specific type of disaster that had been included in older disaster preparedness plans, and is absent from the current plan. No other respondent stated that there was a hazard missing from their current disaster preparedness plan that had been included in the past.

> We've always had a disaster preparedness plan. In fact, I've got the original one from 1957 and basically it is the same in 1957 as what it is today. It's expanded a lot more but it has the same key categories. A category that is probably missing from today's plan is nuclear attack. That seems to have been a concern back in 1957 but it's less so today. But if we actually take that plan and they start talking about mobilizing staff and so forth. That was our basic plan that's been revised every year to where we are at today. (...) I think it is a lot more comprehensive from what it was back in '57.

In short, hospitals that are Joint Commission accredited have many more requirements than those hospitals that are not accredited. Because of this, Respondent 3's hospital disaster preparedness plans seem more in-depth and substantially more information in them. As a result, the planning process is one that takes time and continuous revisions for each hospital studied.

## Review and Revise

It is important to have a schedule for reviewing and revising disaster preparedness plans. Things like employee turnover and job restructuring can cause changes in plans to

occur. The following comment from Respondent 3 points out the importance of a never-ending, continuously changing disaster preparedness plan.

> I don't think a plan is ever complete. It's a living document. Will it work for us today? If we can plan the disaster, yes. If we can't plan the disaster, the plan is just a guide. Would there be things that wouldn't work? Yes, probably. ....will it work today and has it worked when we have snow and other things like that? Yes it's worked and I believe today it will continue to work.

The interviews show that each of the hospitals are doing some sort of annual review of their disaster preparedness plan and revise the plan as necessary. When asked about their hospital's schedule and procedure for reviewing and revising their overall disaster preparedness plan, the researcher found that many responses were similar. Respondent 1 said, "We review everything annually." Respondent 2 answered similarly saying, "Annually, we have to review. That is a state requirement for us."

Respondent 3 went into detail about his hospital's reviewing and revising procedure. Because his hospital is Joint Commission accredited, changes are made to those requirements on an annual basis which means that updates need to occur in the hospital's disaster preparedness plan each year as well.

> It's Joint Commission required and it's reviewed and revised annually. (...) It's just one of those things that is constant. Exercises and such always play a role in that. If something is supposed to work and it doesn't work, that plays a role in those revisions. (...) A year ago was a big revision, they added a whole new section and doubled the size of the emergency management requirements. (...) This year will be a big one again. (...) There will be a lot of substantial changes this year as well as the normal making sure phone numbers and such are updated.

Respondent 4 likewise reported an annual review of their hospital's disaster preparedness plan; this respondent, however, presented the review as more self-initiated

than mandated. This hospital also works directly with their county Emergency Management office to assist with changes to the plan.

> It is always revised in the fall of the year. And I initiate that, so it's at least once a year that we review it. Often times we also work with our (...) County Emergency Management office so if there are some things that they need, then I will certainly take that into consideration. We also work with the state health department so their ideas are taken into consideration.

In reviewing the data, there does not seem to be a set standard for how each hospital reviews and revises its hospital disaster preparedness plans. Each hospital within the study does some sort of review; however, depending on the accreditation of the hospital, the requirements are different. Based on data collected in this study, planning is a continuous process and even with constant revisions and additions to a plan, it may never be considered complete.

**Memoranda of Understanding**

Memoranda of understanding (MOU) are extremely important to all business entities when it comes to being prepared for disasters. Without proper MOU, the help that a business needs may not be available to assist them when disaster strikes. Surprising responses came out of the question that stated, "Do you have any memoranda of understanding established as a part of your plan?" Respondent 1 gave the succinct answer of, "No." With that response came another simple answer from Respondent 5, "NDHAN." The following responses from Respondents 2, 3, and 4 are examples of additional written or oral MOU for their hospitals.

> **Respondent 3**
> We have the statewide one, the North Dakota Healthcare Association MOU that includes the emergency medical providers as well as the hospitals. That's about the extent of our written ones. My predecessor had a lot of verbal agreements, but not a lot of paper work.

**Respondent 2**
We do have one that comes to mind. I'm thinking we have more but I know that that's also a work in progress. We have a verbal understanding with our city officials and local organizations so if something would come up, we would be able to tap into those resources. But ultimately for a big disaster (...), our MOU is through the North Dakota Healthcare Association and then that in turn branches out to the rest of the state.

**Interviewer**
Do you have any additional MOUs within your community?

**Respondent 2**
(...) We have contracts in place with city officials for extra water, food, generator supply. Some are contracts and some are verbal.

**Respondent 4**
We do through the state health department and that is with area hospitals. That was an agreement that our department of justice or as they call it HERSA (Health Resources and Services Administration). Those grants mandate how hospitals work together so we do have an agreement that was initiated by the state.

**Interviewer**
Do you have any MOUs with other businesses in the community?

**Respondent 4**
No. We have a list of what is available; we have a list of suppliers that would be able to supply that if we needed it.

According to the interview data, all of the hospitals within the study have the same MOU with NDHAN (North Dakota Health Alert Network). The MOU that NDHAN provides "serves as a communication network among state and local public health agencies, healthcare providers, hospitals and emergency management officials. Established through a cooperative agreement with the U.S. Centers for Disease Control and Prevention (CDC), the NDHAN is part of the North Dakota Department of Health's Emergency Preparedness and Response program" (North Dakota Department of Health, 2003, pg. 1). At times, the NDHAN is called the HAN network for short. Each of the respondents discussed it and its similarities to a MOU. It provides a resource for current

information about healthcare emergencies within the state of North Dakota. As Respondent 4 noted:

> We have the HAN network, so if we do have some type of disaster like say out in Williston and the state is involved in it, they would send an email message to all hospitals in the state asking what type of resources they have available as of that event.

While written MOU were difficult to find within the hospitals studied, there are many verbal MOU used by each of the hospitals. These verbalized MOU could be very beneficial should a disaster occur; however, nothing is ever certain. During a disaster, any MOU, whether written or verbal, may not be a possibility based on the circumstances. This leads to the hospitals with only verbal MOU scrambling to find what they need, go without the items, or shutting down entirely because they cannot meet the needs they are expected to meet. Respondent 3 commented on some of the reluctance involved with hospitals creating MOU.

> **Respondent 3**
> That's one of the things we are working on but, like the rest of the state, we are waiting for MOU templates because people are hesitant to sign one and we don't want to ask them to sign one when that might not meet FEMA's requirements. Because FEMA or the Department of Homeland Security hasn't issued requirements for what they are going to accept for an MOU (...) we are not going to work any further on written MOU until there is some sort of a standard that says this is going to be required of us to get reimbursement.
>
> **Interviewer**
> You are waiting for that template from FEMA or Federal Level?
>
> **Respondent 3**
> The State actually. There is a Senate bill that would allow DES (Department of Emergency Services at the State level) to create the template. Once they create the template, then we can follow that and if the State's template doesn't meet federal requirements then that doesn't fall on us. (...) This means that we don't have someone sign a MOU today and come back three months from now and say guess what...our MOU doesn't work so we have to do it again.

Respondent 3 also discussed the fact that there is public expectation that hospitals are going to be able to provide the necessary care no matter what type of disaster occurs. There are many things to think about when looking at MOU from a business standpoint versus a government entity standpoint. From Respondent 3's comments, the difficulty surrounding MOU within hospitals is discussed.

> When I went to school, we talked a lot about public working in a private sector in a hospital. It is very different than anything we ever learned and talked about. You need to include insurance companies and accreditation bodies. There is public expectation that we are going to be there no matter what. That's different than anything I ever learned or talked about. (...) Because of that, it makes it hard because you are making a MOU or agreement between two private businesses, and in the end, both those private businesses want to keep their doors open. It's different when you add a government to a private business.

It is clear that memoranda of understanding play an important role in disaster preparedness plans; however, their importance can go overlooked. According to the respondents, the North Dakota Health Alert Network is a MOU with solid establishment throughout each of their hospitals. While MOU templates are being created, verbal MOU are the method of choice for the hospitals within this study.

## Disaster Preparedness Plan Activation

Up to this point in the interviews, many of the respondents expressed similar ideas. However, when asked about the process followed for plan activation and who was responsible for activating the plan, the responses varied rather extensively.

> **Respondent 4**
> Generally it would come from either (...) ambulance service or possibly 911, where they would call in and say that something has occurred in the community. Once our nurse coordinator can make that determination that maybe it's larger than what we can handle with in-house staff, which is when we need to call other people in. In time, the plan would be activated. The nursing coordinator would actually activate it.

**Respondent 1**
There is an emergency telephone call system. It would be for any emergency coming to the hospital. The procedure would include: I get notified of everything plus on-call scheduled, which would be the physician on call and the nurses on call. Those people would come in and make a determination and see if we need any other personnel (...) It's whoever is on duty. During day shift, it's fairly simple because I'm here and the Director of Nursing is here. On the weekends and night shifts, the RN in charge would make the call.

**Respondent 2**
We would actually have to notify our emergency manager and that is (...) and then she would go into contact with the state officials.

**Respondent 3**
During the day we always have a charge nurse or an administration person here. Our charge nurse can do the disaster pages through our paging system as well as start the telephone calls to get people in here. It would be formally activated by myself, the plant manager or the CEO. Those are the three that can formally do it and formally decide the process for ending the activation.

**Respondent 5**
The person activating the plan would be the first person arriving on the scene of the disaster and several persons are trained in Incident Command leaving them able to activate the plan should the first people on scene not be able to activate it.

The study results indicate that some of the hospital's disaster preparedness plans did not seem to address activation of the plan itself, but rather addressed initial calls of an immediate emergency occurring. This lack of specific planning seemed to be commonplace throughout each hospital within the study.

Responses to questions about their backup plans for activation if the initial person is injured or unable to activate the plan varied. There was also a lack of consistency within respondents' responses to whether persons are identified by position or by name within the plan. Respondent 5's answer was perhaps the most unexpected, stating that all

staff members are trained to activate the plan. While this may be the ideal end result, it is a difficult task to achieve. Other responses also varied from respondent to respondent.

**Respondent 1**
It just goes down the line, whoever is on duty for that shift.

**Interviewer**
Are these people identified by position or name in your plan?

**Respondent 1**
We set up the plan by position not by individuals.

**Respondent 2**
If I'm gone, (...) takes over, if (...) and I are gone, then our board president would take over. We've got that backup plan in place with that person.

**Interviewer**
Are these people identified by position or name in the plan?

**Respondent 2**
We like to keep it by position because people tend to change positions so then we don't have to update our plan.

**Respondent 4**
It would go back to the nurse manager or back to the vice president of nursing care. (...) I suppose in the event that I would be around I could activate it myself, but we are always thinking 24/7. I am not going to be available.

**Interviewer**
So the people who would activate the plan, are they identified by their position?

**Respondent 4**
Yes.

**Respondent 3**
We have letters that say we have the ability and are designated by the Board and the Chief Executive Officer the power to do whatever is necessary to maintain and ensure patient safety, staff safety and the safety of the facility in a disaster. In the plan, we are identified by name. The Joint Commission requires signed letters that says "I (...)" The Joint Commission requires that. They are required by name and they are updated every year or as people move out of position.

Aside from the Joint Commission, the respondents reported no requirements with regard to who activates the plans as well as if that person is included in the disaster preparedness plan by name or by position. Significant variation exists because plan activators are distinguished by name within plans if the hospital is Joint Commission accredited. No set standard exists who activates disaster preparedness plans within the hospitals in the study sample.

**All-Hazards Planning**

The next interview questions dealt with whether the hospital's disaster preparedness plans were considered all-hazard plans; and if not, what specific types of hazards the plans address. Respondent 1 viewed their hospital's plans as an all-hazards plan and went on to say that, "The most common hazard around here is usually chemical spills from agencies, ranchers and farmers. It's pretty inclusive, some broad areas we work through the state to make sure we capture whatever we needed."

When respondents were asked if they felt there were certain hazards missing from their hospital disaster preparedness plan, Respondent 5 was the only hospital representative to state that specific hazards are addressed in their current plan. These hazards included chemical, biological, weather, radioactive, and mass casualty. Respondents 3 and 4 explained the absence of certain hazards from their plan as follows.

> **Respondent 3**
> Pan flu. We have a separate area and we work with the community for pan flu planning. Myself, as well as two other people from the hospital, are on the committee in our area for pan flu planning. It's not that it's not included in there but there are some additional mandates that are there for pan flu from the health and human services standpoint.

**Respondent 4**
Some other plans or some of the events that might crop up that we're not totally familiar with, we would still use the all-hazard command center. We're going to fall back on that as a default.

All-hazard planning has its place within disaster preparedness planning. There are instances where an all-hazard plan may not cover a disaster specifically but will still be the plan used to address that issue. Respondent 3 used the example of pandemic influenza planning. Respondents 2 and 3 offered explanations as to why having an all-hazards approach to disaster planning is more logical than attempting to create plans for every type of disaster were given.

**Respondent 2**
I think we need better development of the pandemic flu plan. I think that is one that is definitely hanging out there. We've got steps and actual equipment in place for a major exposure to a chemical (...) but we don't have it specifically written down. We all have it in our heads and we've actually had to exercise it and actually do it. (...) We do try to keep them generalized because you can never hit every possibility. We can write to every detail and it never goes as we planned it.

**Respondent 3**
Everything is based on function. To me I don't care why the power goes out. All that is important is that we need power to run the hospital. (...) We need to get the power back. Our plan is based on function, not necessarily for a specific disaster. I think you can plan until you are blue in the face for a specific disaster and you still miss the function because the function is really what needs to be planned for and it's really the only realistic way to plan. That makes it multi-hazard.

To summarize, all-hazard planning is done within each of the hospitals studied. Some respondents felt that some specific hazard planning, such as pandemic influenza, needed better development. According to the interview data, an all-hazard approach does not necessarily cover all aspects of every disaster, but these broad plans for disasters exist because there is no way to specifically plan for every hazard.

## Training and Exercising the Plan

Respondents were asked whether they trained and exercised their disaster plan; when the last exercise was conducted; if the exercise resulted in an update of the plan; and if the trainings/exercises were a collaborative effort with other agencies in their respective communities. Responses evidenced some similarities.

> **Respondent 5**
> We exercised our plan two years ago. It resulted in an update of our plan, yes. We have no set schedule for how often we conduct trainings and exercises.

> **Respondent 3**
> Exercises are required by Joint Commission, two per year.

> **Respondent 2**
> Yes. We do. That was last February. We do it on an annual basis. It varies from like one year we do a written table top and another year we do the actual scene play or whatever you want to say. And its been the last one was a multi-county (...) involving all.

Respondent 3 explained that a plan is only as good as the training that is provided along with it. According to the literature (Pricewaterhouse Coopers' Health Research Institute, 2007), it is vital to have a disaster preparedness plan that is not only usable, but also changeable and fluid enough to be used in any unforeseen emergency or disaster. By conducting training exercises, problems that exist within the disaster preparedness plans can be identified.

> **Respondent 3**
> I do think that to believe that somebody is going to grab a plan when something bad happens and follow that through is not realistic. What it comes down to is our plans need to be written in such a way that they follow what we are going to do based on training. Staff members need to have enough training and have enough knowledge so that they can do the right thing and then the right thing needs to be in the plan (...).

Collaboration was discussed at length by some of the respondents, allowing insight into how rural hospitals and cities have to work together to accomplish even small goals. Respondent 5 did not offer any explanation as to specific trainings done in collaboration with other entities. All other respondents had taken part in collaborative training efforts which are explained in the following statements.

> **Respondent 1**
> Training is done internally at the department level and each department goes through their needs and there is the once per year exercise we get involved with. Public Health, the schools, ourselves and the county go through same exercises. (...) Last year we did a nitrogen spill up in (...) that we responded to. We try to keep it somewhat realistic. This particular scenario was supposed to be an accident with several young people injured so the high school kids participated as the injured.

> **Respondent 2**
> It's a mass exercise. A school bus turnover, so county officials are involved and we actually get other counties involved as well. The fire department and police, too.

> **Respondent 3**
> We participated at a regional table top exercise at the high school. It's either been our exercise that we've run in parallel or all together with (...).The high school one was run with representatives from 37 entities in the region at the table top exercises.

> **Respondent 4**
> The last one we had was actually coordinated by the state, last fall. It was called (...). There were multiple players involved all the way from the hospital, the clinic, the city, fire department, street department, city officers, state highway department, department of justice, and on and on.

The literature (Perry & Lindell, 2006; Bartley, Fisher, & Stella, 2007) made note that training and exercising disaster preparedness plans on a regular basis is important. According to the respondents, plans need to be exercised so modifications can be made to the plan before an actual disaster occurs. Respondents' responses made the case that

collaboration with other entities is necessary to have a successful training, and therefore, learning experience.

**Liability/Insurance**

When queried regarding the topics of potential liability and the role insurance played in preparedness planning efforts, the responses varied. These variations can be seen in the following comments from each respondent. While some insurance companies of hospitals within the study had inquired about the disaster preparedness plans, others had not.

> **Respondent 3**
> You know I checked on this and I talked with a few people and we can't find anything so the answer is no- not to my knowledge. Nobody has ever asked me about a plan or inquired about the plan or any other information in regards to insurance.
>
> **Respondent 4**
> No. Interesting, no. Because I handle the liability part too and they have never asked that question. No. Its never been an issue.
>
> **Respondent 1**
> Not inquired about it but there is a form that we need to fill out, a matter of checking off whether or not we have one. They haven't called and asked for a copy of it. They just want to know if we have one, yes or no.
>
> **Respondent 2**
> Yeah. We have to send a copy to our liability carrier every year.
>
> **Respondent 5**
> Yes, they have inquired about our disaster preparedness plan.

While some insurance companies of the hospitals within the study have, at the very least, asked about their disaster preparedness plans, others respondents interviewed had never been asked about the plans. Given the statements from respondents, it is clear that the insurance companies that cover the hospitals represented in the study are quite different from each other in what they require in regard to disaster preparedness plans.

## Community Representation

Responses from respondents were consistent regarding hospital representation within local community disaster preparedness committees. Each hospital studied has a person or persons representing it within a disaster preparedness committee. Respondents gave the following responses when asked the question, "Does your hospital have a representative participating on a local or county disaster planning committee?"

> **Respondent 1**
> Yes, three people matter of fact - medical director, risk manager, who gets involved with many things, and the director of the ambulance squad.
>
> **Respondent 2**
> That would be all of us.
>
> **Respondent 3**
> Yes, I am a member of the local emergency planning committee. There are a couple of other representatives that fall out of the county because of mutual aid for fire departments, but predominantly it's (...) county as well as there are two other people within the hospital that get mailings from that committee.
>
> **Respondent 4**
> Yes, me.
>
> **Respondent 5**
> Yes.

Responses were also very similar when they were asked about other entities that make up these committees they are a part of. Most responses included individuals and entities such as city officials, local businesses, and a number of public servants including police, fire, and rescue, public health.

> **Respondent 4**
> The city commissioners, fire department, police department, highway patrol, street department. Public health would be involved with that as well.

**Respondent 3**
There are representatives from the police department, police department, County Sheriff Office, NDSU Extension, County Emergency Management, County Dispatch or 911, the airport, the city, the county board. The county commissioner said last time that there are 53 members, really a substantial list. It's pretty common to have thirty plus people there.

**Respondent 2**
We've had schools there, fire, law enforcement, the nursing home, city officials, county commissioners. Then we've got the fire fighters and the city commissioners and the mayor, and the water, electric, that type of representation. Ambulance squads are also involved.

**Respondent 1**
School, county, fire department. They involve a couple of business people inviting them as resources, for example the gas station owner who has the fuel supplies. There are a couple business people, the county director, hospital and ambulance squad, fire department and of course the police and sheriff department.

The data shows that each hospital in the study allocates individuals to be a part of community disaster planning committees. Other entities also represented within the committees include several different types of public servants including police, fire, and rescue, public health, city officials and local businesses. According to the literature, committees such as these contribute to better and more effective community coordination during a disaster.

**Surge Capacity**

Surge capacity was discussed extensively in the review of the literature (Cyganik, 2003; Joint Commission on Accreditation of Healthcare Organizations, 2006). Two definitions of surge capacity were given to the respondents to be certain that the terminology was clear. While the first definition was very succinct, the second definition expanded on the first, in hopes of clarifying surge capacity for the respondents.

First it was defined as "the ability to expand care capabilities in response to prolonged demand" (Joint Commission on Accreditation of Healthcare Organizations, 2003, p. 35). The second definition went into further detail and explanation, "Surge capacity encompasses potential patient beds; available space in which patients may be triaged, managed, vaccinated, decontaminated, or simply located; available personnel of all types; necessary medications, supplies and equipment; and even the legal capacity to deliver health care under situations which exceed authorized capacity" (Joint Commission on Accreditation of Healthcare Organizations, 2003, p. 19).

In discussing surge capacity with respondents, it became apparent that not all hospitals hold surge capacity in high regards. When asked if their hospitals have, in their plan, a specific reference to surge capacity, and if so, the extent to which it is planned for, responses varied greatly between the respondents. In the following comments, the respondents state that their surge capacity planning is being completed at a statewide level by the North Dakota Health Department. The responses given are consistent with the literature.

> **Respondent 1**
> Surge capacity is something that we worked on with the State Health Department putting the plan together. If I specifically look at the hospital, our surge capacity is pretty small. The hospital only has 14 licensed beds and the maximum in ER even with our out-patient areas that we could house within the hospital would be about 20 people. There is a reference to it because we needed to coordinate the surge capacity with the State Health Plan. The state keeps all that so when they trigger their things they know surge capacity of all our health care facilities, not just the hospitals but the nursing homes and that type of thing throughout the state.

> **Respondent 3**
> Most of our surge capacity planning is planning done at a state-wide level which will probably be common throughout most of the hospitals but in addition to that we do have plans for what to do with some beds and how we are going to use some of the rooms. There hasn't been a lot of talk

about it done as far as staffing. (...) We've worked really close with (...) and in the event of pandemic a surge because of pandemic they would take lead with our assistance.

**Respondent 4**
If we need additional medication, so on or so forth, the state would be notified on that. If we need additional materials, then other departments are notified on that. We would also notify the state health department and they would initiate their HAN network and if we have more victims or patients than what we can care for, then they would open up channels of communication to area hospitals such as (...) and say, "(...) hospital needs an extra 20 beds. Can you provide these?" Then transfers would occur from us to them or to other area hospitals depending on the situation at the time.

**Respondent 2**
We have the BT WAN system. All the hospitals are connected by what we call the Bioterrorism Wide Area Network. And it is also affiliated with the HAN, which is Health Access Network. It's through the North Dakota Department of Health and what they do is send out alerts to my email. The downfall of that is if they send out an email, if we are not there at the right time and don't respond back, we go on the website and say we've got the capacity of 4 now, we can take on another ten and that is what census and capability is at that given moment. That's one of the ways we can do it as well as utilizing the BT WAN where you can connect to any hospital in the state and then we can communicate that way. We'd have rooms that we could set up here in house. We would also have capabilities with the long-term care center, the clinic affiliated with us.

Respondent 2 was the only respondent to express doubt as to whether the state's surge capacity plan would work, noting that the state relies primarily on email to find each hospital's surge capacity at any given moment which could become problematic should there be problems with email, electricity, or a lack of personnel to respond to these inquiries during an emergency or disaster event. Respondent 2 also discussed doubt about whether larger hospitals within the state will be able to handle a surge of patients that smaller hospitals cannot handle. This respondent also emphasized the importance of keeping the smaller hospitals open during a disaster.

**Respondent 2**
Its rural healthcare and its scary. We're so far away from everybody so it's very important to realize that rural healthcare is very important. I would say other hospitals will be able to accommodate our surge. People out here are having heart attacks or having car accidents. Their stabilizing healthcare is half hour to an hour versus maybe driving two hours. They'll never make it if we are not here. Sometimes the officials do not understand the importance. They just think bigger is better and it's not.

The following responses answer questions about how the hospitals' disaster preparedness plans address the possibility for reduced personnel and if their plans address the possibility of partial facility use. According to the data, these factors are difficult, and sometimes not possible, to plan for. The respondents further explain, in the subsequent comments, the difficulties that come along with reduced personnel or partial facility use.

**Respondent 1**
When we look at the formula for surge capacity, (...) something has triggered the state level. They'll call facilities and ask what is your surge capacity right now? We know what it would be on an average day depending on whatever the incident is. If I don't have any staff or if the disaster is right within my facility, then my surge capacity could be zero. There is a reporting formula that we would do and that's how many people do we have available to take care of patients and for how many days could we sustain that level and those numbers get reported and coordinated through the county and state disaster information.

**Interviewer**
Does your plan address the possibility for partial facility use?

**Respondent 1**
Yes, if we only have staffing capacity to take care of five people then that's all we have.

**Interviewer**
So your plan says if we don't have the staff we will shut down.

**Respondent 1**
Correct.

**Respondent 3**
We talk about creative staffing. That's one of the things we are more concerned about. That's one of the things we'll continue to work on in that

area, is staffing. As far as the facility and how we can use space and beds and things like that we are sitting pretty well.

**Interviewer**
Does your plan address possibility for partial use of your facility?

**Respondent 3**
That couldn't be possible in our building. I would say if we couldn't use the facility we are in, we would need to look at something different. Just because of the way the building is built, it just is not likely here. We either have the whole building or none of the building.

**Respondent 4**
We do address it in very general terms but we don't have specific terms because it is difficult to come up with numbers or an actual plan as to what our staffing level might be at that particular time.

**Respondent 2**
Something we are struggling with is that our ambulance personnel are one of the few that are actually paid. A good portion of our ambulance service are employees of the hospital. There is a possibility of reduced personnel at your hospital. Are they going to be able to come in and actually do work or is there not going to be anyone to do any of the first responder work, because they are all going to be working in the hospital?

**Interviewer**
Does your plan address the possibility for partial facility use?

**Respondent 2**
Yeah, we would have the capability of taking our cots and setting up a mock station.

Respondents' comments about plans for reduced personnel are similar in that when the creative staffing option is no longer workable, each hospital studied will no longer be able to accept patients. Along with reduced personnel comes an inability to use the facilities, even on a partial basis. Although surge capacity planning is being completed at a statewide level, it can be concluded from the data that there are no current plans to keep the hospitals within the study open at a reduced staff level.

In summary, this chapter offered the study's findings in two sections; the general demographics of the hospitals and their respective cities and the patterns of variation within the themes. The themes illustrate the disaster preparedness plans of each hospital. Variations within the themes show the level of preparedness on an individual level within each hospital.

# CHAPTER 5. DISCUSSION AND SUMMARY

This chapter summarizes the findings of this study's research and discusses general theoretical observations. In this study, many issues were raised by respondents that shed new light on the topic of rural hospital disaster preparedness in North Dakota.

The results of this study show that there are many similarities between disaster preparedness plans within hospitals included in this study. However, even with these similarities, it clear that there are also many variations between these hospitals. These variations include how each hospital reviews and revises their disaster plan, how their disaster plan is activated, and when and how they train and exercise their plan. While there is no dispute, given the literature, that disaster preparedness holds a critical place in hospitals, it is something that is not easily measured based on written plans. Table 2 gives a summary to the study data, putting it in an easy-to-understand format.

**Table 2. Summary of Study Results**

| Respondent | Surge Capacity[1] | Liability Carrier[2] | Community Representation[3] | Plan Activation[4] | Train and Exercise Plan[5] | Memoranda of Understanding[6] | Review and Revise Plan[7] |
|---|---|---|---|---|---|---|---|
| 1 | Medium | No | Yes | High | Yes | Yes | Yes |
| 2 | Low | Yes | Yes | Medium | Yes | Yes | Yes |
| 3 | Medium | No | Yes | High | Yes | Yes | Yes |
| 4 | Medium | No | Yes | Medium | Yes | Yes | Yes |
| 5 | Medium | Yes | Yes | Low | No | Yes | Yes |



[1] - Respondents' reported perception of surge capacity ability within their hospital.
[2] - Respondents reported sharing disaster preparedness plans with liability carrier.
[3] - Respondents reported being involved in a community disaster preparedness committee.
[4] - Respondents' reported standardized plan activation within their specific hospital.
[5] - Respondents reported having a schedule for training and exercising their hospital's disaster preparedness plan.
[6] - Respondents reported having written and/or verbal memoranda of understanding.
[7] - Respondents reported having a schedule for reviewing and revising their plan.

The data show that several respondents were closely involved with their respective hospital's disaster preparedness plan. In turn, other respondents had not been as closely involved with the disaster planning. At times, the researcher felt as though some respondents were not concerned about the disaster preparedness plans, but rather felt that the plans themselves were merely a formality; something that needed to be done so their respective hospital could become accredited or to keep up with requirements from the state. Respondent 5's statement that all staff members are trained to activate the disaster plan is difficult to accept as true. The comment leads the researcher to believe that this respondent may not be as familiar with the hospital's plan as he or she should be.

This lack of concern could be attributed to the fact that each person interviewed had a different job title. It seemed that the more roles the person had within the facility, the more plan details they were able to provide about their hospital's disaster preparedness plans. As such, depending on who was interviewed, responses were long and detailed or quite short and to the point. The CEO's and administration tended to keep their information short and to the point. The respondents working directly with the plans gave longer more detailed explanations to the researcher's questions.

Dwight D. Eisenhower once said, "I have always found that plans are useless, but planning is indispensable" (Canton, 2007, p. 189). This statement can be directly tied to fundamental planning concepts within the field of emergency management. A plan and the act of planning are quite different. A plan is a physical document created to meet a requirement or need, used to measure the success of a program or as evidence of compliance with laws or regulations (Canton, 2007, p. 190). A written plan can, often

times, give the illusion of preparedness. This illusion can create a belief throughout an organization that it has the capability to deal with disasters.

According to the literature, documents that are not kept reasonably up-to-date, do not represent an organizational consensus, and are not used as the basis for training and exercises are of no use to the organization. These types of disaster preparedness plans are simply a description of the desired outcome during and after a disaster (Canton, 2007, pp. 196-197). Respondents 3 and 4 had very different views on disaster preparedness planning. Respondent 3 stated, "I don't think a plan is ever complete, it's a living document. Will it work for us today? If we can plan the disaster, yes. If we can't plan the disaster, the plan is just a guide." Respondent 4 explained his plan as follows, "We've always had a disaster preparedness plan. In fact, I've got the original one from 1957 and basically it is the same in 1957 as what it is today. It's expanded a lot more but it has the same key categories."

The difference between these two respondent's statements comes back to planning concepts within emergency management. Respondent 3 views his hospital's disaster preparedness plan not as a plan at all, but simply as an instruction manual for completing exercises and making adjustments. Often times, instruction manuals go unread or serve as a guide for an ideal situation. In a disaster, circumstances arise that have not been planned for.

The research findings on surge capacity were conclusive and simple. Each hospital within the study indicated that when their hospital no longer has sufficient staff or beds to accommodate additional patients, they will need to turn patients away, unable to meet the need. That has become not just part of many of the studied hospitals' plans,

but their only plan for surge capacity. The respondents interviewed explained that their respective hospitals plan to deal with the need as long as they can and when there is no longer sufficient staff available, they will no longer accept additional patients.

The importance of surge capacity planning seems to be going unnoticed within the hospitals studied. They are all a significant distance from a major healthcare provider, and because of that distance, end up serving quite a large population. The total absence of surge capacity planning within the sample population is alarming. Due to the rural nature of most North Dakota hospitals, it is unclear within the data as to why surge capacity planning is not deemed as essential. The emphasis for planning should not be on the type of hazard so much as the potential impact of the hazard (Canton, p. 133). The realization of the potential impact disasters could have, referred to by Canton, seems virtually non-existent when it comes to surge capacity-related planning.

Variation occurred in the data in regard to one respondent's comments on reviewing and revising their hospital's disaster preparedness plans. According to one of the respondents, after an exercise had been run, it did not result in an update of the disaster preparedness plan. While no disaster preparedness plan is going to be perfect, upon conclusion of an exercise, changes and improvements can and should be made. The respondent stated that there were notable problems with communication. Plans should be modified to deal with specific problems that arise during an exercise.

This comes back to the concept of risk perception. The literature (Kaji & Lewis, 2007; Bartley, Fisher, & Stella, 2007). points out that the point of conducting trainings and running exercises is to make changes to the disaster preparedness plans so that when a real disaster does occur, a facility and its workforce are better prepared. When no

changes are made, questions arise with regard to the preparedness plan itself and whether or not the plan addresses the hospital's risks.

Respondent 2 expressed concern over finding the manpower to complete disaster preparedness plans and problems that face rural hospitals. In reality, every hospital would like to be as prepared for a disaster as possible; however, becoming sufficiently prepared is difficult when funding and other obstacles stand in the way. The literature (Pricewaterhouse Coopers' Health Research Institute, 2007) shows that rural hospitals are a necessity and should be given precedence within disaster preparedness funding. Rural healthcare has reached a critical level within our country and are thought of as less of a priority than more densely populated areas.

According to the study, the importance of rural hospitals needs to be readdressed. These hospitals fill the void in between the larger hospitals throughout the state. Rural hospitals provide North Dakota citizens with the necessary care that they need. They are vital to the many rural areas of the state. When a disaster occurs, rural hospitals need to be just as prepared as the larger hospitals.

# CHAPTER 6. CONCLUSIONS

This chapter is organized into four separate sections. The first section discusses how the study's findings compare to the existing literature presented in the literature review. The second section assesses the importance of this research in today's emergency management field and the importance of it to hospitals nationwide. The third section looks at the study's limitations. The fourth and final section presents suggestions for future research.

## Findings Compared to Literature Review

Each of the themes, community coordination, surge capacity, misperceptions, and training, exercises and other resources, found in this study's literature review, could be identified within the responses of each hospital representative that was interviewed. While other themes were also addressed during the interviews, these themes from the literature review were key discussion topics for each respondent.

Community coordination was discussed in relation to having or, in the case of the majority of the hospital representatives interviewed, not having MOU. The significance of MOU did not seem to be an important issue for hospital representatives when it comes to disaster preparedness plans. Community coordination was also discussed during each interview as each hospital has staff members involved in a community/county organization that meets to discuss disaster preparedness and works together to become better prepared as a community. Community coordination, focused on in the literature review, was clearly seen throughout the interview data.

Surge capacity, another major point within the literature review, was a central line of questions asked during the interviews. The importance of surge capacity planning was

alluded to within the literature review. The fact that many hospitals in the study hardly address surge capacity at all in their disaster preparedness plans illustrates the fact that more funding is needed in order to accomplish disaster preparedness goals within the planning phase in many rural hospitals.

Misperceptions within hospital disaster preparedness planning were indirectly discussed within the interviews in regard to the surge capacity questions. Statewide surge capacity planning is being done in North Dakota through the North Dakota Health Alert Network. However, this statewide planning is leading hospitals to believe that the surge capacity planning is complete. It is possible that individual hospitals cannot afford to complete their own surge capacity planning, and for this reason, are leaving it up to the state. Misperceptions occur when hospital administrators believe that this amount of planning is enough.

Training, exercises and other resources, while discussed at length, had many variations between each respondent interviewed. Some hospital studied conduct trainings on an annual basis while others do not. Even when exercises and trainings take place, it does not necessarily result in a plan update. According to the results, exercises completed are often done in conjunction with various fire departments, ambulance services, schools, etc. because the other entities are conducting them.

## Significance of Study

As the research was being completed, it became apparent that this study was significant in several ways. First, realizing the disaster preparedness levels of rural hospitals in North Dakota is important. This study not only gives an idea of where other

rural hospitals around the state may be in regard to disaster preparedness plans, but also how important disaster preparedness is within rural hospitals.

Second, with this study's data as evidence, it is clear that more funding is needed in order for hospitals to become better prepared for the inevitable. It is possible that further steps may be taken by the hospitals with governmental entities to gain necessary funding to help create a more disaster-ready state of North Dakota. When funding is not seen as a top priority, it becomes necessary for hospitals to place the planning responsibilities on an employee who is already wearing multiple hats, resulting in many other job responsibilities as well. These multi-functional employees have become commonplace. However, this research clearly shows that it is not the most beneficial frame for disaster preparedness planning.

Finally, this research identifies the immediate importance of hospitals within rural regions, whether it is in North Dakota or any other rural area of the country. Hospitals need to be prepared for disasters, because it would be difficult for communities and their citizens to survive without them. Funding for disaster preparedness needs to become a priority.

While specific disaster preparedness funding was not part of this study, many of the respondents felt that funding was lacking when it comes to disaster preparedness in rural North Dakota hospitals. Perhaps it is difficult for government entities and hospital administration to fund ideas and projects that may never become a reality. However, this study brings to the forefront the importance of hospital disaster preparedness and how much hospitals are needed within rural communities.

## Study Limitations

There were several research limitations throughout this study. It utilized a non-probability sample involving hospitals in rural North Dakota towns; therefore it is not able to be generalized to different areas of the state or the country. Because of the study question and the type of sample itself, it was impossible to ensure that this study was a cross-section of hospitals.

Larger hospitals within larger communities in North Dakota were immediately eliminated as an appropriate hospital for this study. Hospitals with a closer proximity to larger metropolitan areas were not the primary focus of this study. Many hospitals within North Dakota were initially left out of the study based upon several factors including proximity to larger hospitals within North Dakota and travel time of the researcher. Also missing from study data are rural hospitals within other states. This type of data would be useful to compare North Dakota to other states that have a similar population.

Because face-to-face and telephone interviews both have the potential to provide the researcher with rich and in-depth data, face-to-face interviews were initially planned for, but could not be completed due to a harsh North Dakota winter. For this reason, telephone interviews were completed and recorded. This resulted in another limitation to the study; interviews completed over the phone may have contributed to less detailed information.

There were several additional limitations including the fact that negative information within the hospital's disaster preparedness plans may have gone undisclosed for fear of the researcher realizing that the hospital is not sufficiently prepared for a disaster. Many times, the respondents interviewed were the people directly responsible

for the disaster preparedness plans. They may have neglected to discuss significant flaws within their plan. These reasons may have resulted in skewed or incomplete data.

## Suggestions for Future Research

This study looked at several themes both in the research literature and through the research itself relating to disaster preparedness planning rural North Dakota hospitals. A suggestion for future research would be to include rural hospitals in bordering states. Significant value could be found in knowing how surrounding state's hospitals compare to North Dakota's rural hospitals. A comparison study could be used to make the case for additional funding that is needed. A more specific survey instrument could be used to gather more in-depth data that followed the themes found within the literature review as well as the additional themes that came out in the data. Also, research in the area of surge capacity could and should be done to find out why more specific planning is not done within each hospital.

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## APPENDIX A. INTERVIEW GUIDE

First of all, thank you very much for meeting with me today. I have approximately ten questions about disaster preparedness planning. Unless you have some questions for me, let's get started.

1. **First, could you share with me your specific position title or titles in this facility?**

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2. **Now, let's talk about your most recent disaster preparedness plan? Could you tell me about how the planning process unfolded?**

   Prompting questions:

   [ ] How long did it take?

   [ ] Who was involved?

   [ ] Was it difficult to complete?

   [ ] Do you have an emergency management coordinator in a stand-alone position or is there a specific person who works with the plan?

3. **Tell me about your schedule and procedure for reviewing/revising your overall disaster preparedness plan?**

   Prompting questions:

   [ ] How often is it reviewed and/or revised?

4. **Do you have any memoranda of understanding (MOU) established as a part of your plan?**

   Prompting questions:

   [ ] With whom do you have memoranda of understanding (MOUs)?

5. **What is the process by which you would go about activating the plan in a real disaster?**

   Prompting questions:

   [ ] Who activates the plan?

   [ ] Is there a backup plan for activation if that person is injured or unable to activate it?

   [ ] How many additional people who are trained to activate the plan?

   [ ] Are these people identified by position or name in the plan?

6. **Does your plan account for how weather might complicate your disaster response?**

   Prompting questions:

   [ ] Does your plan address a blizzard that shuts down travel?

   [ ] Does your plan address a tornado warning in the middle of a flood?

   [ ] Does your plan address the possibility of a shelter-in-place warning?

   [ ] Are there any other natural or manmade disasters included in the plan?

7. **Is your hospital's plan an all-hazards plan?**

   Prompting questions:

   [ ] What types of specific hazards does your plan address?

   [ ] Do you feel that there are certain hazards that are absent from your plan that should be included?

   [ ] What are those hazards?

8. **Do you train and exercise in regard to your plan?**

Prompting questions:

[ ] When was the last time you conducted an exercise of your plan?

[ ] Did your exercise result in an update of your plan?

[ ] Are your trainings/exercises a collaborative effort with other agencies in your community?

[ ] What other agencies are involved?

[ ] How often do you conduct these trainings/exercises?

9. **Has your liability carrier inquired about your disaster preparedness plan?**

Prompting questions:

[ ] Have they required anything of you in terms of a plan, training or exercises?

[ ] Does your hospital receive a rate reduction based on your level of preparedness?

[ ] How do they determine your level of preparedness?

10. **Does your hospital have a representative participating on a local or county disaster planning committee?**

Prompting questions:

[ ] What other organizations or businesses are involved?

11. **As part of your overall disaster preparedness plan, do you have a specific reference to surge capacity and how is it planned for?** Surge capacity is defined as "the ability to expand care capabilities in response to prolonged demand."

    "Surge capacity encompasses potential patient beds; available space in which patients may be triaged, managed, vaccinated, decontaminated, or simply located; available personnel of all types; necessary medications, supplies and equipment; and even the legal capacity to deliver health care under situations which exceed authorized capacity" (Health Care at the Crossroads: Strategies for Creating and Sustaining Community-wide Emergency Preparedness Strategies. 2003).

    Prompting questions:

    [ ] Is there a written section on surge capacity in your hospital's plan?

    [ ] Does your plan address the possibility for reduced personnel?

    [ ] Does your plan address the possibility for partial facility use?

    [ ] Do your MOUs fit into the surge capacity section of your disaster preparedness plan?

**If necessary, I may need to re-contact you by phone or email to answer additional follow-up questions. Would that be all right with you?**

I want to thank you for taking part in this study.

## APPENDIX B. STUDY RECRUITMENT MATERIALS

Dear _____:

I am writing you to invite you to participate in a graduate research rural hospital disaster preparedness study done by Melissa Walter, a graduate student at NDSU. The results of her research will add to the fields ongoing all hazard preparedness planning efforts.

A key component of Melissa's study includes interviews with persons actively engaged in rural hospital disaster preparedness planning. After discussions with Melissa about her research goals, I developed a list of rural hospitals which I thought best addressed her research objectives. From this list Melissa has chosen seven North Dakota rural hospitals to invite to participate in her research design. Your hospital is one of the seven she has selected. The purpose of this letter is to encourage your participation in this research, all-the-while knowing your choosing to participate is completely voluntary.

It is my hope that Melissa's project will be a success. However, this outcome is directly related to the richness of information you can provide to guide her in her analysis.

If you should wish any further information about this endorsement, please do not hesitate to contact me. Thank you for your consideration in this matter.

Sincerely,

Arnold R. Thomas
President

NDSU NORTH DAKOTA STATE UNIVERSITY

*Department of Sociology, Anthropology, and Emergency Management*
*P.O. Box 5075*
*Fargo, ND 58105-5075*

*701.231.8657*
*Fax 701.231.1047*
*NDSU.Soc.Anth@ndsu.edu*
*www.ndsu.edu/socanth*

Dear Hospital Emergency Manager/Safety Manager,

My name is Melissa Walter. I am a student in the emergency management program at North Dakota State University in Fargo, ND. I'm writing to invite you to participate in my graduate research study. The study focuses on rural hospital disaster preparedness in North Dakota.

I will be conducting interviews with seven rural hospitals within the state of North Dakota. I am interested in gathering information that not only looks at the steps that rural North Dakota hospitals have taken, but also what they have planned for in terms of surge capacity, plans for activating the plan, and training for implementation of the plan.

Your hospital has been chosen based on recommendations that Arnold Thomas, President of the North Dakota Hospital Association, has made. I will be contacting you within the next two weeks to set up an interview time that is most convenient for you.

Based on your job title, you may be identifiable within my research; however, your name will never be mentioned. Please know that all of the contact information you provide will be kept confidential.

Remember, this is completely voluntary. If you have any questions about the study, please contact me at:
**E-mail:** melissa.walter@ndsu.edu
**Phone:** (320) 359-0203

Your input is vital to the success of this study. Thank you very much for your consideration and assistance.

Sincerely,

Melissa Walter
Graduate Student, Department of Sociology, Anthropology, and Emergency Management
North Dakota State University

# APPENDIX C. IRB APPROVAL

NDSU NORTH DAKOTA STATE UNIVERSITY

Office of the Vice President for Research, Creative Activities and Technology Transfer
1735 NDSU Research Park Drive
Dept. 4000
Fargo, ND 58102-4689

December 30, 2008

Dr. Daniel Kiecolt
Department of Sociology, Anthropology & Emergency Management
402 Minard Hall

IRB Expedited Review of: "Hospital Disaster Preparedness in North Dakota", Protocol #IIS09117
Co-investigator(s) and research team: Melissa Walter

Research site(s): various rural hospitals Funding: n/a

The protocol referenced above was reviewed under the expedited review process (category # 7) on 12/12/08, and the IRB voted for: ☐ approval ☒ approval, contingent on minor modifications. These modifications have now been accepted.

**Approval expires: 12/11/2009 Continuing Review Report Due: 11/1/2009**

**Please note your responsibilities in this research:**

- All changes to the protocol require approval from the IRB prior to implementation, unless the change is necessary to eliminate apparent immediate hazard to participants. Submit proposed changes using the *Protocol Amendment Request Form*.
- All research-related injuries, adverse events, or other unanticipated problems involving risks to participants or others must be reported in writing to the IRB Office within 72 hours of knowledge of the occurrence. All significant new findings that may affect risks to participation should be reported in writing to subjects and the IRB.
- If the project will continue beyond the approval period, a continuing review report must be submitted by the due date indicated above in order to allow time for IRB review and approval prior to the expiration date. The IRB Office will typically send a reminder letter approximately one month before the report due date; however, timely submission of the report is your responsibility. Should IRB approval for the project lapse, recruitment of subjects and data collection must stop.
- When the project is complete, a final project report is required so that IRB records can be inactivated. Federal regulations require that IRB records on a protocol be retained for three years following project completion. Both the continuing review report and the final report should be submitted according to instructions on the *Continuing Review/Completion Report Form*.
- Research records may be subject to a random or directed audit at any time to verify compliance with IRB regulations.

Thank you for cooperating with NDSU IRB policies, and best wishes for a successful study.

Sincerely,

Teri Grosz, MS, CIP
IRB Director