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THESIS

THE PERFECT MODEL FOR THE PERFECT STORM: CREATING AN EFFECTIVE STATE TO GRASSROOTS COMPREHENSIVE PUBLIC HEALTH AND MEDICAL STRATEGIC COMMUNICATION MODEL

by

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December 2013

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13. ABSTRACT (maximum 200 words)

Every emergency situation presents unique challenges. It is absolutely essential to have a good grasp on the specific situation to be able to make the best decisions possible for public health response and mitigation. Clear situational awareness can mean the difference between life and death, which allows all partners to collect information, collaborate, and communicate prior to making critical decisions during an emergency and applies to all stakeholders, whether at the state, regional, or local levels. Ultimately, the communication between those who have information and those who need the information must be shared; to be most effective, the information must be timely, accurate and credible.

This thesis describes the development of a strategic communications model for Emergency Support Function-8 (ESF-8) public health and medical partners from the state to comprehensive grassroots level in Mississippi (MS). The development of the MS ESF-8 Healthcare Coalition (MEHC) single model allows for information sharing across the entire medical enterprise in MS, including both public and private entities. Through case studies, events, an exercise, and workshops, the MEHC model was developed and a common operating picture was realized. This thesis filled a needed gap and will ultimately help to save lives.

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THE PERFECT MODEL FOR THE PERFECT STORM: CREATING AN EFFECTIVE STATE TO GRASSROOTS COMPREHENSIVE PUBLIC HEALTH AND MEDICAL STRATEGIC COMMUNICATION MODEL

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This thesis describes the development of a strategic communications model for Emergency Support Function-8 (ESF-8) public health and medical partners from the state to comprehensive grassroots level in Mississippi (MS). The development of the MS ESF-8 Healthcare Coalition (MEHC) single model allows for information sharing across the entire medical enterprise in MS, including both public and private entities. Through case studies, events, an exercise, and workshops, the MEHC model was developed and a common operating picture was realized. This thesis filled a needed gap and will ultimately help to save lives.

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LIST OF ACRONYMS AND ABBREVIATIONS

AAR	After Action Report
ALFA	Assisted Living Facilities Association
ASPR	Assistant Secretary For Preparedness And Response
CAP	Corrective Action Plan
CDC	Centers for Disease Control and Prevention
CEMP	Comprehensive Emergency Management Plan
COOP	Continuity of Operations Plan
DoD	Department of Defense
ESF-8	Emergency Support Function-8
EMA	Emergency Management Agency
EMS	Emergency Medical System
EOP	Emergency Operations Plan
FEMA	Federal Emergency Management Agency
GAO	Government Accountability Office
HPP	Hospital Preparedness Program
HSEEP	Homeland Security Exercise and Evaluation Program
INHA	Independent Nursing Home Association
IAP	Improvement Action Plan
LMHPCO	La-MS Hospice & Palliative Care Organization
MEHC	Mississippi ESF-8 Healthcare Coalition
MEMA	Mississippi Emergency Management Agency
MHA	Mississippi Hospital Association
MOH	Ministry of Health
MS	Mississippi
MSDH	Mississippi State Department of Health
MSHCA	Mississippi Healthcare Association
NYDOHMH	New York Department of Health and Mental Health
PEOC	Presidential Emergency Operations Center
PHCC	Public Health Command/Coordination Center
PHEP	Public Health Emergency Preparedness

SEOC	State Emergency Operations Center
SMARTT	State Medical Asset Resource Tracking Tool
TCL	Target Capabilities List
TN	Tennessee
UMMC	University of Mississippi Medical Center
VFC	Vaccine for Children
VIPR	Volunteers in Preparedness Registry
WHO	World Health Organization

EXECUTIVE SUMMARY

How can Mississippi make its Emergency Support Function 8 (ESF-8)-based strategic communications plan more effective and resilient so that it provides accurate, comprehensive, and timely information to peripheral actors in the state's healthcare community?

Every emergency situation presents unique challenges. Therefore, it is absolutely essential to have a good grasp on the specific situation to be able to make the best decisions possible for response and mitigation. Clear situational awareness can even mean the difference in life and death. Thus, situational awareness will allow all partners to collect information, collaborate, and communicate prior to making these critical decisions during an emergency event and applies to all stakeholders, whether at the state, regional, or local levels. Ultimately, the communication between those who have information and those who need the information must be shared timely, with accuracy and credibility of the information playing a key role in the effectiveness of its use.

DEVELOPING A MODEL

This thesis reviews the model development of ESF-8 public health and medical partners from the state level to the comprehensive grassroots level in Mississippi (MS). The development of the Mississippi ESF-8 Healthcare Coalition (MEHC) single model allows for information sharing within the entire medical enterprise in MS, including both public and private entities. Through case studies, events, an exercise, and workshops, the MEHC model was developed and a common operating picture was realized.

As the leads for ESF-8 in Mississippi (MS), the MS State Department of Health (MSDH), along with the University of Mississippi Medical Center (UMMC), have a great responsibility to the ESF-8 partners in MS to provide event situational awareness to all stakeholders. Understanding that all events are local, in order for key decisions to be made appropriately, the latest information is needed by the comprehensive partnership of the local public health and medical stakeholders. Also, it is just as important that the state

level partners have the information from the locals to make key decisions overall for the healthcare of the state.

NEED FOR A COMPREHENSIVE VIEW

During the spring of 2011, the MSDH was poised to respond to the flooding of the MS River along the western border of the state. If the levees were breeched, 14 counties could potentially see widespread flooding. The governor of MS asked what the medical picture of the state would look like if massive flooding occurred in all counties. It became apparent that, while clear conduits to reach the larger medical community, such as hospitals, were available, a current means to reach the comprehensive public health and medical community readily to compile the big picture for the entire state was not. Immediate work was started to determine what the comprehensive picture would look like, and from this event, arose a validation of a need for a comprehensive ESF-8 public health and medical strategic communication model.

STATEWIDE PARTNERS NEEDED

Who should be considered partners in ESF-8 in Mississippi? According to the Mississippi governor's Comprehensive Emergency Management Plan (CEMP), ESF-8 is the emergency support function for public health and medical services. It provides the mechanism for coordinated federal assistance to supplement state, tribal, and local resources in response to a public health and medical disaster, potential or actual incidents requiring a coordinated federal response, and/or during a developing potential health and medical emergency. Within this ESF-8 plan, a defined list of potential ESF-8 players includes more than just hospitals and emergency medical systems (EMSs). Some examples of other potential partners include dialysis specialists, pharmacists, dentists, and the military. It is unclear however, for example, whether dialysis clinics can receive information from public health agencies during a crisis. Moreover, if they cannot receive accurate, timely, and useful information, they may be at risk of being unable to provide their patients with the proper treatments or could even risk transmitting disease, and thus, become a part of the disease vector.

STRATEGIC COMMUNICATIONS MODEL NEEDED

Although multiple partners are listed in the CEMP, clear communication pathways are lacking that allow critical public health and medical information to be provided to the comprehensive public health and medical community. To ensure a comprehensive ESF-8 state level healthcare coalition exists, a defined group of partners is needed that is larger than a traditional hospital and an EMS. Each group represented needs to understand what it can bring to the table for emergency planning and response to respond better as a state during an emergency. Through the research and model development, MS will make its ESF-8 based strategic communications plan more effective and resilient so that it provides accurate, comprehensive, and timely information to peripheral actors in the state's healthcare community.

This thesis developed a communication model currently being implemented in Mississippi.

All signs seem to indicate that a marked improvement in the strategic communication will occur within the comprehensive ESF-8 community of the state. More ESF-8 partners and their supporting partnerships of ESF-8 from other emergency support function areas are taking their seat at the table more than ever have before. As a result, it is felt that the outcomes to healthcare during any emergency event will be improved and the informed decisions that the ESF-8 community can make with ESF-8 situational awareness will ultimately improve health and save lives.

Value Proposition—Many will ask what the value is of a comprehensive ESF-8 state to grassroots communications model. It can then be determined within the current information sharing structure of ESF-8 what needs to be eliminated, reduced, raised, and created as follows.

- Eliminate
    - Gaps in communication for collaborative ESF-8 partnership
    - Multiple models and lists of ESF-8 partners

- Raise
    - Value of information shared in terms of usefulness, accuracy, timeliness
- Reduce
    - Risk of miscommunication
    - Lack of communication
    - Inability to contact all ESF-8 partnership
- Create
    - Timeliness of information
    - Transparency of information
    - Accuracy of information
    - Trust of ESF-8 leadership

The combination of these changes creates the innovation pathways of communication. The following list includes the dimensions of these pathways: organizational, human, technical, and political, etc. With the creation of the timeliness of information, the transparency of information, and the accuracy of information, it will be a natural result to increase the trust of ESF-8 leadership. These four created outcomes will increase the value of the coordination of communication within the MS ESF-8 network.

While value might be thought of in terms of dollars used and saved, value is also measured by the overall impact something has on current policy. The state of Mississippi has 1% of the total population of the United States of America. Therefore, it receives approximately 1% of the total award of the PHEP/HPP grant dollars. As the economic crisis in this country continues to drive a decrease in funding for grant opportunities, it remains critical to ensure that the value of this communication modeling strategy is cost benefit effective.

Value can also be related to increased performance. In the response phase of a disaster, the timeliness of information can mean the difference in life and death. This system is expected to provide factual information, consistently, in a timely fashion, and correctly, so that decisions can be made that may ultimately prevent morbidity and

mortality whether associated with a disease outbreak or incident of man-made cause. This transparency will also automatically lead to greater trust of leadership, which helps to drive more positive opportunity for refinement of planning and response processes. Ultimately, the value is a more prepared comprehensive medical community.

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I would first like to thank my husband, Jeff. You have more than once sacrificed so that I could continue my education, and together, we have reached another milestone.

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I wish to thank my extended family, friends, and church family for your support over the last several months. You, too, sacrificed so that I could be allowed this educational opportunity.

To my co-workers at the MS State Department of Health, you are my heroes! Your commitment to the citizens of Mississippi and this country in the name of public health emergency preparedness are humbling to me, and I only desire to help you carry the load.

I want to thank my advisor, Anke Richter, and second reader, Lauren Fernandez, for your incredible guidance. Finally, I would like to thank my friends and colleagues in Cohorts 1203 and 1204. I am truly amazed by your sharp minds and commitment to the greater good. The things that I take away from each of you through this educational experience will make me a better person and emergency preparedness nurse in the years to come. Together, we will all go forth to seek and do great things.

"Be strong and courageous. Do not be afraid or terrified because of them, for the Lord your God goes with you; He will never leave you nor forsake you."

—Deuteronomy 31:6

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I. INTRODUCTION

If you want to go quickly, go alone.
If you want to go far, go together.
—African proverb

A. BACKGROUND

Every emergency situation presents unique challenges. Therefore, it is absolutely essential to have a good grasp on the specific situation to be able to make the best decisions possible for response and mitigation. Clear situational awareness can even mean the difference in life and death, especially in the medical community. Ultimately, the communication between those who have information and those who need the information must be shared in a timely fashion. Accuracy and credibility of the information will also play a key role in the effectiveness of its use.

As the leads for Emergency Support Function-8 (ESF-8) in Mississippi (MS), the MS State Department of Health (MSDH), along with the University of MS Medical Center (UMMC), have a great responsibility to the ESF-8 partners in MS to provide event situational awareness to all stakeholders. Understanding that all events are local, in key decisions to be made appropriately, the latest information is needed by the comprehensive partnership of the local public health and medical stakeholders. Also, it is just as important that the state level partners have the information from the locals to make key decisions overall for the healthcare of the state. Situational awareness will allow all players and partners to collect information, collaborate, and communicate prior to making these critical decisions during emergency events. In order to have clear situational awareness, strategic communications from the state level to the grassroots level must occur in a timely fashion. How can the accurate relay of information occur in a timely manner by a trusted source? What would an ESF-8 strategic communication model look like from the state level to the grassroots level? How would strategic information be communicated? What type of information would even need to be collected?

To have a better understanding of what these answers might look like, from the lenses of the local and the state players, it is useful to consider a scenario from each lens. An impending hurricane is about to hit the coast of Mississippi. Why does a local pharmacist in the northern part of the state need to know what is happening to pharmacies along the coastline and other parts of the state? As citizens shift during evacuations, their healthcare and pharmaceutical needs could also shift with them. In addition, if citizens stay in the coastal area, but pharmacies are not operational, the supply chain could be affected and the need for pharmaceuticals could possibly be met by other pharmacies in other parts of the state. Why would the state level partners need to know what is happening in a private business, such as a pharmacy? The state level could be the coordinator of information to provide overall situational awareness to further coordinate the public health and medical needs of the citizens of the state.

Currently, multiple communication models and databases affect the public health and medical community and allow for information sharing and strategic communication during an emergency response. The Health Alert Network is communication tool utilized at the federal and state level to distribute critical emergency medical information. In MS, it is a means to communicate public health crisis information to the public health and medical community but is not necessarily used for every emergency response to share situational awareness. This voluntary database has been most useful to inform the medical stakeholders of crisis information related to disease outbreaks and the like. Another database is the volunteer databases for medical and non-medical personnel in all states. For Mississippi, the Volunteers in Preparedness Registry (VIPR) is a volunteer database used to inform potential healthcare responders of information related to trainings, activations, etc. Additionally, the MS public health districts have ESF-8 databases of contacts that have been built over the years from relationship development in their specific regions. None of these volunteer databases is comprehensive in nature. The State Medical Asset Resource Tracking Tool (SMARTT) is a communication tool utilized with the MS hospitals and a few other medical entities to collect “hav-bed” (the number of available beds) and clinician availability information daily. While this system is required within the hospital realm, it is not comprehensive to all other medical

institutions. Ultimately, no one model reaches that comprehensive public health and medical community to share accurate and timely information during an event. In Mississippi, the leadership has established that it is important for all partners to have situational awareness so that potential life-saving decisions can be based upon current and accurate information.

B. RESEARCH QUESTION

How can Mississippi make its ESF-8-based strategic communications plan more effective and resilient so that it provides accurate, comprehensive, and timely information to peripheral actors in the state's healthcare community?

C. PROBLEM

Public health has a very important role to play in homeland security. Within the Department of Homeland Security, it is even considered a level three tiered critical infrastructure component of the United States.[1] The problem is that no strategic communication plan exists in Mississippi for the comprehensive healthcare community (from the local pharmacists to large hospitals) to receive ESF-8 related and other types of communication from state public health authorities. Conversely, the state public health authorities do not have a clear strategy for obtaining information from the grassroots level in a timely manner. The Mississippi River Flood Event of 2011 validated this claim that state health authorities had limited access to the larger health and medical community.

During the spring of 2011, the MSDH was poised to respond to the flooding of the Mississippi River along the western border of the state. If the levees were breeched, 14 counties could potentially see widespread flooding. The governor of Mississippi requested to know what the medical picture of the state would look like if massive flooding occurred in all counties. It became apparent that while clear conduits were available to reach the larger medical community, such as hospitals, a current means to

[1] Department of Homeland Security, Healthcare and Public Health Sector, "Sector Overview," (n.d.), http://www.dhs.gov/healthcare-and-public-health-sector.

reach the comprehensive public health and medical community readily to determine that message for the governor was not. Immediate work was started to determine what the comprehensive picture would look like, and from this event, arose a validation of a need for a comprehensive ESF-8 public health and medical strategic communication model.

Who should be considered partners in ESF-8 in Mississippi? According to the Mississippi Governor's Comprehensive Emergency Management Plan (CEMP), ESF-8 is the emergency support function for public health and medical services. It provides the mechanism for coordinated federal assistance to supplement state, tribal, and local resources in response to a public health and medical disaster, potential or actual incidents requiring a coordinated federal response, and/or during a developing potential health and medical emergency. Within this ESF-8 plan, a defined list of potential ESF-8 players includes more than just hospitals and emergency medical systems (EMSs). Some examples of other potential partners include dialysis specialists, pharmacists, dentists, and the military. It is unclear however, for example, whether dialysis clinics can receive information from public health agencies during a crisis. Moreover, if they cannot receive accurate, timely, and useful information, they may be at risk of being unable to provide their patients with the proper treatments or could even risk transmitting disease, and thus, become a part of the disease vector.

Although multiple partners are listed in the CEMP, clear communication pathways are lacking that allow critical public health and medical information to be provided to the comprehensive public health and medical community. To ensure that a comprehensive ESF-8 state level healthcare coalition exists, there a defined group of partners is needed that is larger than a traditional hospital and an EMS. Each group represented needs to understand what it can bring to the table for emergency planning and response to respond better as a state during an emergency. Federal guidance and planning recommends healthcare coalitions as a means of support and resource allocation during disasters. Before a comprehensive strategic communications plan can be better defined, the "what," "who" and "why" must be determined.

1. Local Conduits for ESF-8

Mississippi, like most other states, has an emergency manager at the county level in all of its 82 counties. This county structure mimics the state structure with 16 different ESFs to include ESF-8 as the public health and medical group.[2] The MSDH has regional teams of emergency preparedness personnel in all its nine public health regions that are the conduit to the county ESF-8 partners. (See Figure 1-MS Public Health Regions) These nine healthcare coalitions are primary to the overall emergency planning and response efforts in the state of Mississippi. The regions continue to build the relationships to support a comprehensive ESF-8 healthcare coalition and ESF-8 databases are continually evolving. Often times, an organization, such as the MS Board of Medical Licensure, will have a comprehensive list of medical physicians to which local or regional emergency preparedness teams do not have access. This state level organization can then be a conduit to information sharing during a disaster event.

[2] Mississippi Emergency Management Agency, "Mississippi Emergency Support Function #8—Public Health and Medical Services Annex," (n.d.), http://www.msema.org/wp-content/uploads/2012/07/ESF8 PublicHealthandMedicalServices.pdf.

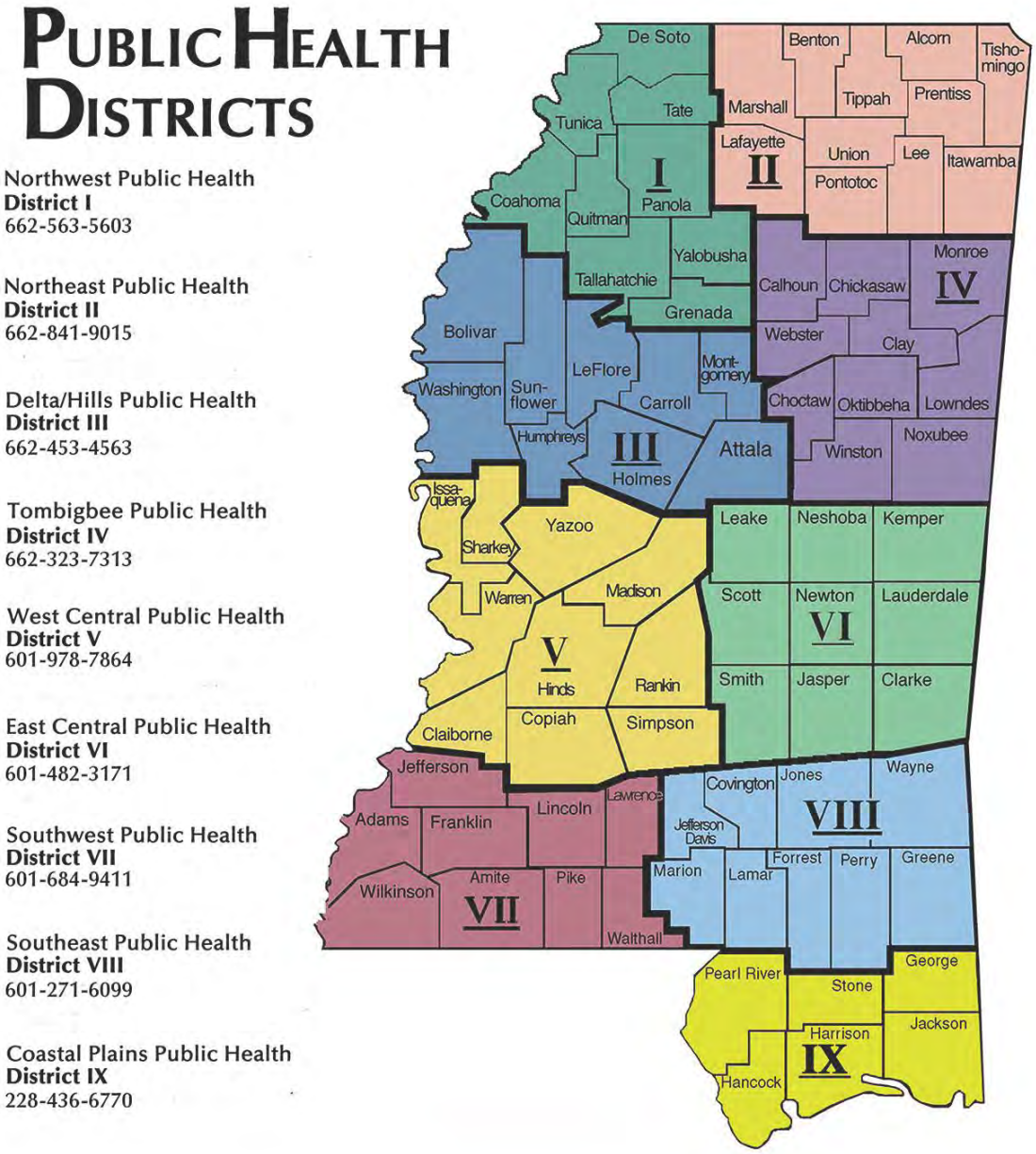

Figure 1. MS Public Health Districts[3]

[3] Mississippi State Department of Health, "MSDH Public Health Districts Map," (n.d.), http://msdh.ms.gov/msdhsite/_static/resources/3468.pdf.

2. Why Is Communication Important?

Communication has always been the primary issue that precludes an organized and smart practices response. Multiple after action reports (AARs) list communication as the first capability of a corrective action plan (CAP) to garner the most impact for a more improved response. As hard as responders try to close this gap, "there continues to be a reflection of a needed and necessary improvement where communication is concerned."[4] As was learned during the Mississippi River Flood Event of 2011, to communicate up from the grassroots level to the governor effectively, a clear communication pathway is needed. Likewise, as those pathways were determined, the return of information could more readily flow from the governor down to the grassroots level in the form of daily situational awareness reports. A comprehensive state-wide healthcare communication strategy needs to be able to address such issues as the current situational status of varied entities to include factors, such as power outages, operational state of facility, and any access to care issues.

3. What Does "Comprehensive ESF-8" Mean?

A comprehensive ESF-8 group would reflect an entire representation of the potential primary and support entities of the public health and medical community whether at the local, regional, or state level. It is natural to think about hospitals and long-term care facilities when thinking about ESF-8. Multiple other partners are often overlooked in the ESF-8 picture, such as pharmacists, dentists, doctors, nurses, veterinarians, morticians, mental health providers, dialysis partners, and so forth. These groups have a piece to the puzzle that will complete the ESF-8 picture. During the Mississippi River Flood event of 2011, the comprehensive ESF-8 picture included any potential medical person or clinic, as well as anyone affiliated with a support role under the MS CEMP ESF-8 support role plan.[5]

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[4] Jim Craig, MS State Department of Health, Director of Health Protection, May 2011.

[5] Mississippi Emergency Management Agency, "Mississippi Emergency Support Function #8—Public Health and Medical Services Annex."

4. Potential Consequence

Lack of a strategic communication plan or model in Mississippi for the comprehensive healthcare community (from the local pharmacists to large hospitals) is potentially preventing the entire healthcare picture from being drawn upon in an emergency event. This potential consequence could ultimately cost the lives of Mississippians during the perfect storm or it could be improved with the development of a comprehensive strategic communication model.

D. METHOD

How can Mississippi make its ESF-8 based strategic communications plan more effective and resilient so that it provides accurate, comprehensive, and timely information to more peripheral actors in the state's healthcare community? To answer this question, multiple analysis steps were used for this thesis.

As the Chief Nurse of the Office of Emergency Preparedness and Response, the author has had the opportunity to work very closely with this project in the development and implementation stages, as well as do the research associated with this thesis.

The literature review was used to determine the current strategic communication models that might be available in the United States, as well as in other countries. It was also used to determine smart practices associated with strategic communication in various professions. Ultimately, the literature review provides the baseline of current information available related to the topics that can help answer the ESF-8 strategic communication question for Mississippi.

In Chapter III, the author researched and reported on a study of the healthcare communication lessons learned from the SARS outbreak of 2003. While many negative communication lessons were learned from China, Singapore communicated with its healthcare community in a very different manner with some positive outcomes. The negative implications that centered on China and the universal disease outbreak during which healthcare communication strategies were not successfully utilized provide lessons that can be applied when developing healthcare communication models.

Chapter IV provides a case study of three different areas as they relate to coordination of strategic communication. Fire and law enforcement were chosen due to their historical progression of their coordination of communication strategies within each of their own disciplines. Since they have existed for years in the United States, have formalized practices and models, and traditionally reach to the grassroots level across the country, it was felt that these groups were worth researching for an ESF-8 model.

By evaluating lessons already learned within Mississippi and the country at large, answers to the research question can begin to be formulated. Chapter V centers on a real-world event, a full scale exercise, and a national workshop. It was during the Hattiesburg Tornado of January 2013 that the MSDH continued to refine the strategic communication process. During the full-scale exercise the following month, MSDH conducted a two-question survey to determine the effectiveness and use of the ESF-8 strategic communication process during the Hattiesburg Tornado. Several months later, a workshop was held at the Center for Disease Control and Prevention in Atlanta, GA in June 2013 that addressed discussions centering on methods of quick communication for contact availability to medical partners These findings guided the next chapter.

To build a model for Mississippi that includes the comprehensive public health and medical community, the MS strategic communication partners must be defined. Information gathered by MSDH from a December 5, 2012 meeting of the Mississippi ESF-8 Healthcare Coalition (MEHC) partnership was reviewed and analyzed to determine who should be a member of the MEHC Communication model. MSDH sponsored this meeting and convened to bring the representation of each of these affected entities together to discuss the formalization of a state-level healthcare coalition. During this meeting, two primary activities occurred that were used for the purposes of this thesis.

- A four-question survey was issued to determine if a need existed for formalization and communication strategies.
- A discussion was held by the at-large body to determine if any potential partnerships were lacking. As a result, additional groups were added.

This chapter culminates with a table of current and potential partners. While some partners are included because of the general resources that they can provide to the overall public health and medical community, many were identified because of their general vulnerabilities.

Chapter VII is the actual model development for the state of Mississippi. This development is a culmination of work from the previous chapters. It reflects a state to grassroots level ESF-8 strategic communications pathway that can be used for information gathering and sharing in a timely manner.

The final results of this thesis provide a model that reflects the communication pathways from the governor of Mississippi to state public health, and then finally, to the grassroots level of medical partners. The intended reader will be able to use this thesis to apply the same model for a strategic communications model from state public health to the grassroots level that is comprehensive to the medical family and their support partners.

II. LITERATURE REVIEW

> *"Information is a source of learning. But unless it is organized, processed, and available to the right people in a format for decision making, it is a burden, not a benefit*."[6]
>
> —C. William Pollard,
> former CEO of The ServiceMaster Co.

A. LITERATURE SORTING

Much attention has been given to the value of communication in general emergency preparedness and response over the years. While the literature does not indicate a current comprehensive ESF-8 state to grassroots level strategic communication model, several topic areas in the literature could assist in the development of such a model. A broad sweep of the literature was done, and then to narrow the literature, it was determined to focus primarily on the various areas as they related to health and healthcare. Also, while the research dated after January 1, 2007, narrowed the amount of information, it also added a more relevant context to the vision and knowledge of a MS strategic communication plan for the ESF-8 community. This date was chosen randomly but would then give an approximate six-year range of literature. With this more narrowed literature review focus, a picture of the current state of knowledge and the accomplishments of strategic communication to healthcare was determined. Thus, an advancement of the vision and knowledge of what would and would not work as a communication strategy was determined.

To gain knowledge regarding the topic of healthcare strategic communication organization, several different topic areas were researched. The topic areas are strategic communication, interagency coordination and communication, healthcare coalitions, strategic communication systems, and meta-leadership. These areas were researched with a vision of the chapter layouts of the thesis. First, strategic communication and its systems were explored through case studies surrounding fire and law enforcement at the

[6] BrainyQuote, "William Pollard Quotes," (n.d.), http://www.brainyquote.com/quotes/authors/w/william_pollard.html.

local and rural levels. Second, the literature included a study of lessons learned from SARS regarding interagency coordination and communication that provided much useful information. Interagency coordination was also further explored through a study of current exercises and real-life events. While a review of the literature found healthcare coalitions to be a topic of interest to the current public health emergency preparedness time frame, it was also an area that reflected very current research information. The final topic of research interest was meta-leadership. Although very limited information was available, the research found this concept to be notable as a growing trend to support the model being developed. The issues surrounding strategic communication and information sharing within the ESF-8 community and beyond have cascading implications that could compromise the general healthcare for the citizens of Mississippi. Therefore, this literature review explores five aspects of this complex matter: (1) strategic communications, (2) interagency coordination and communication, (3) healthcare coalitions, (4) strategic communication systems, and (5) meta-leadership.

B. STRATEGIC COMMUNICATION/S

The researched literature for strategic communication comes from multiple sources, such as journals, military studies, scholarly papers, theses, government emergency preparedness plans, and other academic papers. Policy and strategy documents were also beneficial to the research process. To narrow the frame of anticipated literature reviewed, a general definition of strategic communication was obtained.[7] Christopher Paul's journal article says "the *Department of Defense Dictionary of Military and Associated Terms* states that strategic communication consists of "focused United States Government efforts to understand and engage key audiences to create, strengthen, or preserve conditions favorable for the advancement of United States

[7] Christopher Paul, "Strategic Communication Is Vague, Say What You Mean," *JFQ,* 56 (2010): 10–14.

Government interests, policies, and objectives through the use of coordinated programs, plans, themes, messages, and products synchronized with the actions of all instruments of national power."[8]

Although minimal information is available on "healthcare" strategic communications, research reflects that much is written about military, business, fire, and law enforcement throughout the years. Two specific military articles related to strategic communications center on an issue known as the U.S. Africa Command and its area of responsibility. The referenced U.S. Africa Command is a diverse, complex, and large area of responsibility. It includes 53 African states, over 800 ethnic groups with more than 1,000 languages. The U.S. Africa Command has a responsibility to the security of this geographical entity. Strategic communications were utilized to get a controversial issue moving forward in a cohesive manner. In 2012, Charles W. Hooper wrote that by building partnerships, the partners should be able to share in the responsibilities and costs of events.[9] In the previous year, Ward's article noted that their primary approach is to emphasize a simple set of messages and then to apply them consistently.[10] Although they were different in their intended messages, both articles address the value of strategic communication and interagency collaboration.

Additionally, the website of Boston Sparks Association is useful to show how strategic communication is actually initiated through the fire service as far back 1678.[11] An article by Kristy Annely is instrumental in the historical markers of the law enforcement strategic communication.[12] Also, a law enforcement website provides

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[8] Paul, "Strategic Communication Is Vague, Say What You Mean," 10–14.

[9] Charles W. "Hooper, "Going Farther by Going Together," *JFQ* 67 (4th quarter, October 2012): 8–13, https://www.nwpublichealth.org/archives/s2013/northwest-public-health-spring-summer-2013.

[10] General William E. "Kip Ward, "Strategic Communication At Work," *Leader to Leader* 2011, no. 59 (Winter 2011): 33–38.

[11] Boston Sparks Association, "A Brief History of the Boston Fire Department," *Boston Fire Museum*, (n.d.), http://www.bostonfiremuseum.com/history_bfd.html.

[12] Kristy Annely, "History of Law Enforcement," *Ezine Articles,* 2005, http://ezinearticles.com/?History-Of-Law-Enforcement&id=269224.

several useful articles. Eddie Reyes' writings on the website www.policeone.com helps to validate a need for streamlining information and using common language, providing correct information fast, as well as justifying a public health model through his writings pertaining to challenges and changes in communication over the last decade.[13,14,15] While much is to be gained from these documents, one of the more useful documents is the Chickasaw County MS History of the Fire Service and the Chickasaw County Law Enforcement Strategic Communication Plan.[16] They are rich in information of how a rural area actively engages in strategic communication and how the planning has evolved over the years. Another useful source is the California Public Safety Communications Strategic Plan.[17] Its relevance to urban strategic communication (as well as interagency coordination) further expands the vision for a public health model. This urban strategic plan is beneficial as it shows how it has rallied multiple agencies for strategic communication efforts. Together, all the documents related to the fire and law enforcement strategic communication strategies describe the historical significance of strategic communication and how it has changed over the years. They also help to validate why a public health strategic communication model is needed and how it can be developed by sharing what has worked and what has not to accomplish their mission.

The literature review on strategic communication leads to several government websites and communication plans. The most useful site for the development of a MS

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[13] Eddie Reyes, "A Decade of Challenges and Changes in Communications," *PoliceOne.Com*, December 8, 2009, http://www.policeone.com/police-products/communications/articles/1974739-A-decade-of-challenges-and-changes-in-communications/.

[14] Eddie Reyes, "Keeping Critical Police Communication Fast, Clear & Protected," *PoliceOne.Com*, August 21, 2006.

[15] Eddie Reyes, "Common Language Is the Key to Achieving Better Interoperability," *PoliceOne.Com*, May 26, 2006, http://www.policeone.com/police-products/communications/articles/134505-Common-language-is-the-key-to-achieving-better-interoperability/.

[16] Robert Lamar Goza, *History of Houston*, MS Fire Service, June 5, 2013.

[17] Corey McKenna, "California Releases Public Safety Communications Strategic Plan," *Emergency Management*, October 20, 2010, http://www.emergencymgmt.com/safety/California-Public-Safety-Communications-Plan.html.

model is the MS Emergency Management Agency and the MS ESF-8 plan.[18] This plan identifies the various partners to the ESF-8 collaboration but does not identify a strategic communication model. A broad sweep of various other state ESF-8 plans fails to produce a strategic communication model also.

A medical article by Darsey, Carlton, and Wilson also provides pertinent information concerning the validation for the development of an ESF-8 strategic communication model for Mississippi.[19] The article was written following Hurricane Katrina by a group of MS healthcare practitioners, and thus, confirmed the need for a MS comprehensive ESF-8 strategic communication model. An AAR from the Public Health Colloquium Conference Report from March 2010 further documents the need to "develop a clear communication channel with feedback loops to and from federal, state, and local entities." Other recommendations within this same piece of literature confirm the need for the model that this thesis outcome will provide.[20] Very similar to the vision for this thesis, the literature produces an article by Mark Grube that states strategic communication is deemed one of the five most important strategies to enhance revenue in general in the healthcare setting, which then also supports the overall vision for an information-sharing model.[21]

In addition to a public health emergency response, other areas of healthcare are supported in the literature review for this topic. The tobacco industry has utilized strategic communication to create an impact of change across this country as has other

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[18] Mississippi Emergency Management Agency, "Mississippi Emergency Support Function #8—Public Health and Medical Services Annex."

[19] Damon Darsey, Frederick B. Carlton and Jonathan Wilson, "The Mississippi Katrina Experience: Applying Lessons Learned to Augment Daily Operations in Disaster Preparation and Management," *Southern Medical Journal* 106, no. 1 (January 2013): 109–112.

[20] Yale New Haven Health Center for Emergency Preparedness and Disaster Response, *Public Health Colloquium Discussion-Based Exercise After Action Report* (The Center for Homeland Security, University of Colorado at Colorado Springs, Defense Threat Reduction Agency, July 2010).

[21] Mark E. Grube, "Growing the Top Line, 5 Strategies to Expand Your Business," *Healthcare Financial Management* 61, no. 5 (May 2007): 57–68.

groups, such as QuadraMed.[22,23] QuadraMed is a leading provider of healthcare services and software that improve the quality, safety, and efficiency of patient care. Finally, an article found in the literature review written by Arnesen, Cid, Scott, Perez, and Zervaas reinforces that strategic communication is instrumental in the rebuilding of the Central American Network for Disaster and Health Information.[24] While the literature review pertaining to strategic communication is varied, the overall literature review is absent of a current public health/medical model for strategic communication pathways.

C. INTERAGENCY COORDINATION AND COMMUNICATION

A March 2007 thesis by Joseph P. McGeary describes the conflict of departments between fire and police, and utilized the Goldwater-Nichols Act of 1986 as a framework for correcting the problems.[25] By utilizing the Goldwater-Nichols Act of 1986, the culture was changed that allowed jointness versus individual platforms. In bringing together a comprehensive healthcare coalition of public and private partners, the recommended changes are likely to bring about hesitancy and turf protection. The McGeary thesis outlines the interagency situation and provides answers relevant across various domains.

The literature review reveals several other sources relevant to this topic and thesis vision. First, some government websites describe current grants, capabilities, exercise guidelines, historical data related to emergency responses, and the amount of money spent on emergency preparedness and communication. The Health and Human Services, Homeland Security, and Center for Disease Control and Prevention websites provide

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[22] Dodge Communications, "QuadraMed and Decision Simulation Partner with Dodge Communications for Integrated Communications and Public Relations," *Business Wire (English)* (2011).

[23] James F. Thrasher and Lourdes Reynales-Shigematsu, "Promoting the Effective Translation of the Framework Convention on Tobacco Control; A Case Study of Challenges and Opportunities for Strategic Communication," *Evaluation & the Health Professions* 31, no. 2 (April 4, 2008): 145.

[24] Stacey J. Arnesen et al., "The Central American Network for Disaster and Health Information," *Journal of the Medical Library Association* 95, no. 3 (July 2007): 316–322.

[25] Joseph P. McGeary, "Applying Goldwater-Nichols Reforms to Foster Interagency Cooperation Between Public Safety Agencies in New York City" (master's thesis, Naval Postgraduate School, 2007), http://hdl.handle.net/10945/3630.

current and historical data related to emergency preparedness and response for all these areas.[26,27,28] The Homeland Security Exercise and Evaluation Program website describes the current guidelines for exercises.[29] The MS Strategic National Stockpile plan, MSDH Continuity of Operations Plan (COOP) Plan, and other emergency plans are located on the MSDH website.[30]

The expanded literature review of this topic provides information as current as the recent Boston Marathon response. Two articles validate the value of interagency coordination and communication in the response to the Boston Marathon bombing and the success of the response within the healthcare community. The Walls and Zinner article, and the Keliermann and Peleg articles, are both current literature and further validate good outcomes from strategic communication and interagency coordination.[31,32] Both these articles give clarity to the mission of the thesis topic by enhancing the direction of the ESF-8 strategic communication. As such, timely response, current information, and interagency collaboration are all factors that helped to save lives following the Boston bombings and will in other events as well.

In addition, a GAO report, *DoD Strategic Communication: Integrating Foreign Audience Perceptions into Policy Making, Plans, and Operations* is useful as it shows the

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[26] Department of Homeland Security," "Healthcare and Public Health Sector, Sector Overview."

[27] Health and Human Services, "HHS Provides More than $1 Billion to Improve all Hazards Public Health," June 3, 2008, http://www.hhs.gov/news/press/2008pres/06/20080603a.html.

[28] Centers for Disease Control and Prevention, "Office of Public Health Preparedness and Response," (n.d.), http://www.cdc.gov/phpr/archive.htm.

[29] Department of Homeland Security, Homeland Security Exercise and Evaluation Program, "Homeland Security Exercise and Evaluation Program (HSEEP) 2013," (n.d.), https://www.llis.dhs.gov/hseep.

[30] Mississippi State Department of Health Office of Emergency Preparedness and Response, *The MS State Department of Health Plan for Receiving, Distribution, and Dispensing Strategic National Stockpile Assets* (Jackson, MS: Mississippi State Department of Health Office of Emergency Preparedness and Response, December 20, 2012).

[31] Ron M. Walls and Michael J. Zinner, "The Boston Marathon Response, Why Did It Work So Well?" *The Journal of the American Medical Association* 309, no. 23 (April 30, 2013): 2441–2442, http://jama.jamanetwork.com/article.aspx?articleID=1684255.

[32] Arthur L. Keliermann and Kobi Peleg, "Lessons from Boston," *The New England Journal of Medicine* 368, no. 21 (May 23, 2013): 1956–1957.

need to integrate strategic communication into the policy making, planning and operational concepts. This military report helps validate the need for public health to not only have a strategic communication model, but also to further integrate it into the policies of the agency. It also further validates the integration of other partners into the strategic communication processes.[33] Additional literature reflects the importance of public health inclusion at the emergency preparedness table.[34] Finally, an expanded literature review finds the interagency coordination lessons learned from the fire service to validate strategic communication and the need for clear models.[35] Joseph Straw's article provides a justification for the projected model development as a means to save lives and is useful to show how a clear strategic communication model can save lives, which is the end result of a public health and medical strategic communication model.

D. HEALTHCARE COALITIONS

The literature search on healthcare coalitions resulted in a thesis, several articles, and an AAR. The June 2012 thesis by Jill McElwee compares different healthcare coalitions from various parts of the country and with various means of financial support.[36] This comparison is useful to show the various agencies and organizations within a healthcare coalition and how they communicate. Two articles pertain to the individual healthcare units of the Veteran's Affairs, and the Community Health Centers, and how they contribute to emergency planning and response in this country. The VA article highlights the value of identifying new partners while continuing to strengthen the existing partnerships, which is a key component of this thesis vision.[37] While the

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[33] U.S. Government Accountability Office, *DoD Strategic Communication: Integrating Foreign Audience Perceptions into Policy Making, Plans, and Operations* (2012).

[34] Center for Homeland Defense and Security, *The CHDS Advantage: A Decade of Innovation and Homeland Security Education* (Monterey, CA: Center For Homeland Defense and Security, Naval Postgraduate School, 2012).

[35] Joseph Straw, "Communicating to Save Lives," *Security Management* 53, no. 5 (May 2009): 62–69.

[36] Jill McElwee, "Taking a Regional Healthcare Coalition Approach to Mitigating Surge Capacity Needs of Mass Casualty or Pandemic Events" (master's thesis, Naval Postgraduate School, 2012), http://hdl.handle.net/10945/7383.

[37] Committe on Veteran's Affairs, *Emergency Preparedness: Evaluating The U.S. Department of Veteran's Affairs' Fourth Mission, Hearing* (Washington, DC: U.S. Government, 2010).

Community Health Center article has a strong emphasis on the care of vulnerable populations, it is still useful to show how they fit at the table of ESF-8 and their need for information from leaders pertaining to an event.[38] Again, in relation to the development of a MS model, the most useful source for this topic area is the AAR from the MS 2011 Tornado-Flood event. It reflects the need for the formalization of the healthcare coalition for state-level agencies and organizations, which further validates the idea of developing an ESF-8 strategic communication model.[39] Another useful article was written by Claudia Parvanta, which had a chart of "benefits and barriers of health communication coalitions."[40] Even though it is an older document, it provides a guide for practitioners to show how to communicate public health information effectively, which is useful to the development of the ESF-8 model.

The expanded literature review finds this area to be on the horizon for development with very current information. Just as some of the other areas within this literature review noted a commonality with the importance of collaboration and communication, this particular area does the same with three specific articles. Barr's article highlights the value of coming together as groups.[41] Politi and Street's article addresses decision making as a group.[42] Then, Kapucu and Garayev's article further emphasizes the value of collaborative decision making during a disaster.[43] Due to the push by the federal government to encourage states and locals to develop healthcare

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[38] Karen M. Wood, "Community Health Centers: The Untapped Resource for Public Health and Mideical Preparedness," *Homeland Security Affairs* 5 no. 1 (2009): 1–39, http://www.hsaj.org/?article =5.1.8.

[39] Mississippi State Department of Health, *MSDH April–May 2011 Tornado-Flood Response AAR*, After Action Report, Jackson, MS, 2011, 28.

[40] Claudia Parvanta, *A Public Health Communication Planning Framework* (Atlanta, GA: Centers for Disease Control, 1993).

[41] Paul Barr, "Coming Together: Coalition Offers Cooperative Approach to Disasters," *Modern Healthcare*, November 5, 2012, 14.

[42] Mary C. Politi and Richard L. Street, "The Importance of Communication in Collaborative Decision Making: Facilitating Shared Mind and the Management of Uncertainty," *Journal of Evaluation in Clinical Practice* 17, no. 4 (August 2011): 579–584, doi:http://dx.doi.org/10.1111/j.1365-2753.2010.01549.x.

[43] Naim Kapucu and Vener Garayev, "Collaborative Decision-Making in Emergency and Disaster Management," *International Journal of Public Administration* 34, no. 6 (May 2011): 366–375, doi:10. 1080/01900692.2011.561477.

coalitions,[44] the literature contains a useful document from the Centers for Disease Control and Prevention (CDC). The hospital preparedness program grant guidance provides information pertaining to healthcare coalitions and its relativity to the overall model development's mission.[45] Another commonality is the value of information sharing and scarce resource allocation that healthcare coalitions can provide. Currie's article, as well as Barr's, highlights how coalitions can assist in strengthening the workforce during a disaster by working together.[46,47]

E. STRATEGIC COMMUNICATION SYSTEMS

By adding the term "systems" to strategic communication, the literature review reflects several more good theses. The common link between the theses is the systematic approach to different issues. As a focus on strategic communications within healthcare and the organization of healthcare systems, these are very beneficial. First, the December 2008 thesis by Christopher Voss outlines the processes for connecting the crisis information management systems of this nation.[48] Second, the September 2006 thesis by Maria Doris Alvarez reviews and analyzes the communications of Emergency Preparedness and Response Systems in New Jersey.[49] Third, the September 2006 thesis by Linda Scott looks at the private partnerships instrumental during Hurricane Katrina

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[44] U.S. Department of Health and Human Services, "Hospital Preparedness Program (HPP)," (n.d.), http://www.phe.gov/preparedness/planning/hpp/pages/default.aspx.

[45] *CDC-RFA-TP12-1201: Hospital Preparedness Program (HPP) and Public Health Emergency Preparedness (PHEP) Cooperative Agreements* (Atlanta, GA: Centers for Disease Control and Preparedness, 2012).

[46] Donya Currie, "Disaster Response Workforce Could Be Strengthened Through Cooperation," *The Nation's Health* 42, no. 3 (April 2012): 16.

[47] Paul Barr, *Coming Together: Coalition Offers Cooperative Approach to Disasters, vol. 42* (Chicago, IL: Crain Communications, Incorporated, 2012), 14.

[48] Christopher Voss, "Connecting Our Nations Crisis Information Management Systems" (master's thesis, Naval Postgraduate School, 2008), http://hdl.handle.net/10945/3720.

[49] Maria Doris Alvarez, "Emergency Preparedness and Response Systems" (master's thesis, Naval Postgraduate School, 2006), http://handle.dtic.mil/100.2/ADA456995.

and their obstacles to volunteering.[50] Fourth, the September 2011 thesis by Jasie K. Logsdon focuses on the importance of information sharing among the public health and medical community. This thesis provides information that validates the need for a strategic communication ESF-8 model not only in Mississippi, but in other states and local areas as well.

An expanded literature review allows for the uncovering of four additional references that enhance the vision for this thesis. The commonalities of this area of research provide a consensus that strategic communication systems help to improve the response during times of disaster.[51] An article by Erikson describes the knowledge transfer that occurs between preparedness and response. Another commonality is that such systems provide for timely information sharing, and that time is of the essence when disaster looms. Ritchey's information further validates the cause of the ESF-8 strategic communication model development for Mississippi.[52]

An area of disagreement within this topic is the particular type of information that should be shared within a systematic model of healthcare strategic communication. For primary ESF-8 partners, such as hospitals, patient information might be the necessary information, but for the overall ESF-8 partnership, the interest is more general to ESF-8 situational awareness of the related event. McIlwain and Lassetter's article provides some useful information to describe what can be shared from different entities during a disaster.[53] The literature review provides an article from the fire service that shows how

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[50] Linda Scott, "Hurricane Katrina: Utilization of Private, Non-Governmental Health Professionals-Time for New Strategy" (master's thesis, Naval Postgraduate School, 2006), http://hdl.handle.net/10945/2659.

[51] Kerstin Eriksson, "Knowledge Transfer between Preparedness and Emergency Response: A Case Study," *Disaster Prevention and Management* 18, no. 2 (2009): 162–169.

[52] Diane Ritchey, "Mass Communication Systems Notify the Masses," *Security Magazine*, September 2009, 57.

[53] James S. McIlwain MD and Kipp Lassetter, "Building Sustainable HIEs," *Health Management Technology* 30, no. 2 (February 2009): 8–11, http://sfxhosted.exlibrisgroup.com.libproxy.nps.edu/nps?url_ver=Z39.88-2004&rft_val_fmt=info:ofi/fmt:kev:mtx:journal&genre=article&sid=ProQ:ProQ%253Aabiglobal&atitle=Building+Sustainable+HIEs&title=Health+Management+Technology&issn=10744770&date=2009-02-01&volume=30&issue=2&spage=8&au=McIlwain%252C+James+S%252C+MD%253BLassetter%252C+Kipp&isbn=&jtitle=Health+Management+Technology&btitle=&rft_id=info:eric/.

the systems can work together to share information and behaviors, which is useful to validate the systematic approach to the model and information sharing that will occur.[54]

F. META-LEADERSHIP

The term meta-leadership arose out of planning efforts that occurred post-911. In times of crisis, a person who is a leader of leaders and who mobilizes organizations and people to collaborate is considered to be practicing meta-leadership. The literature agrees that meta-leadership practice encompasses five dimensions: (1) The person of the meta leader, (2) the situation, (3) leading the organizational base, (4) leading up, and (5) leading cross-organization connectivity.[55] This new area of research is helpful as its very definition is consistent with the vision for this thesis. The literature reveals that summits were held around the United States in the last several years to promote this theme and its intents. A summit sponsored by CDC in 2008 shared the vision that leaders during a disaster must collaborate during times of crisis by mobilizing people and organizations.[56] This summit information found in the literature is very useful to validate the development of the ESF-8 information sharing and strategic communication model. All the literature focuses on these same five areas of meta-leadership practice, whether it was conference records or educational seminars. The Harvard School for Public Health sponsored a symposium in 2010 on meta-leadership.[57] Again, this concept is what the development of the ESF-8 strategic communication model is trying to accomplish by integrating efforts beyond silo thinking in the area of public health and medical strategic communication. Through these integrated efforts that the ESF-8 strategic communication model proposes,

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[54] Lian J. Ruan, *Information-Seeking and Sharing Bahaviors among Firer Service Field Staff Instructors: A Qualitative Study* (Champaign, IL: University of Illinois at Urbana-Champaign, 2011).

[55] Cambridge META Leadership, "Cambridge META Leadership," (n.d.), http://cambridgemetaleadership.com/what-is-meta-leadership/.

[56] Center for Disease Control and Prevention, "Leaders of Leaders: Meta-Leadership Summits Build Relationships that Get Results," July 15, 2008, http://www.cdc.gov/news/2008/07/meta-leadership.html.

[57] Leonard J. Marcus PhD, *Meta-Leadership and the Global Health Challenge: Negotiating Connectivity of Strategy and Operations* (National Preparedness Leadership Initiative, Harvard School of Public Health, 2010), http://graduateinstitute.ch/files/live/sites/iheid/files/sites/globalhealth/shared/1894/Symposium%202010/Global%20Health%202010%20Marcus.pdf.

public health emergency preparedness can assist in the efforts to connect partners to resolve the health challenges the public health and medical community will face during any emergency event.[58]

A final journal article found in the literature was by Howard Franklin. Its relevance to this topic is that great value is placed on collaboration and connectivity, even further validating the cause for the development of a model that demonstrates the collaboration and connectivity.[59] He referred to Barry Commoner's Law of Ecology that states, "everything is connected to everything else" and relates that the need for that same law to be the first law of public health. Finally, the most useful and supporting information in this topic area is a document by the CDC entitled, "Advancing the Nation's Health: A Guide to Public Health Research Needs, 2006–2015."[60] It validates the vision for the MS ESF-8 comprehensive strategic communication model by emphasizing and promoting health through strong and active partnerships. It is determined through the literature review for this topic area that connectivity and collaboration will minimize the chaos of any public health emergency.

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[58] The Meta-Leaders: International Leadership and Management Consulting Company, "What is Meta-Leadership?" (n.d.), http://themetaleaders.com/metaleadership.html.

[59] Howard Franklin, "Meta-Leadership," *Northwest Public Health* 30, no. 1 (Spring/Summer 2013): 1, https://www.nwpublichealth.org/archives/s2013/northwest-public-health-spring-summer-2013.

[60] Centers for Disease Control and Prevention, *Advancing the Nation's Health: A Guide to Public Health Research Needs, 2006–2015* (Center for Disease Control and Prevention, 2012), https://www.hsdl.org/?view&did=11236.

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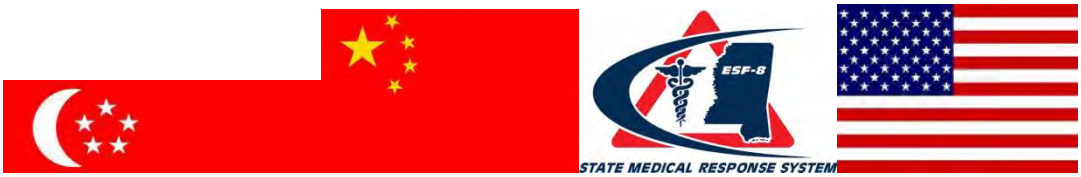
III. CHINA/SINGAPORE SARS LESSONS LEARNED

"The biggest room in the world is the room for improvement."

—Author unknown



Many historical recordings are available of novel disease outbreaks, epidemics, pandemics, and so forth with which that man has attempted to create an atmosphere of better health outcomes. Even with today's technology and organized global attempts at preventing the unintended consequences of disease outbreaks and their spread, communication with and to the healthcare community is still an issue from the local level to the global community. There is still room for improvement and it seems that the globe is just one big room.

The SARS outbreak of 2003 was one such event from which lessons can be learned that pertain to communication to the healthcare community. Specifically, communication lessons can be learned from China's and Singapore's response to the SARS outbreak, and thus be, can be applied to creating an effective grassroots state public health communications strategy for Mississippi, and ultimately, the entire United States. SARS was the first pandemic of the 21st century and was a wake up call for the healthcare community![61]

[61] KU Menon, "SARS Revisited: Managing "Outbreaks" with "Communications,"" *Annals Academy of Medicine* 35, no. 5 (May 2006): 361–367.

A. CHINA

The SARS outbreak of November of 2002 is thought to have originated in the Guangzhou Province of China.[62] By the time that the World Health Organization (WHO) declared it officially contained on July 5, 2003, it had affected millions worldwide.[63] The final reports reflect that 29 nations were invaded with a morbidity of 8,096 and a mortality of 774.[64] While these numbers may be less than those associated with annual deaths of seasonal influenza, the associated fears, financial impact of the disease, and the global involvement of the disease, led to a paralysis of society that has not been seen with seasonal influenza.[65] In the end, several lessons were learned from this outbreak that can be applied to public health emergencies today. It has been well documented that suppression of information from the Chinese authorities led to delayed research, and thus, policy development that might have prevented the spread of the disease beyond China's borders.[66] As a result, many more nations affected were and many more illnesses and deaths occurred that could have been prevented if information had not been withheld.[67] Associated with this reality is the fact that this decision by the Chinese authorities to withhold information resulted in a sense of mistrust of government and health authorities by people around the globe.

A consequence of this outbreak that affected the world, whether experiencing the disease or not, was the economic fallout associated with SARS. A number of studies estimate that the global economic impact of SARS was somewhere between $30–$100

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[62] Deborah Bailin, *SARS: A Pandemic Prevented A Science and Democracy Case Study* (Cambridge, MA: Center for Science and Democracy, Union of Concerned Scientists, February 2013), http://www.ucsusa.org/assets/documents/center-for-science-and-democracy/sars-case-study-2013.pdf.

[63] Ibid.

[64] Ibid.

[65] Centers for Disease Control and Prevention, "Seasonal Influenza: Flu Basics," (n.d.), http://www.cdc.gov/flu/about/disease/index.htm.

[66] Bailin, *SARS: A Pandemic Prevented A Science and Democracy Case Study*.

[67] Joan Kaufman, "SARS and China's Health-Care Response: Better to Be Both Red and Expert!" in *SARS in China: Prelude to Pandemic?*, ed. Arthur Kleinman and James L. Watson (Stanford, CA: Stanford University Press, 2006), 53–68.

billion dollars.[68] Some countries reported that the health impact created a much higher economic shock than was anticipated. These costs were associated with a variety of sectors with tourism and travel being the biggest determinants. As a result of this costly economic consequence, concern has arisen that a worst-case flu pandemic or some other disease outbreak could cause a catastrophic effect to the global economy.[69]

The original outbreak in January 2002 was thought to be an atypical pneumonia.[70] Pneumonia was not a reportable disease in China at that time, and therefore, no urgency existed to follow-up on this strange illness silently spreading across the land.[71] Between mid-November and mid-January, the communicable disease had gained momentum and had spread from the original city of Foshan to the city of Heyang over 200 miles away.[72] Finally, it reached the capital city of Guangdong. During this time, patients were misdiagnosed and no isolation or quarantine measures were in place to prevent further spread of the illness.[73] Patients were transferred between hospitals, and not only were other patients affected, but the healthcare community became involved and grew to be part of the larger problem.[74] On January 27, 2003, a local CDC notified the Provincial Health Bureau, which then notified the Ministry of Health in Beijing. The notification was not opened for three days as it was marked "Top Secret" and no top officials were available to read the report and analyze the situation.[75] When it was finally read on

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[68] Richard D. Smith, "Responding to Global Infectious Disease Outbreaks: Lessons from SARS on the Role of Risk Perception, Communication and Management," *Social Science & Medicine* (September 15, 2006): 3113–3123.

[69] Ibid.

[70] Yanzhong Huang, "The SARS Epidemic and its Aftermath in China: A Political Perspective," in *Learning from SARS: Preparing for the Next Disease Outbreak —Workshop Summary*, ed. Stacey Knobler et al. (Washington, DC: National Academies Press, 2004).

[71] Congressional—Executive Commission on China, *Dangerous Secrets: SARS and China's Healthcare System* (Washington, DC: Government Printing Office, 2003), http://www.gpo.gov/fdsys /pkg/CHRG-108hhrg88399/pdf/CHRG-108hhrg88399.pdf.

[72] Ibid.

[73] Ibid.

[74] Michael O'Leary, "From SARS to H7N9: Will History Repeat Itself?" *The Lancet* 381, no. 9875 (April 30, 2013): 1333, http://www.lancet.com/journals/lancet/article/PIIS0140-6736(13)60865-X/fulltext.

[75] Congressional—Executive Commission on China, *Dangerous Secrets: SARS and China's Healthcare System*.

January 31, 2003, a bulletin was sent to area hospitals alerting them of the strange pneumonia. Two important issues arose out of this specific action. Many healthcare workers were off to celebrate the Chinese New Year and the bulletin did not advise regarding the potential for the contagiousness of the illness.[76] On February 11, 2003, the pneumonia was reported to the WHO after the WHO had picked up on the reports of an atypical pneumonia through a reportable system by Hong Kong. On February 19, a WHO team was sent to Guangdong but was stopped in Beijing and was not allowed to move forward until April 2.[77] This action allowed the spread to occur around the world. On February 21, a doctor flew to Hong Kong for a wedding party that had just become infected. By the end of February, over 900 cases had occurred within the healthcare community. On March 12, the WHO issued a global health alert for the first time in history, and soon thereafter, on March 15, they issued a recommendation against travel to all affected countries.[78] During this entire time of disease outbreak in China, the government had mandated a news blackout for public information, and during this time of late March, it was finally lifted, and the public began to receive information.

When the WHO team was finally allowed to move forward with its mission of the disease investigation, measures of control were beginning to be implemented. On April 3, the China CDC issued a bulletin to healthcare workers on how to prevent disease from spreading. It was also during this time period that a catastrophic decision occurred when the Ministry of Health reported to China's state council that "SARS was effectively under control" and that there were "only 12 cases in the capital city."[79] By April 9, that same report had only shown an increase up to 22 cases and four deaths, which was far from the truth. By mid-April, a very angry doctor from a Beijing hospital reported to the media that over 120 cases could be found at three different military hospitals.[80] As a result of the ensuing media attention, the Chinese government then fired the Minister of Health

[76] Kaufman, "SARS and China's Health-Care Response: Better to Be Both Red and Expert!," 53–68.

[77] Ibid.

[78] Ibid.

[79] Ibid.

[80] Huang, "The SARS Epidemic and its Aftermath in China: A Political Perspective."

and the deputy mayor of Beijing. This pivotal decision saw the Chinese government begin to dramatically change its course in the handling of this outbreak, and thankfully so. By late April, public panic ensued and millions of workers fled the city out of fear of quarantine. Their destination of the rural countryside was the site of a very poor public health system that caused the world to be alarmed about the possibility of even further poor choices by the Chinese government and poor medical care of the potentially affected people.[81] By May 20, more than 5,000 cases of SARS had been reported. By August 7, the pandemic was declared to be at an end; 8,422 cases with 916 deaths in 30 countries and Hong Kong, and 5,327 cases with 349 deaths in China. The fact that 63% of the cases occurred in China left the Chinese government to evaluate its outbreak response actions taken for this strange disease.

China did many things considered to be turning points in the outbreak response that were noteworthy. First, it misdiagnosed the illness in the early days of the cluster. A serious public health lesson to be noted is to never overlook a cluster as all outbreaks begin as such. Second, those in authority made a decision to lie about the actual number of cases and were eventually terminated as a result of this action. Next, the Chinese government refused to let the WHO team into the Guangdong area for several weeks, and this time frame clearly identifies the point at which the worldwide spread of the disease might have been prevented. Another very poor Chinese decision was the fact that the country did not educate or communicate with the healthcare workers. As a result, the healthcare workers became a very large sector of the affected population that thus caused a crippling effect to the responder community, as well as participated in the global spread of the disease.

Once the Chinese government made a conscientious decision to cooperate with WHO, and admit the problem that it faced, it made many good decisions that can be documented as worthy lessons learned. The prevention measures initiated eventually stopped the spread of SARS. First, it began daily surveillance and reporting processes across the country and healthcare community. Second, it began a robust community

[81] Kaufman, "SARS and China's Health-Care Response: Better to Be Both Red and Expert!," 53–68.

mitigation education and implementation strategy that included isolation of the ill and quarantine up to 12 days for any contacts. Within this sphere of outbreak response, it also established fever stations at various sites of large populations. In addition, large public gatherings were cancelled and elementary schools were closed. Next, it advertised and provided free treatment to all, which was an important decision in light of the poor rural area people who often did not seek care because of a lack of money. Another very important containment measure was the first responder plans to include infection-control guidelines for healthcare workers. Also, China established a SARS National Headquarters that became the point of validated information. The Chinese government made SARS an infectious disease, and as such, it became reportable. Finally, a SARS hospital, Xiaotangshan, was established in a rural county in China.[82] Together, these several actions saved thousands of lives by controlling, and eventually, stopping the spread of SARS.

China is still today trying to overcome many poor decisions made during the initial outbreak of SARS. As it deals with a new strain of influenza, H7N9, the world watches to ensure that the many valuable lessons learned are implemented.[83] These lessons, good and bad, can be used to improve communications during a public health crisis around the globe, and especially in the United States today.

B. SINGAPORE

Although the actions taken concerning SARS in Singapore were not as numerous due to the shorter time span of the outbreak, the actions that were taken were thought to be worth noting. Singapore's response to the SARS outbreak of 2003 was recorded historically with many more positive communication efforts and outcomes than that of China.[84] The WHO recognized this effort, and in 2004, it sought the support of Singapore in hosting a meeting to plan the framework for a global consensus based on strategies,

[82] Kaufman, "SARS and China's Health-Care Response: Better to Be Both Red and Expert!," 53–68.

[83] O'Leary, "From SARS to H7N9: Will History Repeat Itself?" 1333.

[84] Menon, "SARS Revisited: Managing "Outbreaks" with "Communications,"" 361–367.

effective principles, and the tools for managing outbreak communications.[85] Risk communication was addressed, and many of the lessons learned from Singapore's response to SARS, were the foundation for the health communication topics. A post-SARS reflection of those communications in Singapore revealed a city-country quick to report its first case. On the very day that a Singaporean doctor was found to have been onboard an aircraft and was diagnosed, the Singaporean authorities contacted the WHO and an emergency travel advisory was put into place.[86] The protection of public health overrode the potential negative impact. This transparency carried a powerful array of political and moral associations that have led the world community to associate this level of transparency as a lesson to be learned and applied by all. The Singapore Ministry of Health (MOH) gathered data and information discussed daily by the Director of Medical Services with the healthcare community to include representatives from WHO.[87] Singapore had a SARS-dedicated TV channel to provide information to the public on the disease, which proved to be beneficial as it made the most headway towards building the confidence of the healthcare community and the public. The dialogue with grassroots leaders at that local level did much to promote communication efforts also.[88] Ultimately, Singapore reinforced the need for timely, accurate, and transparent communication during a healthcare crisis. Information sharing proved to be integral in its ability to ensure good decision making was based on good information shared throughout the outbreak. Singapore's experience with SARS demonstrated that sharing more information is better than sharing less information.[89] In the end, it paid off.

C. FINDINGS

Several lessons learned from the China and Singapore SARS outbreak can provide valuable recommendations.

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[85] Menon, "SARS Revisited: Managing "Outbreaks" with "Communications,"" 361–367.

[86] Ibid.

[87] Ibid.

[88] Ibid.

[89] Ibid.

- Develop communication models that ensure a comprehensive grassroots ESF-8 strategic communication process

The China SARS lessons learned teach that communication to healthcare workers is essential. As a result of the lack of communication with this sector early on, the healthcare workers became a very large group of the affected ill. It was also through a healthcare worker that the disease spread to other countries, and thus, became global. China's decision to have initial health reports classified as "Top Secret" led to multiple outcomes of insufficiency. For the appropriate government authorities to read the reports, a time delay ensued that created a delay of information reaching the healthcare community, which also had the potential for those in authority to make decisions about topics on which they were not adequately trained that was later deemed as fragmented authoritarianism within the medical community. Accurate and timely information to the healthcare community is imperative! Another very valuable lesson deals with the grassroots sector of healthcare. Due to fear, many persons ran to the rural areas in which grassroots healthcare providers would need to be informed to respond adequately.

- Provide conference calls daily during responses to gather accurate information directly from ESF-8 partners to develop accurate and valuable ESF-8 situational awareness.

During the initial SARS outbreak in China, the Chinese government sought to support news media blackouts, which not only prevented the general public from receiving information, it also prevented healthcare workers from obtaining general information as well. This action created a continued mistrust of government and the healthcare community. With today's 24-hour news cycle and social media, this type of action is not only impossible; it is counterproductive to the cause. Contrary to the initial decisions made by China, Singapore had a dedicated television channel to ensure information was available to all. One of the actions that Canada took was to host daily conference calls with the healthcare community. At the time it was determined to host the conference calls, the ministry directives had called for a halt to any gatherings of more than 15 people. Therefore, the town hall meetings and open forums, which were being held to share information with the healthcare staff and public, had to cease. The conference calls were a popular alternative. Although the calls did not allow for all

healthcare staff participation in an effort to keep the number manageable, the managers and chief physicians who participated were charged with pushing the information forward. Therefore, one of the communication lessons learned from the SARS outbreak in Canada was that hosting daily conference calls to the ESF-8 partnership proved to be very valuable.

- Share ESF-8 situational awareness with all partners daily to provide timely, accurate, and transparent information sharing.

China taught the world that misinformation or concealment of information would be judged harshly, while Singapore modeled the positive outcomes associated with information shared. The value of timely and accurate information must not be understated. The Singapore SARS response taught the importance of factual and timely information. Although factual information may not always be positive, it is necessary to produce the facts and share them with those making healthcare decisions all across the state to also further build trust between levels of government, as well as between the public and the healthcare provider.

- Ensure transparency in public health emergency events by developing an information policy.

The SARS event of 2002 and 2003 provided a lesson learned regarding transparency in communication to the healthcare community, as well as the public in general. The Chinese government traded off transparency for what it thought could sustain economic growth. In the end, it cost China dearly. Even after the Chinese government did a turn-around in its response action decisions, the public trust was eroded, and much of the world still has not forgotten the poor decisions made. Although challenges are often associated with disaster outbreak information related to transparency, policies can be developed ahead of time that can alleviate spur of the moment decisions during the actual event. WHO produced a planning guide in 2008 related to this topic entitled *WHO's Outbreak Communication Planning Guide 2008*. This document can be the basis for the policy in order to provide transparent information, which will promote trust, while allowing for risk communication capacity in support of the overall emergency management for all phases of the event. In the article

"Transparency During Public Health Emergencies: From Rhetoric to Reality," the following chart describes how best to develop a policy by addressing the following three questions.[90]

Box 1. **Identifying the appropriate level of transparency in a public health emergency information policy**

In deciding whether or not to release a given piece of information, public health officials can ask three questions:

1. Is the information needed by at-risk parties to avoid illness, reduce the spread of a disease and/or help cope with the impact of an event?

   If YES, the information should be communicated to at-risk and implicated audiences in a timely, accessible and proactive manner.

   If NO, there may be no compelling public health rationale for communicating this information.

2. Is the information relevant to decisions made by public health authorities or about the emergency management decision-making process itself?

   If YES, this type of risk management information should be made available to stakeholders and the public.

   If NO, there may be no compelling public health rationale for communicating this information.

3. Is there a compelling reason to withhold or modify the information, such as:

   i) Could the release of the information compromise national security or an ongoing police investigation?

   ii) Will release of the information violate privacy laws and/or existing confidentiality policies or unnecessarily violate personal privacy?

   iii) Could the release of the information result in stigmatization of specific ethnic groups or people in specific geographical regions?

   If the answer is YES to either (i), (ii) or (iii), modifications to the information may be appropriate. If modifications are not possible, then the information may be justifiably withheld. The core public health imperative of informing those at-risk, however, must always take priority.

Figure 2. Identifying the Appropriate Level of Transparency in a Public Health Emergency Information Policy[91]

A need exists for clear communication pathways that allow critical public health and medical information be provided to the comprehensive public health and medical community during an emergency event in Mississippi, in the United States, and around the globe. Without clear communication pathways that can support timely and accurate information with a general sense of transparency, the potential for negative medical outcomes associated with an emergency event can and will occur. One potential negative outcome is the lack of trust among the medical community, which can spread to the

[90] Peter O'Malley, John Rainford and Alison Thompson, "Transparency During Public Health Emergencies: From Rhetoric to Reality," *Bulletin of the World Health Organization* 87, no. 8 (2009): 614–618.

[91] Ibid.

general public.[92] The comparative study of two countries that responded to the outbreak of SARS in late 2002 and 2003, China and Singapore, provide excellent strategic communication lessons that can be applied in the United States.

[92] O'Malley, Rainford and Thompson, "Transparency During Public Health Emergencies: From Rhetoric to Reality," 614–618.

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IV. CASE STUDIES

"Alone we can do so little. Together we can do so much."[93]

— American author and activist Helen Keller

To develop a strategic communication model for public health, it is beneficial to study the successes of previous strategic communication models. Law enforcement and fire are two service professions considered communication success stories within their own groups, and thus could, be examples for a public health strategic communication model. The city of Boston holds the historical key to the formal development of both of these professions. In 1678, the first paid fire department was established in Boston.[94] Then, in 1839, the Boston Police Department became the first full-time police unit in the United States.[95] Both these professions have improved their strategic communication processes through lessons learned over time. While it is beneficial to evaluate these lessons from an individual department perspective, it is also important to view them from the lenses of the urban versus the rural geographical landscape.

A. RURAL FIRE STRATEGIC COMMUNICATION

Houston, MS Fire Service—A Historical Perspective of their Communication Processes

How long has the Houston Fire Service been in operation? Some people in Chickasaw County, Mississippi say as long as a bucket of water was available, and men and women were willing to help their neighbor in a time of need. Although the bucket of water evolved to more useful hoses that could be attached to high-powered water hydrants, other changes have occurred as well. The communication and notification processes within the department have also seen change over the years. Communication is probably the most important component in any emergency and the improvements within

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[93] Thinkexist.com, "Helen Keller Quotes," (n.d.), http://thinkexist.com/quotation/alone_we_can_do_so_little-together_we_can_do_so/144236.html.

[94] Boston Sparks Association, "A Brief History of the Boston Fire Department."

[95] Annely, "History of Law Enforcement," 2005.

the Houston Fire Department have served to save lives and dwellings. Although strategic communication can consist of many factors, the first communication of notification of the firefighters must occur for other areas of communication to even matter.

In the early days of the Houston Fire Department, fires were only fought within the cities' boundaries. It was only later that the rural areas of Chickasaw county beyond the Houston city limit boundaries established volunteer units in an effort to save dwellings, and thus, decrease housing insurance rates across the county.[96] The Houston MS Fire Department has always been a primarily voluntary service with no more than two full-time firemen on duty as late as this writing. The number of volunteers has ranged through the years with as few as 10 and as many as 40.[97]

The means of notification of a fire has evolved over the years. Some recall that many years ago, the First Methodist Church bell was rung to signify several different alarms within the city. This bell tolled when someone died, when it was time for church services to begin, and even when there was a fire. Later during the 1930s, a siren in front of the fire station would sound to alert the volunteers that help was needed. The length and number of sirens of the alarm siren sound system was also the communication used to direct the firefighters to the fire. One siren sound was the clue to go north, two signaled to go east, three to go south, and four to go west. Since the response was only within the city limits, the volunteers would utilize the major corridors of Hwy 15 or Hwy 8 and look to the sky for the smoke signal to guide them to the area of need. Although the means of activation changed over the years, the siren remained in working order until the April 2011 tornado caused structural damage and it had to be removed.[98]

The next means of notification involved the telephone. As described by Robert Lamar Goza, the call would come into the fire station and the recorded call was then automatically forwarded to six senior volunteers. While the volunteers quickly prepared

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[96] Otis Mooneyham, *History of Houston*, MS Fire Service, May 20, 2013.

[97] Curtis Jernigan, Robert Lamar Goza and Otis Mooneyham, *Houston Fire Service—A Historical Perspective* (Houston, MS: Chickasaw County Historical Society, 2013).

[98] Mooneyham, *History of Houston*, i.

to respond, the wives of these men would begin the process of contacting the remaining volunteers. This coordination was done through the means of a call tree that divided up the remaining persons.[99] Robert Lamar Goza was one of the six original senior volunteers in Houston, and still remains a faithful servant today.

Growth of the Houston Fire Department meant two full-time firefighters about 1960. Ed Burgess and Loyce Oswalt rotated the 24-hour shift while also covering the police radios at night. During this time period, the full-time person acquired the capability to send the recorded message to all the volunteer phone numbers at the same time. When the call would come into a volunteers' home, the ring tone was different from the normal ring tone that alerted them to the urgency of the call and the impending emergency. The potential for a "busy signal" was not an issue, as the recorded message would dial the line until someone answered. From the time period of the recorded telephone messages came a time when a recorded message was sent to volunteers' pager.[100] The latter is actually the current method of activation although the page now comes from the 911 dispatcher.

Today, the notification system is much more advanced than the toll of the bell so many years ago. The 911 system is the central hub for the call that comes in to report a fire, as well as the tones that go out to volunteers from the 911 center to alert of the impending emergency.[101] The tones that go out to the volunteers are heard over a pager. Volunteers who have been approved and trained are issued the pagers, which are a part of the 911-communication system for the fire department notification. Lead personnel have pagers and radios that can then be utilized to transmit specific information. Although information can be heard from the radio over the pager, they cannot talk on it.[102] Some additional communication information related to Houston Fire Department is as follows.

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[99] Goza, *History of Houston*.

[100] Ibid.

[101] Jernigan, Goza, and Mooneyham, *Houston Fire Service- A Historical Perspective*; Curtis Jernigan, *Strategic Communications for Houston/Chickasaw County Fire Service*, June 1, 2013.

[102] Ibid.

- The first person on the scene of the fire is the incident commander until that duty is passed onto someone with a higher authority.
- This current notification system has an advantage as it links into the already functional 911 system.
- Currently approximately 20 volunteers are rostered with 15 actively involved in the most recent fire responses.
- Lessons learned from 911 call centers across the country have shown that the success of a response can be tied to the information communicated through that first call received, and subsequently, how it is then translated to the first responders. It is no different in Houston.
- Contrary to the early days of fire response, the Houston Fire Department now responds to the need for support beyond the Houston city limits. Whether it is to other areas of Chickasaw County or beyond the county lines, support is offered.[103]

The advancements of fire response in this country can be attributed to several things, one of which is the volunteer firefighters who give of themselves to help their neighbor in times of need. Currently, in the United States, over 75% of fire fighters are volunteers.[104] These collaborative relationships are a strength when it comes to the success of communication and response to the event. The number of volunteers has dropped over 10% in the last 20 years.[105] This decrease has been associated with situations, such as the inability to leave a full-time job on the spur of the moment, stricter training requirements, and a very minimal pay.[106] Much money allocated to this service has allowed for more modern equipment from trucks to radios to turn-out gear, all in an effort to increase the odds of saving a structure, and more importantly, to protect the life of the responder. Even still, nothing takes the place of human-to-human communication. Having a strategic communication model in place allows for accurate and timely information. Communication at the grassroots level is the first step to a successful

[103] Jernigan, Goza and Mooneyham, *Houston Fire Service—A Historical Perspective*.

[104] Mark F. Mallick, *Recruitment and Retention of Volunteer Firefighters in Erie County, New York* (Emmitsburg, MD: National Fire Academy, 1998), http://www.usfa.fema.gov/pdf/efop/efo29095.pdf.

[105] Angela Salscheider, "Volunteer Firefighters on the Decline," *Firefighting News*, November 9, 2005.

[106] Ibid.

response and that communication must be timely, accurate, and reach the right people. These multiple communication changes over time have allowed for faster response times and more people to be summoned quicker.

Public health can learn several lessons from this rural fire service in the area of strategic communication. First, initial notification of the event and the information that it contains is the single most important driving factor of the response. Second, during an emergency, collaborative relationships amongst rural volunteers form the basis of a strong communication system. Next, having a strategic communication model in place allows for accurate and timely information. Finally, as time and technology advance, so should the evaluation of the current model to adjust to more improved strategies.

B. RURAL LAW ENFORCEMENT

Chickasaw County, MS Law Enforcement—A Working Perspective of their Communication Processes

Even though technological advances have revolutionized the law enforcement community, the strategic communication processes have remained front and center in value and priority.[107] Communication across jurisdictions and departments has long been an issue for first responders at all levels.[108] While communication is the greatest component for any public safety operation, it remains a fact that it receives the least amount of attention and training.[109] The law enforcement community has spent years improving technology that today allows for communication that persons in this field could not have even been perceived 50 years ago.[110] Communication within the law enforcement community has seen decades of changes and challenges in regards to communication.[111] For almost every communication need, technological advancements

[107] Reyes, "A Decade of Challenges and Changes in Communications."

[108] Reyes, "Common Language Is the Key to Achieving Better Interoperability."

[109] Ibid.

[110] Reyes, "A Decade of Challenges and Changes in Communication."

[111] Ibid.

have occurred. While technology has allowed for these advancements in communication, gaps do still exist. It is often said that any remaining gaps are 90% human and only 10% technical.[112]

Another vital element pertaining to strategic communication for law enforcement is the strategic planning process.[113] Within the strategic planning processes, it has often been emphasized that law enforcement needs to be better informed. Also, it is often documented that more timely decisions are also necessary. Therefore, communication models must be established at all levels across the law enforcement community for law enforcement personnel to receive vital information about decisions to be made in a timely manner.[114]

Much like rural fire services across America, the need to ensure successful notification and strategic communication systems is imperative to the rural law enforcement community as well. The methodology for notification in rural Chickasaw County, Mississippi is much the same for the law enforcement community as it is for the Chickasaw County fire service in that all notification calls for a response originate through the 911 system. Next, notification and information sharing occurs through narrow-band radios. If an emergency event requires additional resources beyond what is available, the senior officer on duty requests that the 911 dispatch notify all credentialed personnel to respond. This notification is done via radio contact, as well as via cell phone notification for a back-up.[115] Currently, this rural law enforcement unit still uses "ten codes" but is phasing gradually to common language to meet the law enforcement community requirements.

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[112] Reyes, "A Decade of Challenges and Changes in Communication."

[113] Matt Stiehm, "Strategic Planning for Small- and Mid-Sized Departments," *PoliceOne.com News*, April 11, 2013, http://www.policeone.com/patrol-issues/articles/6192813-Strategic-planning-for-small-and-mid-sized-departments/.

[114] Ibid.

[115] Jimmy Simmons and Adam Harmon, *Strategic Communication/Notification for Chickasaw County Law Enforcement*, July 5, 2013.

Having a clear strategic communication plan the entire first responder community understands will save response time, and thus potentially, save lives during an event. The major difference between the fire and law enforcement notification in this rural county is that the fire one has a progressive tone-out through pagers that goes to all volunteer firemen at the same time. As long as the volunteer has the pager on, the notification will be successful. Contrarily, the law enforcement notification for multiple call-outs would be done by radio and then individual cell phone calls for a back-up if the officer does not answer the radio call-out.

In general, public health can learn lessons from this rural law enforcement unit, as well as rural law enforcement in general in regards to a strategic communication model. Having a clear strategic communication plan understood by the entire first responder community will save response time, and thus, potentially save lives during an event. Also, a strategic communication plan will not be an end-all to the need for continued evaluation. Just as the rural law enforcers are transitioning to a common language to ensure clear communication for the entire first responder community, a public health strategic communication model will require a common language to ensure that all providers understand the information in the same manner. In addition, the law enforcement community, like most all first responders, agrees that seamless and effective communications is not easy. Whether in an exercise or an actual event, communication remains an area that needs improvement. Although the hardest job may be to ensure everyone is reading from the same "human" communications page, it must be the priority. These truths were pointed out as a result of 9/11 to Hurricane Katrina, and they are still being addressed in responses to disasters today. The success of strategic communications across various groups will not be effective unless all parties make a commitment for the shared goal.[116] A lesson learned, therefore, is that for an ESF-8 strategic communication model, buy-in from all parties is essential for it to be successful overall.

[116] Reyes, "Common Language Is the Key to Achieving Better Interoperability."

C. URBAN FIRE/LAW ENFORCEMENT STRATEGIC COMMUNICATION

California Public Safety Communications Strategic Plan–Milpitas, CA

Although many of the same communication issues occur within the urban setting of law enforcement and fire service as the rural setting, some differences can be found. Often times, the urban sector has more funding resources, and thus, more opportunity for technological advancement. Still, as has been pointed out, technology alone will not ensure a successful strategic communication model, but it does make for more opportunity to close gaps within the strategic communication process.[117] One finding often seen across urban areas is the fact that the general strategic communication plan for the first responder community is a combined plan. This collaboration is proof of a progressive communication model.

Collaboration between various departments and agencies across all levels of government is imperative to addressing real communication barriers. The reality is that many cultural differences exist between different departments, agencies, and levels of government.[118] Silos are then created that prevent successful strategic communication.[119] This situation is often found to be true from within groups and then beyond its own borders. This issue of silos must be addressed and dealt with if a successful strategic communication model is to be implemented that crosses these cultural divides. The proof of collaboration is the result of addressing communication issues of silos within different entities. Thus, what is preventing this collaboration and information sharing? Some say the culprit is structural and organizational barriers, organizational inertia, and an array of other behavioral and cultural impediments.[120]

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[117] Reyes, "A Decade of Challenges and Changes in Communications."

[118] Doug Wyllie, "Technology Isn't the (Biggest) Problem for Information Sharing in Law Enforcement," *Policeone.com*, April 30, 2009, http://www.policeone.com/police-products/communications/articles/1816539-Technology-isn-t-the-biggest-problem-for-information-sharing-in-law-enforcement/.

[119] Ibid.

[120] Ibid.

In 2010, California released its Public Safety Communications Strategic Plan.[121] This plan was the result of a unified strategy for communications planning effort. It was a plan that many felt was long overdue. While California's public safety agencies operate under 14 separate systems, the goal is to function under a centralized oversight. This collaboration will allow for a more coordinated plan that might not have otherwise happened without a centralized oversight. [122] Currently, even the state's Highway Patrol and California Fire are working towards a collaborative effort under this structure.[123] For the plan to be successful however, accountability from the oversight coordinator and collaboration will have to continue to occur.

Brian Sturdivant, fire chief from Milpitas, CA, agrees that the fire/law enforcement collaboration is a positive move to ensure successful strategic communication outcomes for the citizens of California and beyond.[124] Milpitas is just north of San Jose, CA in Santa Clara County. Sturdivent has seen first hand the value of collaboration as first responders seek to enhance their strategic communication processes in an area of exploding population trends. To plan, mitigate, and respond to the threats seen in today's climate, the importance of information sharing between multiple partners cannot be minimized. The California Public Safety Communications plan is beneficial to Sturdivent's service as a fire chief because of the force multiplier that the collaboration allows. It is also just as valuable to someone from the law enforcement and other sectors as it seeks to guide the strategic communication necessary during an emergency event.[125] Some of the key success factors of the plan included active and consistent support from the executive-level of key agency executives, including the governor's office, which brings an increased level of credibility to the implementers of the plan across the state. Also, the leadership of the largest four public safety communication agencies support the

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[121] McKenna, "California Releases Public Safety Communications Strategic Plan."

[122] Ibid.

[123] Ibid.

[124] Brian Sturdivant, *Fire Service in Relation to the California Public Safety Communications Strategic Plan*, 2013.

[125] Ibid.

system of systems, which will guide the processes of interoperability. A system of systems is referencing the fact that the four largest systems come together to communicate through a single system, which is very important for the communication process. Next, the governor funded the plan and its implementation, which warranted additional support from the first responder community.[126]

While several lessons can be learned from the urban model that California has implemented, one that stands out is the value of collaboration. For an ESF-8 strategic communication Model to be developed, implemented, and maintained, collaboration among various entities will have to exist. Another key element is the support from the governor all the way down to the grassroots level. Finally, the centralized oversight provided a coordination level that can be implemented with the MS ESF-8 strategic communication model as well. Just as the California plan has several major systems coming together to collaborate and communicate, the MS model will be representative of the same thing; multiple systems coming together to communicate as one, the MS ESF-8 system.

D. FINDINGS

From the case studies chapter, it is noted that having a clear strategic communication plan understood by the first responder, whether law enforcement or fire, can mean the difference in an emergency situation. This plan can then be applied to the public health and medical community as well. Another key finding was that strategic communication is not always easy and it has evolved over the years with the fire and law enforcement communities. As a result, lessons can be learned from the historical advancements and not be repeated as public health and medical strategic communication processes are enhanced.

[126] Sturdivant, *Fire Service in Relation to the California Public Safety Communications Strategic Plan*.

V. EVENT, EXERCISE AND WORKSHOP

"We all knew there was just one way to improve our odds for survival: train, train, train. Sometimes, if your training is properly intense it will kill you. More often—much, much more often—it will save your life."[127]

—Richard Marcinko,
retired U.S. Navy SEAL Commander

Communication is very important to the success of a response in real-world events. One way to test preparedness for emergencies is through a full-scale exercise. A common thread often identified either through exercises or real-world events is that communication has continuously been identified as an area for improvement.

In the years since 9/11, over one trillion dollars has been spent in an effort to protect the homeland.[128] The Department of the Homeland Security distributes grant funds to other departments, states, locals, tribal jurisdictions, and other regional authorities in an effort to better protect the homeland for both natural and man-made disasters. These dollars are to be used for the preparation, prevention, response, and recovery emergency efforts. While equipment purchases have been an important acquired asset with grant dollars, the return on the investment of training and exercises has been shown to be a very effective use of grants as well.[129]

The federal government provides program guidance for exercises that further assist in the preparedness and response efforts for U.S. citizens. According to the Homeland Security Exercise and Evaluation Program website,

> exercises play a vital role in national preparedness by enabling whole community stakeholders to test and validate plans and capabilities, and identify both capability gaps and areas for improvement. A well-designed

[127] Thinkexist.com, "Richard Marcinko Quotes," (n.d.), http://thinkexist.com/quotation/we-all-knew-there-was-just-one-way-to-improve-our/397095.html.

[128] John Mueller Stewart, *Terror, Security, and Money: Balancing the Risks, Benefits, and Costs of Homeland Security*, April 1, 2011.

[129] Department of Homeland Security, "DHS Announces Grant Guidance for Fiscal Year (FY) 2012 Preparedness Grants," February 17, 2012, http://www.dhs.gov/news/2012/02/17/dhs-announces-grant-guidance-fiscal-year-fy-2012-preparedness-grants.

> exercise provides a low-risk environment to test capabilities, familiarize personnel with roles and responsibilities, and foster meaningful interaction and communication across organizations. The Homeland Security Exercise and Evaluation Program (HSEEP) provides a set of guiding principles for exercise programs, as well as a common approach to planning and conducting individual exercises. This methodology applies to exercises in support of all national preparedness mission areas and ensures a consistent and interoperable approach to exercise design and development, conduct, evaluation, and improvement planning.[130]

The Target Capabilities List (TCL) is the federal guidance document that outlines the 37 capabilities used to guide the emergency planning efforts nationally. The TCL document provides a capability summary with the definition, preparedness, and performance tasks, and measures. Resource elements and identified responsibilities for building and maintaining the capability are also provided. It could be asked, "why capabilities-based planning?" According to the Federal Emergency Management Agency (FEMA) website, "capabilities provide the means to accomplish a mission and achieve desired outcomes by performing critical tasks, under specified conditions, to target levels of performance. Capabilities are delivered by appropriate combinations of planning, organization, equipment, training, and exercises."[131] This capabilities-based guidance provides a more stream-lined approach to an all-hazards planning and response effort and offers a measure of evaluation.

Under the Department of Health and Human Services, $971 million was awarded in 2012 to continue improving preparedness and health outcomes for a wide range of public health threats. Historically, two major grant opportunities for public health and medical systems' emergency planning have been available. The Public Health Emergency Preparedness (PHEP) Cooperative Agreement is a grant that has been awarded to Mississippi and other states and territories since 2004.[132] Prior to that time,

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[130] Department of Homeland Security, "Homeland Security Exercise and Evaluation (HSEEP) Program," April 2013, http://www.llis.dhs.gov/HSEEP/Documents/homeland-security-exercise-and-evaluation-program-hseep.

[131] *Target Capabilities List: A Companion to the National Preparedness Guidelines* (Washington, DC: U.S. Department of Homeland Security, 2007).

[132] Health and Human Services, "HHS Provides More than $1 Billion to Improve all Hazards Public Health."

grant opportunities centered around bioterrorism planning that had specific focus areas to use as a guide.[133] Today's PHEP grant guidance is centered on 15 capabilities that further the ability to respond to any of the 15 national planning scenarios.[134]

Another grant within the medical scope of planning is the Hospital Preparedness Program (HPP) grant, which is issued through the Assistant Secretary for Preparedness and Response (ASPR). Within this grant, funding can be provided for eight capabilities focused on preparedness for healthcare systems, healthcare organizations, and healthcare coalitions. Several of these capabilities cross-reference the PHEP capabilities. The year 2012 was the first year that these grants were awarded jointly in an effort to encourage cooperation and coordination of planning between the public health systems and the nation's healthcare systems. Fifteen PHEP capabilities and eight HPP capabilities of are now 23 capabilities of PHEP/HPP.

The population for the states, territories, and specific metropolitan areas determines the division of the grant dollars for the capabilities-based planning and response that can often be crippling when the minimum requirements for dollars are the same across the board for all whether a little or a lot is received.

The state of Mississippi has 1% of the total population of the United States. Therefore, it receives ~ 1% of the total award of the PHEP/HPP grant dollars. The 2012 MS PHEP award was $6,826,045 and the HPP was $3,555,672.[135] Many would see these numbers as a minimal amount of dollars to cover such a broad area of emergency preparedness and response efforts while others might think differently. From the management view, a limited amount of dollars are available to build and sustain a public

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[133] Centers for Disease Control, Office of Public Health Preparedness and Response, Archive: Funding and Technical Assistance, "Public Health Emergency Response (PHER) Grant (2009–2010)," (n.d.), http://www.cdc.gov/phpr/archive.htm.

[134] Centers for Disease Control and Prevention, Office of Public Health Preparedness and Response, "Public Health Capabilities: National Standards for State and Local Planners: Executive Summary," 2011, http://www.cdc.gov/phpr/capabilities/executivesummary.pdf.

[135] Centers for Disease Control and Preparedness, *CDC-RFA-TP12-1201: Hospital Preparedness Program (HPP) and Public Health Emergency Preparedness (PHEP) Cooperative Agreements* (Atlanta, GA: Centers for Disease Control and Preparedness, 2012), http://www.cdc.gov/phpr/documents/cdc-rfa-tp12-1201_4_17_12_FINAL.pdf.

health emergency preparedness program with the same requirements as all other states while receiving a much smaller amount of dollars. Thus, many real-world responses can help facilitate the on-going training necessary to sustain a program. Ultimately, when cashing in on the investment, whether in everyday response or catastrophic events, it is then truly possible to measure the cost of the investment itself.

Training and exercising has an expensive price tag but it is very necessary to maintain a level of preparedness for the state. In addition, it is only one of the multiple capabilities that must be budgeted from the grants. Regardless, MSDH and the State of Mississippi have made training and exercising a priority element in emergency preparedness.

Not only has the MSDH addressed gaps in preparedness and planning efforts through exercises, it has also had its share of real-life events that have provided many lessons learned. The FEMA website has a recording of federal disasters declared and listed by state.[136] The historical federal declarations for Mississippi can be seen in Table 1, Mississippi Federal Declarations Chart. These multiple declarations validate that Mississippi has had a very active disaster and response cycle historically. Even still, it was not until after public health emergency preparedness and other grant dollars became available that a more robust public health emergency preparedness program in Mississippi was developed. MSDH then had the resources to respond better to such real-life events at the level currently seen. This robust public health emergency preparedness program also leads to a more robust training and exercise program.

[136] Federal Emergency Management Agency, "Disaster Declarations: Total Number of Declared Disasters by State/Tribal Government and by Year," (n.d.), http://www.fema.gov/disasters?field_state_tid=50&field_disaster_type_term_tid=All&field_disaster_declaration_type_value=All&items_per_page=10.

Table 1. Mississippi Federal Declarations Chart

Number	Date	State/Tribal Government	Incident Description	Declaration Type
4101	2/13/2013	Mississippi	Severe Storms, Tornadoes, and Flooding	Major Disaster Declaration
4081	8/29/2012	Mississippi	Hurricane Isaac	Major Disaster Declaration
3348	8/28/2012	Mississippi	Tropical Storm Isaac	Emergency Declaration
1983	5/11/2011	Mississippi	Flooding	Major Disaster Declaration
3320	5/4/2011	Mississippi	Flooding	Emergency Declaration
1972	4/29/2011	Mississippi	Severe Storms, Tornadoes, Straight-line Winds, and Associated Flooding	Major Disaster Declaration
1916	5/14/2010	Mississippi	Severe Storms, Tornadoes, and Flooding	Major Disaster Declaration
1906	4/29/2010	Mississippi	Severe Storms, Tornadoes, and Flooding	Major Disaster Declaration
1837	5/12/2009	Mississippi	Severe Storms, Flooding, and Tornadoes	Major Disaster Declaration
1794	9/22/2008	Mississippi	Hurricane Gustav	Major Disaster Declaration
3291	8/30/2008	Mississippi	Hurricane Gustav	Emergency Declaration
1764	5/28/2008	Mississippi	Severe Storms and Tornadoes	Major Disaster Declaration
1753	5/8/2008	Mississippi	Severe Storms and Flooding	Major Disaster Declaration
1604	8/29/2005	Mississippi	Hurricane Katrina	Major Disaster Declaration
3213	8/28/2005	Mississippi	Hurricane Katrina	Emergency Declaration
1594	7/10/2005	Mississippi	Hurricane Dennis	Major Disaster Declaration
1550	9/15/2004	Mississippi	Hurricane Ivan	Major Disaster Declaration
1470	5/23/2003	Mississippi	Severe Storms, Tornadoes, and High Winds	Major Disaster Declaration
1459	4/24/2003	Mississippi	Severe Storms, Tornadoes and Flooding	Major Disaster Declaration
1443	11/14/2002	Mississippi	Severe Storms and Tornadoes	Major Disaster Declaration
1436	10/1/2002	Mississippi	Tropical Storm Isidore	Major Disaster Declaration
1398	12/7/2001	Mississippi	Severe Storms and Tornadoes	Major Disaster Declaration
1382	6/21/2001	Mississippi	Tropical Storm Allison	Major Disaster Declaration
1365	4/17/2001	Mississippi	Severe Storms & Flooding	Major Disaster Declaration
1360	2/23/2001	Mississippi	Tornadoes and Severe Storms	Major Disaster

Number	Date	State/Tribal Government	Incident Description	Declaration Type
				Declaration
1265	1/25/1999	Mississippi	Severe Winter Storms, Ice and Freezing Rain	Major Disaster Declaration
1251	10/1/1998	Mississippi	Hurricane Georges	Major Disaster Declaration
3132	9/28/1998	Mississippi	Hurricane Georges	Emergency Declaration
1178	6/13/1997	Mississippi	Flooding	Major Disaster Declaration
1051	5/12/1995	Mississippi	Severe Storm, Tornado, Flooding	Major Disaster Declaration
1009	2/18/1994	Mississippi	Severe Storm, Winter Storm, Freezing Rain And Sleet	Major Disaster Declaration
968	11/25/1992	Mississippi	High Winds, Severe Storm, Tornadoes	Major Disaster Declaration
967	10/17/1992	Mississippi	High Winds, Severe Storm, Tornadoes, Hail	Major Disaster Declaration
939	3/20/1992	Mississippi	Severe Storm, Tornadoes	Major Disaster Declaration
906	5/17/1991	Mississippi	Flooding, Severe Storm, Tornado	Major Disaster Declaration
895	3/5/1991	Mississippi	Flooding, Severe Storm	Major Disaster Declaration
888	1/3/1991	Mississippi	Flooding, Severe Storm, Tornado	Major Disaster Declaration
859	2/28/1990	Mississippi	Flooding, Severe Storm, Tornado	Major Disaster Declaration
787	3/5/1987	Mississippi	Severe Storms, Tornadoes, Flooding	Major Disaster Declaration
741	9/4/1985	Mississippi	Hurricane Elena	Major Disaster Declaration
703	4/26/1984	Mississippi	Tornadoes	Major Disaster Declaration
3087	12/21/1983	Mississippi	Severe Storms And Flooding	Emergency Declaration
683	6/1/1983	Mississippi	Severe Storms, Tornadoes, Flooding	Major Disaster Declaration
678	4/16/1983	Mississippi	Severe Storms, Flooding, Tornadoes	Major Disaster Declaration
3084	4/10/1982	Mississippi	Tornados	Emergency Declaration
618	4/19/1980	Mississippi	Storms, Flood, Mudslides, Tornadoes	Major Disaster Declaration
599	9/13/1979	Mississippi	Hurricane Frederic	Major Disaster Declaration
577	4/16/1979	Mississippi	Storms, Tornadoes, Floods	Major Disaster Declaration
3077	4/14/1979	Mississippi	Storms, Tornadoes, Floods	Emergency Declaration
3063	4/24/1978	Mississippi	Tornadoes	Emergency Declaration

Number	Date	State/Tribal Government	Incident Description	Declaration Type
3032	2/22/1977	Mississippi	Drought And Freezing	Emergency Declaration
499	4/1/1976	Mississippi	Severe Storms, Tornadoes, Flooding	Major Disaster Declaration
3010	4/4/1975	Mississippi	Heavy Rains And Flooding	Emergency Declaration
456	1/30/1975	Mississippi	Tornadoes	Major Disaster Declaration
3006	1/18/1975	Mississippi	Tornadoes	Emergency Declaration
430	4/18/1974	Mississippi	Heavy Rains, Flooding	Major Disaster Declaration
368	3/27/1973	Mississippi	Heavy Rains, Tornadoes, Flooding	Major Disaster Declaration
318	1/19/1972	Mississippi	Heavy Rains, Flooding	Major Disaster Declaration
302	2/22/1971	Mississippi	Storms, Tornadoes	Major Disaster Declaration
271	8/18/1969	Mississippi	Hurricane Camille	Major Disaster Declaration
210	9/25/1965	Mississippi	Hurricane Betsy	Major Disaster Declaration
135	10/10/1962	Mississippi	Chlorine Barge Accident	Major Disaster Declaration
108	2/27/1961	Mississippi	Floods	Major Disaster Declaration
14	12/6/1953	Mississippi	Tornado	Major Disaster Declaration

MSDH responded to the multiple disaster responses between 2004 and 2013 with logistical supplies and staff resources as noted in Table 2. Anywhere between 10 and 2,200 employees were activated at any one time to the multiple events. Also, MSDH provided staff resources to events in other states, such as the Kentucky ice storm of 2009, Kentucky flood response of 2010, and Hurricane Sandy of 2012.

Table 2. MS Public Health Emergency Activations 2004–2013

2004	Tropical Storm Bonnie
	Hurricane Charley
	Hurricane Frances
	Hurricane Ivan
	Tropical Storm Matthew
	Chiron Flu Vaccine Shortage/Mass Vaccination
2005	Tropical Storm Arlene
	Hurricane Cindy
	Hurricane Dennis
	Hurricane Katrina (one of the most devastating hurricanes in the history of the U.S. and the worst to the state of MS; billions of $ in damage)
	Hurricane Rita
2006	Tropical Storm Alberto
2007	Hurricane Humberto
	Tropical Depression 10
2008	Tropical Storm Edouard
	Tropical Storm Fay
	Hurricane Gustav
	Emergystat Ambulance Crisis
2009	2009 H1N1 Swine Flu Pandemic
	Tropical Storm Claudette
	Hurricane Ida
	Jackson Water Crisis
	Severe Winter Weather
2010	BP Gulf Coast Oil Spill
	Jackson Water Crisis
	Yazoo County Tornado
2011	MS River Flood Event
	Yazoo Tornado
	Smithville Tornado
2012	Hurricane Isaac
2013	Hattiesburg Tornado

Ultimately, Mississippi has participated in its share of exercises; both under a HSEEP planned format and real-world events. The common thread that has always been identified either through the formal AAR process or just through lessons learned documentation is that communication has continuously been identified as an area for

improvement. It is also through these exercises that MSDH has steadily seen its emergency preparedness and response program improve its public health and medical emergency preparedness capabilities to serve the 2.9 million citizens of the state better. In December 2102, the Trust for America's Health report card awarded Mississippi one of five states that tied for first place in the country meeting eight of 10 public health indicators that affected public health emergency preparedness. The four other states were Maryland, North Carolina, Vermont, and Wisconsin.

While the Mississippi river flood event of 2011 prompted a coordination of the ESF-8 partnership information sharing and communication efforts from the state level at Governor Haley Barbor's recommendation, it become a more formalized reality during Hurricane Isaac. In the early days of the Hurricane Isaac response, it became apparent that there some value could be seen in the ESF-8 coordination and information sharing processes developed in 2011. Many medical facilities were even asking why it not moving forward. Therefore, it was determined that representatives from MSDH (Tammy Chamblee, RN[137] and Julia Woods, PhD) would continue the development and implementation of a single model from the state to the grass roots level for the coordination of information sharing to the ESF-8 community. With the known ESF-8 partnership, the state level single model of information sharing and strategic communication continued and became what is known as the MS ESF-8 MEHC model. It is often during events that plans are developed and then further refined. The Hattiesburg tornado event of January 2013 helped to drive the development of the MEHC model further.

A. HATTIESBURG TORNADO EVENT—JANUARY 2013 REAL-WORLD EVENT

On Sunday, February 10, 2013, a violent system of storms moved through Mississippi and an EF-4 tornado damaged much of Hattiesburg, MS, in Forrest County.

[137] Tammy Chamblee, RN, BSN, CHEP of the Mississippi State Department of Health, who is also the Chief Nurse at the Office of Emergency Planning & Response, in Jackson, MS and Houston, MS, is also the author of this thesis.

The University of Southern Mississippi is in Hattiesburg and received its share of damage. The counties of Lamar, Marion, Lawrence, and Wayne also had major damage because of the tornado. Reports from ESF-8 situational awareness estimated that over 350 homes were destroyed and over 1,200 damaged. Emergency management, public health, and other responding agencies worked to ensure that the citizens of the impacted area received the assistance necessary for a speedy recovery. Public health addressed many needs, such as environmental and epidemiological issues. Tetanus vaccines were administered. Public information was prepared and released to address issues, such as carbon monoxide poisoning, snakes, and water. Boil water notices were delivered.

As a result of years of planned exercises and real-life events, the MSDH public health coordination center was quickly activated and a mission assignment to utilize the MS ESF-8 healthcare coalition for ESF-8 public health and medical strategic communications was issued. This single model shared daily ESF-8 situation reports downward to the comprehensive health and medical community, as well as upward to the state emergency management agency and the governor. Through daily conference calls with the partnership, strategic communication was relayed, situation updates were provided by email back to the MEHC leaders, and the analyzed data was then reported to the PHCC planning chief daily for ESF-8 situation report. Through process formalization and systematic refinement, the model became the means to ensure reliable ESF-8 situational updates were provided by a valued source up and down the chain. Although it was done timely and allowed for the information to reach the comprehensive ESF-8 grassroots level, clearly lessons were learned and improvements needed to be made.

1. What Was Done

Via email, a notice was issued to the partnership of the daily conference call from the state PHCC. This daily conference call allowed for communication to all the partnership and drove the necessary information needed to develop a situational awareness report. The partnership sent in its reports by 2 pm daily for the planning section to include in the ESF-8 situation awareness report released for 24-hour shift.

2. What Worked Well

The daily conference call and information sharing allowed any unmet needs to be quickly addressed from the command center to the governor's state EOC. Also, the ESF-8 situational report developed was then shared with the partnership in a timely manner and provided accurate and valued information straight from the Public Health Command/Coordination Center (PHCC) on a daily basis.

3. Shortcomings

Several things were learned that could further refine this information-sharing process among MS ESF-8 partnerships. The primary shortcoming noted was that not all partners understand what their role is in ESF-8, and how this model can help them in an event. Clearly, more education and training is needed. Also, the plans surrounding this model need to become part of the MS ESF-8 plan to become standardized policy.

The AAR/Improvement Plan for this exercise is available upon request from the author of this thesis.

B. MAGNOLIA BLOSSOM 2013—FEBRUARY, 2013—A FULL SCALE EXERCISE

Shortly after the February 10 Hattiesburg tornado, an opportunity presented itself to test the effectiveness of the ESF-8 information-sharing model utilized during the Hattiesburg tornado event. On February 21, 2013, Mississippi began the Magnolia Blossom 2013 full-scale exercise. Multiple MSDH departments and multiple MS agencies participated in this event that lasted over the course of several days to meet several objectives. This state-level exercise was developed to test the Mississippi's Emergency Operations Center Management, Onsite Incident Management, Medical Supplies Management and Distribution, Mass Prophylaxis, Medical Surge, Volunteer and Donations Management, Weapons of Mass Destruction/Hazardous Material Response and Decontamination, and Chemical, Biological, Radiological, Nuclear, and Explosive Detection capabilities. The exercise planning team was comprised of numerous and diverse agencies, including MSDH, the South Central Preparedness and Emergency

Response Learning Center at the University of Alabama at Birmingham School of Public Health, the University of Mississippi Medical Center, and others including the 47th Civil Support Team and Keesler Air Force Base. The planning for this exercise began in July 2012 with the exercise planning team exploring a scenario that could combine multiple partners and objectives while testing the many functions in accordance with the grant requirements and the Mississippi Multi-Year Training and Exercise Plan. The exercise also needed to coordinate with ESF8 response partners to maximize efficiency in the planning and exercise conduct. After multiple planning sessions, Magnolia Blossom 2013 was born, and once again, the value of effective collaboration when financial resources are limited was realized.

The AAR/Improvement Plan for this exercise is available upon request from the author of this thesis.

While the exercise consisted of seven main objectives, one objective was to activate federal resources to provide medical supplies, equipment, and prophylaxis in accordance with MSDH Functional Annex 6: Strategic National Stockpile Plan, Functional Annex 6.01: Jackson Cities Readiness Initiative Plan, and Functional Annex 6.04: Receipt, Staging, and Storage Site Operations Plan. Although many of the public health and medical capabilities were tested, capabilities 8 and 9 were two that were exercised as mandated under the CDC division of state and local readiness, division of the strategic national stockpile program. The medical countermeasure distribution and dispensing composite measure required a full-scale exercise be done at least once during the 5-year budget cycle to receive PHEP funding. Mississippi and MSDH chose to exercise the medical countermeasure distribution and dispensing processes of the SNS during Magnolia Blossom 2013. Mississippi has historically had a very successful SNS program and exercising these capabilities was not the first for the state. During Hurricane Katrina, Mississippi became the first state to request, receive, and distribute the assets of the U.S. national stockpile in the country.

The SNS is a federal program that provides critical medical assets to states during a national emergency.[138] The federal, state and local planning for SNS was initiated in 1999, and has evolved tremendously since that time to have a broader all-hazards approach. The national repository of pharmaceuticals and other medical resources was historically developed for the purpose of a biological response capability. Currently 12 "push-packages" are strategically placed around the country and can be deployed to any of the 50 states and 12 territories within a 12-hour period.[139]

The MSDH SNS plan establishes a framework for the management of a public health emergency that would require the SNS activation.[140] In Mississippi, the SNS planning is driven by the need for its' 2.9 million citizens to receive prophylaxis within 36 hours to ensure a decreased morbidity and mortality associated with a biological disease event. Even still, the influence of planning for SNS has been seen in events, such as Hurricane Katrina, the 2004–05 influenza vaccine shortage, the 2009 H1N1 response, and the set-up of mass dispensing clinics following localized disease outbreaks.

Although the benefits of the planning efforts have been seen in several places and times, Mississippi is the only state to ever request the 12-hour push package, break down the assets, and push them to the area of need. Nine hospitals along the Mississippi gulf coast were either crippled or destroyed, and in immediate need of medical assets and pharmaceuticals following Hurricane Katrina. The decision of Mississippi Governor Haley Barbor and Dr. Brian Amy, MSDH state health officer, to request the SNS allowed for the provision of continued medical care in a time of disaster. All affected medical communities were being challenged to get pharmaceuticals and other life-saving medical supplies through traditional means of vendor managed inventory. Through the processes of the SNS planning, MSDH realized that medical resources could potentially be

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[138] Centers for Disease Control and Prevention, Office of Public Health Preparedness and Response, "Strategic National Stockpile (SNS)," (n.d.), http://www.cdc.gov/phpr/stockpile/stockpile.htm.

[139] Ibid.

[140] Mississippi State Department of Health Office of Emergency Preparedness and Response, *The MS State Department of Health Plan for Receiving, Distribution, and Dispensing Strategic National Stockpile Assets* (Jackson, MS: MS State Department of Health Office of Emergency Preparedness and Response, December 20, 2012), http://msdh.ms.gov/msdhsite/_static/resources/1136.pdf.

available within 12 hours, and therefore, made the decision to request the SNS push package, which proved to be a life-saving decision. For 17 days, the receiving, staging, and storage warehouse, which housed the push-package inventory, was pushing needed supplies to the medical community across the state under the direction of the state SNS coordinator and staff.

Following the Hurricane Katrina response, Mississippi worked with the CDC to adjust the push package formulary to meet the demands of a more all-hazards response versus just a biological. They also provided lessons learned and made recommendations based on this one-time real-world response to this medical countermeasure capability. This successful SNS push-package deployment allowed Mississippi to "go green," a term that referenced the overall planning and exercising success of the SNS program.[141] Mississippi currently has a score of 100 on its state SNS program, which only further validates the success of the collaboration and the commitment of the MSDH, and the many other MS agencies and organizations that participate in this program.

The planning and implementation of the SNS program in Mississippi ultimately affects all the ESF-8 community. Therefore, it is of great value to determine a single model of ESF-8 information sharing from the state to the grassroots level, and vice versa, that could be utilized if the SNS plan is activated.

In the Magnolia Blossom exercise, a survey was conducted to test the effectiveness of the recent Hattiesburg tornado response strategic communication information-sharing efforts to ESF8 MEHC primary and support entities. This 2-question survey was sent via email to the entire partnership of the MEHC and consisted of the following questions.

- During the recent Hattiesburg tornado event, did you share the daily situational reports with your affiliated partners?
- Do these current communication pathways reflect an improved communication strategy from previous events?

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[141] Pamela Nutt, *Mississippi Goes Green: The State's SNS Response to Katrina* (Arlington, VA: Association of State and Territorial Health Officers, 2009), http://www.astho.org/Programs/Preparedness/Strategic-National-Stockpile/Mississippi-Goes-Green--The-State-s-SNS-Response-to-Katrina/.

The results of this survey revealed information that will further guide the policy development of this MS ESF-8 information-sharing model. Of the 45 surveys sent out, just over half of the surveys were answered with 23 responding. Of the 23 replies, 20 answered "YES" to the first question. Therefore, of the 45 surveys sent, it can be hypothesized that only 20 of 45 groups actually shared the daily ESF-8 situational awareness report down to the grassroots level, which would be a conservative estimate. For the second question, 20 answered "YES" that these current communication pathways reflect an improved communication strategy from previous events. Even with 25 either reporting no to this question (3) or not responding at all (22), this number is a very favorable percentage to continue building out the model and plan associated with it.

C. CDC H7N9 VACCINATION PROVIDER WORKSHOP—JUNE 2013

On June 21, 2013, the CDC hosted a meeting entitled the *CDC Pandemic Vaccine Provider Identification and Enrollment Workshop.* Approximately 35 people from five states and two major cities came together to discuss issues surrounding current lists of potential vaccine providers and other H7N9 related issues. Participating were the states of Kentucky, Massachusetts, Mississippi, New York and Tennessee. Chicago and New York City represented large cities. The immunization and emergency preparedness groups spent the day addressing different strategies as they related to several pandemic influenza vaccination scenarios. The focus of this workshop was to follow up on recent surveys sent to all 50 states that had identified some specific pandemic preparedness gaps related to vaccination. Findings from these survey results of H7N9 assessments note that although the capacity to manufacture and distribute as many as 30 million doses of vaccine a week may exist, the capacity actually to administer the vaccine through current public health and private providers was uncertain. Also, while excellent systems are in place for pediatric vaccine providers to be enlisted during a pandemic, the ability to readily enlist adult providers is still lacking in most states.[142]

[142] *CDC Pandemic Provider Enrollment Workshop*, Atlanta, GA, June 21, 2013.

For the purposes of the workshop, most scenarios centered on the time frame of 60 days from point of vaccine notification to the time of the first vaccinations being administered. Therefore, the need to have lists available was identified as a necessary pandemic planning component. A readily available list could ensure rapid contact to begin detailed planning of vaccination dispensing with the providers. Otherwise, the possibility of vaccination administration being delayed once the vaccine is available could cause increased mortality and morbidity associated with the pandemic. Adequate planning now could save lives then.

Although the CDC encourages states to address this gap of a readily available provider list, the state of Tennessee (TN) made the argument that because lists are almost out of date the moment they are created, better value is derived from just in time enlistment. Their ability to utilize several different contact methods to enlist potential providers included emails to various professional organizations, conference calls with hospitals and their association, information disseminated through the TN health alert network, as well as through local public health-private provider contacts, postings to the TN Department of Health website, press releases and media interviews, and letters mailed out to licensed providers using available addresses.[143] Even though Tennessee did not feel the need to keep an updated list of the potential vaccination providers, a current list of whom to and how to contact the different provider groups served as the gap closure for them.

The New York Department of Health and Mental Health (NYDOHMH) countered with the value found in its development of a list based on lessons learned from the Chiron influenza vaccine shortage of 2004. Although many traditional providers appeared on the NY lists, the collaboration with the centers for Medicare and Medicaid to learn which providers were actually vaccinating adults was found to be a very important partner in formulating an adult provider contact list. By building upon older lists, and then adding

[143] *CDC Pandemic Provider Enrollment Workshop*, Atlanta, GA.

new providers to include pharmacy chains, first responders, and others, the NYDOHMH saw the number of providers registered to administer the vaccine climb to 3,069 during the H1N1 response.[144]

Although New York and Tennessee presented their opposing views via power points, the author learned as a participant in this workshop through the discussions that varying degrees of similarities occurred among the other states and cities. Massachusetts and Mississippi had actual provider lists left from the H1N1 response but they needed to be updated to ensure current contact status. Most had actual lists of pediatric providers utilized on a regular basis through the Vaccine for Children (VFC) program, but these lists would represent just a portion of the needed provider contacts. Kentucky was represented by newer personnel not present during the H1N1 response to really know and understand what actually existed in their state during that time, but they were seeking to learn and then implement the best model. Regardless of the differences, a common theme that was validated was the need to have quick access to the vaccination providers to save time, and thus, decrease the morbidity and mortality associated with a worse case scenario pandemic.

This workshop also further validated the need for a model to communicate rapidly with the comprehensive ESF-8 partnership. Whether the hazard is an earthquake or a pandemic, the ability to communicate comprehensively from the state to the grassroots level is more necessary today than it ever has been. By having the capability to communicate with the entire ESF-8 partnership, the state has the ability to reach any one or all the partners needed based upon the event. By utilizing this comprehensive ESF-8 model, the immunization and emergency preparedness groups could reach out to the ESF-8 state lead to then reach down to the facilities, organizations, and associations that could potentially be vaccine providers. They, in turn, could rapidly communicate down to the grassroots level to share information regarding the need for assistance to administer pandemic influenza vaccine to the populous; all done in a timely, accurate, and transparent method by a valued source of information.

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[144] *CDC Pandemic Provider Enrollment Workshop*, Atlanta, GA.

D. FINDINGS

Not only has the MSDH addressed gaps in preparedness and planning efforts through exercises, it has also responded in many real-life events that have provided multiple lessons learned. Through these lessons learned, a comprehensive ESF-8 strategic communication model can be developed to assist in closing gaps of communication and information sharing for future events. In addition, the need for a model to communicate rapidly with the comprehensive ESF-8 partnership could be a benefit in pandemic vaccination situations as was learned through the CDC workshop.

VI. DEFINING THE STRATEGIC COMMUNICATION PARTNERS FOR MS

> "Never doubt that a small group of thoughtful, committed people can change the world. Indeed, it is the only thing that ever has."[145]
>
> —Margaret Meade
> American cultural anthropologist

From case studies of fire and law enforcement to lessons learned from events, exercises, and workshops, the definition of the ESF-8 strategic communication partners for Mississippi is being refined. In addition, MS medical community partners provided further definition to the partnership. On December 5, 2012, a potential group of MS ESF-8 partners met to discuss the "what, who, and why" concerning a comprehensive ESF-8 model. The meeting was attended by representation of all primary and support partners of the comprehensive emergency management ESF-8 plan, as well as several other partners with a vested interest in ESF-8. During the meeting, a draft of the potential model partners was shared. From this draft, a gap analysis was done and determinations were made to add groups that had not previously been considered. At the outcome, the consensus of the group was that the partnership was now a comprehensive ESF-8 group from the state to the grassroots level. It was also determined that while this group could now be formalized for information-sharing purposes, it would also practice under the vision of being the state-level healthcare coalition for Mississippi.

Prior to the December 5, 2012 meeting, the MSDH sponsored a series of questions to determine the baseline needs for planning. (Q1) Has the communication among ESF-8 partners improved since Hurricane Katrina? Overwhelmingly, the group felt that communications had improved. (Q2) For a response event that occurred within the last three years in Mississippi, was your facility contacted more than once daily for the same information? While about one-third of the group said that they were not contacted twice, patterns were detected as to any particular groups in which this contact

[145] BrainyQuote, "Margaret Mead Quotes," (n.d.), http://www.brainyquote.com/quotes/authors/m/margaret_mead.html.

occurred. (Q3) Do you see a need to streamline the ESF-8 communications among all healthcare entities in MS? Again, overwhelmingly, the consensus was yes that streamlined communication needed to happen. (Q4) Do you desire information pertaining to the MS healthcare picture (situational awareness) during an emergency event? Yet again, overwhelmingly, the consensus was yes. MSDH took the information acquired to use as the baseline to continue to develop a model of information sharing.

A. WHAT

To be able to have a comprehensive model of ESF-8 partnerships for information sharing, it is important to evaluate what types of groups would need to be a part of the model. Some groups play a primary role in the public health and medical aspects of an all hazards event, and then others play a supporting role. Ultimately, however, it can be anyone who has a stake in the health outcomes of the citizens of Mississippi when any type of an emergency that could potentially alter the landscape of the healthcare picture occurs. Therefore, what would comprise a group on the model? The healthcare facility group of hospitals would automatically be considered because they are pivotal to medical care at the grassroots level. However, who else would need to be included to be a part of a comprehensive ESF-8 model? Many should be considered.

B. WHO

Any emergency event is a local response, regardless of the geographical area of the actual event. The locals are responsible for the care of its citizenry, and should therefore, have access to any ESF-8 information that can help to guide the overall decision making for the response. To build a comprehensive ESF-8 strategic communication/information sharing model from the state to the grassroots level, it is important to think about who the conduits are to the grassroots partnership from the state level. For instance, the MS Hospital Association (MHA) is a conduit of information from the state level to the 121 hospitals in Mississippi with a few exceptions. One exception would be the MS Department of Corrections Medical/Dental Facility in Parchman, MS, which is the state prison hospital. Another exception would be the military hospital,

Keesler Airforce Base Medical Center in Biloxi, MS. Finally, the VA Medical Center would be the 3rd hospital that does not have an information-sharing link from the MHA. Therefore, to develop a hospital branch within the model, four links would be needed to reach every hospital and its staff down to the grassroots level. Although three additional and individual outreaches from the state-level to the grassroots within the hospital group are necessary, great value was seen in identifying the partner of the MHA that was ultimately a conduit to reach 121 hospitals at the grassroots level.

C. WHY

Who should be considered when determining the healthcare facility types in ESF-8 in Mississippi? According to the Governor's CEMP, a defined list of potential ESF-8 players includes more than just hospitals. Some examples of other potential partners include dialysis, pharmacist, dentists, and the military. The goal of a model to show the connectivity of all of the potential partners to the healthcare system and a means to receive ESF-8 communications would answer many questions, such as from where they receive healthcare information and why they need to be included. Each group represented needs to understand what it can bring to the table for emergency planning and response to respond better as a state during an emergency. A comprehensive ESF-8 group would reflect an entire representation of the potential primary and support entities of the public health and medical community whether at the local, regional, or state level. While it is very important to share information with hospitals, it is also important to include all other partners, such as pharmacists, dentists, doctors, nurses, veterinarians, morticians, mental health providers, dialysis partners, and so forth. During the MS river flood event of 2011, the comprehensive ESF-8 picture included any potential medical person or clinic, as well as anyone affiliated with a support role under the MS CEMP ESF-8 support role plan.

Another important consideration for Mississippi in the comprehensiveness of the model is the overall health status of the state's citizens. According to America's Health Rankings-2012 Edition, Mississippi ranks 49th out of the 50 states in its health

outcomes.[146] The struggle against chronic illnesses and other diseases remains a challenge for Mississippi. Therefore, it further validates the claim that all potential partners not only have a seat at the ESF-8 table in Mississippi, but they should have their seat occupied for every potential emergency event. Finally, while some partners are included because of the general resources that they can provide to the overall public health and medical community, many are identified because of their general vulnerabilities.

See Table 3 for the what, who, and why in regards to the partnership of MS ESF-8.

[146] America's Health Rankings, "2012 Mississippi Health Statistics," (n.d.), http://www.americashealthrankings.org/MS.

Table 3. MS ESF-8/What, Who, and Why

Connect to (WHAT)	Organizations (WHO)	Why important to ESF-8 Communication (WHY)
Hospitals	MS Hospital Association (MHA) VA Hospitals & Clinics Military Hospital MS Dept. of Corrections	Under PHEP Capability 10, Medical Surge, hospitals will provide primary health care to the ill and injured. On a daily basis, there are 123 hospitals in MS with over 16,000 beds. The MHA has an email distribution list of most hospitals in the state. The Veterans Hospital of Jackson is a hospital that services the veteran population of the state. Keesler Airforce Base Hospital of Biloxi MS services the military installation. The MS Dept. of Corrections Hospital is a hospital on the state prison grounds in Parchman, MS that services the state prison population. http://www.mhanet.org/
Long-term Care	MS Healthcare Assn (MSHCA) Independent Nursing Home Assn. (INHA)	There are 209 licensed long-term facilities in MS. http://www.msdh.state.ms.us/msdhsite/_static/resources/451.pdf
Assisted Living Facilities	MS Assn for Assisted Living Facilities Assn. (ALFA)	There are 174 licensed personal care homes in MS. http://www.msdh.state.ms.us/msdhsite/_static/resources/451.pdf
Home Health Agencies	MS Assn for Home Care	There are 57 licensed Home Health agencies in MS with a total of 136 branches. While there is an association for this group of healthcare facilities, the MSDH Bureau of Licensure is also a conduit of information. http://www.msdh.state.ms.us/msdhsite/_static/resources/451.pdf
Dialysis	Network-8	MS has over 6300 patients that receive regular dialysis care at 78 facilities. Network-8 is the conduit to each of the facilities. Without dialysis, these patients quickly spiral downward and become part of the larger critical medical care for the state. Within the Governor's Comprehensive Emergency Management Plan, the Network-8 Incorporated is listed as a support agency. http://www.msema.org/wp-content/uploads/2012/07/ESF8PublicHealthandMedicalServices.pdf
Hospice	La-MS Hospice & Palliative Care Organization (LMHPCO)	MS through various hospice organizations service an estimated 3500 patients on any given day through 82 MS hospice providers. The La-MS

Connect to (WHAT)	Organizations (WHO)	Why important to ESF-8 Communication (WHY)
		Hospice & Palliative Care Organization is the conduit to these providers and are a stakeholder to ESF-8 information.
Health Care Facility gaps	MSDH Bureau of Health Facilities Licensure and Certification	Under the MS Board of Health, MSDH Bureau of Health Facilities Licensure and Certification is mandated to license healthcare facilities. Many of those facilities are reached through conduits of their respective professional affiliations such as the MS Healthcare Association and the Independent Nursing Home Association for long-term care facilities. Still, there are some that could potentially not be associated with an affiliation and the MSDH Bureau of Licensure would be the conduit for those.
MS State Dept. of Health	Office of State Health Officer Office of Communicable Diseases Office of Field Services Office of Health Services Office of Health Protection Public Health Lab	The MSDH is a centralized public health agency that has nine public health districts across the state that service 102 clinics. Through multiple programs, many citizens of MS receive medical support. The 2012 Annual Report indicates that there were 404,876 unduplicated patients served by the MSDH. http://msdh.ms.gov/msdhsite/_static/resources/5123.pdf Of the 2.9 million citizens in MS, ~ 14% utilized MSDH services.
Pharmacists	MS State Board of Pharmacy (BOP) MS Pharmacists Assn. (MPhA)	MS currently has over 5000 licensed pharmacists who provide a service to thousands of MS residents. Within the Governor's Comprehensive Emergency Management Plan, the MS Board of Pharmacy is listed as a support agency. http://www.msema.org/wp-content/uploads/2012/07/ESF8PublicHealthandMedicalServices.pdf
Nurses	MS Board of Nursing MS Nurses Association	There are almost 60,000 nurses in the state of MS who practice in various healthcare service fields. Within the Governor's Comprehensive Emergency Management Plan, the MS Board of Nursing is listed as a support agency. http://www.msema.org/wp-content/uploads/2012/07/ESF8PublicHealthandMedicalServices.pdf
Physicians	MS Board of Medical Licensure MS Medical Association	There are ~ 9600 physicians licensed in the state of MS that have the primary responsibility for medical care of patients. Within the Governor's Comprehensive Emergency Management Plan, the MS Board of Medical

Connect to (WHAT)	Organizations (WHO)	Why important to ESF-8 Communication (WHY)
		Licensure is listed as a support agency. http://www.msema.org/wp-content/uploads/2012/07/ESF8PublicHealthandMedicalServices.pdf
Dentists	MS Dental Association MS State Board of Dentistry	MS has ~ 1500 licensed dentists of which 247 provide specialty services. http://www.dentalboard.ms.gov/msbde/msbde.nsf/
Community Health Centers	MS Primary Health care Association (MPHCA)	In MS, there are 21 Community Health Centers with 140 full time service delivery sites. Also, there are 39 part-time sites that could be either seasonal or mobile clinics. The 2012 data reveals that 303,079 persons were seen in MS Community Health Centers. Of the 2.9 million citizens, this is ~ 12% of the total population. http://mphca.com/index.htm
Vocational Rehabilitation	MS Dept. of Vocational Rehabilitation	There are 32 rehabilitation healthcare facilities within MS. http://www.msdh.state.ms.us/msdhsite/_static/resources/451.pdf Within the Governor's Comprehensive Emergency management Plan, the Office of the State Medical Examiner is listed as a support agency. http://www.msema.org/wp-content/uploads/2012/07/ESF8PublicHealthandMedicalServices.pdf
Food Safety	MS Department of Agriculture and Commerce/Bureau of Plant Industry/Agricultural Theft and Consumer Protection	Within the Governor's Comprehensive Emergency management Plan, the MS Department of Agriculture and Commerce/Bureau of Plant Industry/Agricultural Theft and Consumer Protection is listed as a support agency. http://www.msema.org/wp-content/uploads/2012/07/ESF8PublicHealthandMedicalServices.pdf This agency has a stakeholder interest in ESF-8 because of the potential risks associated with food and diseases.
Animal Health	MS Board of Animal Health MS Veterinarian Medical Association	Under the Governor's Comprehensive Emergency Management Plan, the MS Board of Animal Health is the lead agency for sheltering requirements for pet and animal care. The MS Veterinarian Medical Association also is a stakeholder of ESF-8 with their interest and information pertaining to

Connect to (WHAT)	Organizations (WHO)	Why important to ESF-8 Communication (WHY)
		zoonotic diseases with a membership of around 650. In MS, there are ~ 1100 licensed veterinarians. http://www.mdac.ms.gov/departments/animal_health/index.htm Within the Governor's Comprehensive Emergency Management Plan, the MS Board of Animal Health and the MS Veterinarian Medical Association are listed as a support agencies. http://www.msema.org/wp-content/uploads/2012/07/ESF8PublicHealthandMedicalServices.pdf
Fatality Management	MS Funeral Directors Association MS Coroner's Association Office of the State Medical Examiner MS Funeral Directors and Morticians Association, Inc MS Mortuary response Team (MMRT)	In disaster events, mass fatality is a capability that has to be planned for. There are multiple groups who have the responsibility for care of the deceased in either day to day or during a mass fatality situation. Within the Governor's Comprehensive Emergency Management Plan, the Office of the State Medical Examiner is listed as a support agency. http://www.msema.org/wp-content/uploads/2012/07/ESF8PublicHealthandMedicalServices.pdf
Medicaid	MS Division of Medicaid	In MS, 30 regional Medicaid offices serve the citizens of MS. Within the Governor's Comprehensive Emergency Management Plan, the MS Division of Medicaid is listed as a support agency. http://www.msema.org/wp-content/uploads/2012/07/ESF8PublicHealthandMedicalServices.pdf
Mental Health	MS Dept. of Mental Health	There are 15 regional mental health clinics across the state of MS that serve the citizens through a multitude of different programs. http://www.dmh.state.ms.us/ Within the Governor's Comprehensive Emergency Management Plan, the MS Department of Mental Health is listed as a support agency. http://www.msema.org/wp-content/uploads/2012/07/ESF8PublicHealthandMedicalServices.pdf
Sanitation	MS Dept. of Environmental Quality	The MS Department of Environmental Quality is a stakeholder to ESF-8. As the regulator for such things as wastewater, hazardous waste, air, etc. they have a special interest to the situation awareness of ESF-8.

Connect to (WHAT)	Organizations (WHO)	Why important to ESF-8 Communication (WHY)
		http://www.deq.state.ms.us/MDEQ.nsf/page/Main_Home?OpenDocument Within the Governor's Comprehensive Emergency management Plan, the MS Department of Environmental Quality is listed as a support agency. http://www.msema.org/wp-content/uploads/2012/07/ESF8PublicHealth andMedicalServices.pdf
General Population Sheltering	MS Dept. of Human Services	Under the Governor's Comprehensive Emergency Management Plan, the MS Department of Human Services has the primary responsibility for- ESF-6, Mass Care Housing and Human Services, in MS. MSDH is a support agency to ESF-6. http://www.msema.org/wp-content/uploads/2012/07/ESF6MassCare HousingandHumanServices.pdf
Special Medical Needs Sheltering	MS Institutions of Higher Learning MS State Board of Community and Junior Colleges	Under the Governor's Comprehensive Emergency Management Plan, MSDH has the responsibility for special medical needs sheltering in MS under ESF-6. MSDH partners with the community colleges of MS to provide the physical locations for special medical needs shelters. http://www.msema.org/wp-content/uploads/2012/07/ESF6MassCareHousingandHumanServices.pdf Also, under the Governor's Comprehensive Emergency Management Plan, the MS Institutions of Higher Learning and the MS State Board of Community and Junior Colleges are listed as a support agencies. http://www.msema.org/wp-content/uploads/2012/07/ESF8PublicHealth andMedicalServices.pdf

Connect to (WHAT)	Organizations (WHO)	Why important to ESF-8 Communication (WHY)
Security	MS Dept. of Public Safety	The MS Department of Public Safety is listed as a support agency in the Governor's Comprehensive Emergency Management Plan for ESF-8. The MS Department of Public Safety has the responsibility for security for the Strategic National Stockpile program in MS and thus, is also a stakeholder to ESF-8. http://www.dps.state.ms.us/ http://www.msema.org/wp-content/uploads/2012/07/ESF8PublicHealthandMedicalServices.pdf
Logistical support	MS Military Dept.	Within the Governor's Comprehensive Emergency Management Plan, the MS Military Department is listed as a support agency. http://www.msema.org/wp-content/uploads/2012/07/ESF8PublicHealthandMedicalServices.pdf With the ability to provide much logistical support, the MS Military Department is a key stakeholder to ESF-8.

VII. DEVELOPMENT OF MODEL

"The whole is greater than the sum of the parts"

—Author unknown

Every emergency situation presents its own unique challenges. Therefore, it is absolutely essential to have a good grasp on the situation to be able to make the best decisions possible for response. This clear situational awareness can mean the difference in life and death. As the leads for ESF-8 in Mississippi, the MSDH, along with UMMC, has a great responsibility to the ESF-8 partners in Mississippi to provide event situational awareness to all stakeholders. Situational awareness will allow partners to collect information, collaborate, and communicate prior to making these critical decisions during emergency events. To have clear situational awareness, strategic communications from the state level to the grassroots level must occur in a timely fashion. How can this accurate relay of information occur timely by a trusted source? What would an ESF-8 strategic communication model look like from the state level to the grassroots level? How would strategic information be communicated? What type of information would even need to be collected?

A. GAP ANALYSIS

This thesis addresses a major gap in the literature, as well as the current plans for MS ESF-8 public health and medical strategic communication strategies. While the writer worked to gain knowledge regarding the topic of a healthcare strategic communication model, several different topic areas were researched. Those areas were (1) strategic communications, (2) interagency coordination and communication, (3) healthcare coalitions, (4) strategic communication systems, (5) organization/ organizational change, and (6) META-leadership. The review of the literature determined that a current comprehensive state to grassroots ESF-8 information sharing model did not exist in Mississippi or any of the other states. In addressing the question, "How can Mississippi make its ESF-8-based strategic communications plan more effective and resilient so that it

provides accurate, comprehensive, and timely information to more peripheral actors in the state's healthcare community?," it was determined that a model would have to be developed.

B. MODEL

Figure 3 illustrates the concept of a linear communication model. Shannon and Weaver created the linear model of communication in 1949. They viewed communication as the transfer of information being done by the sender to the receiver. While it is often thought that a linear communication model is one-way communication, the fact is that it can allow for feedback. The MS model allows for the transfer of information from the top down and from the bottom up. The MS Strategic Communication ESF-8 model developed for Mississippi as the result of this thesis is shown in Figure 4.

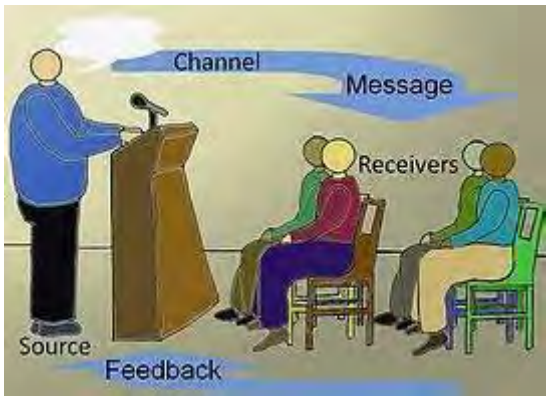
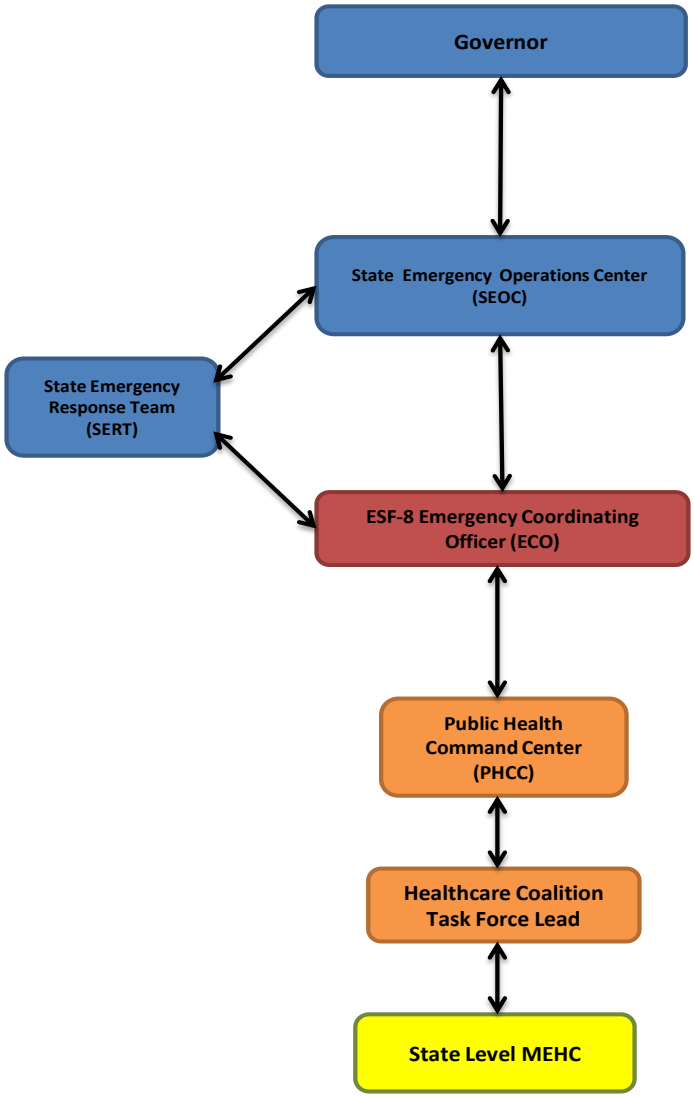
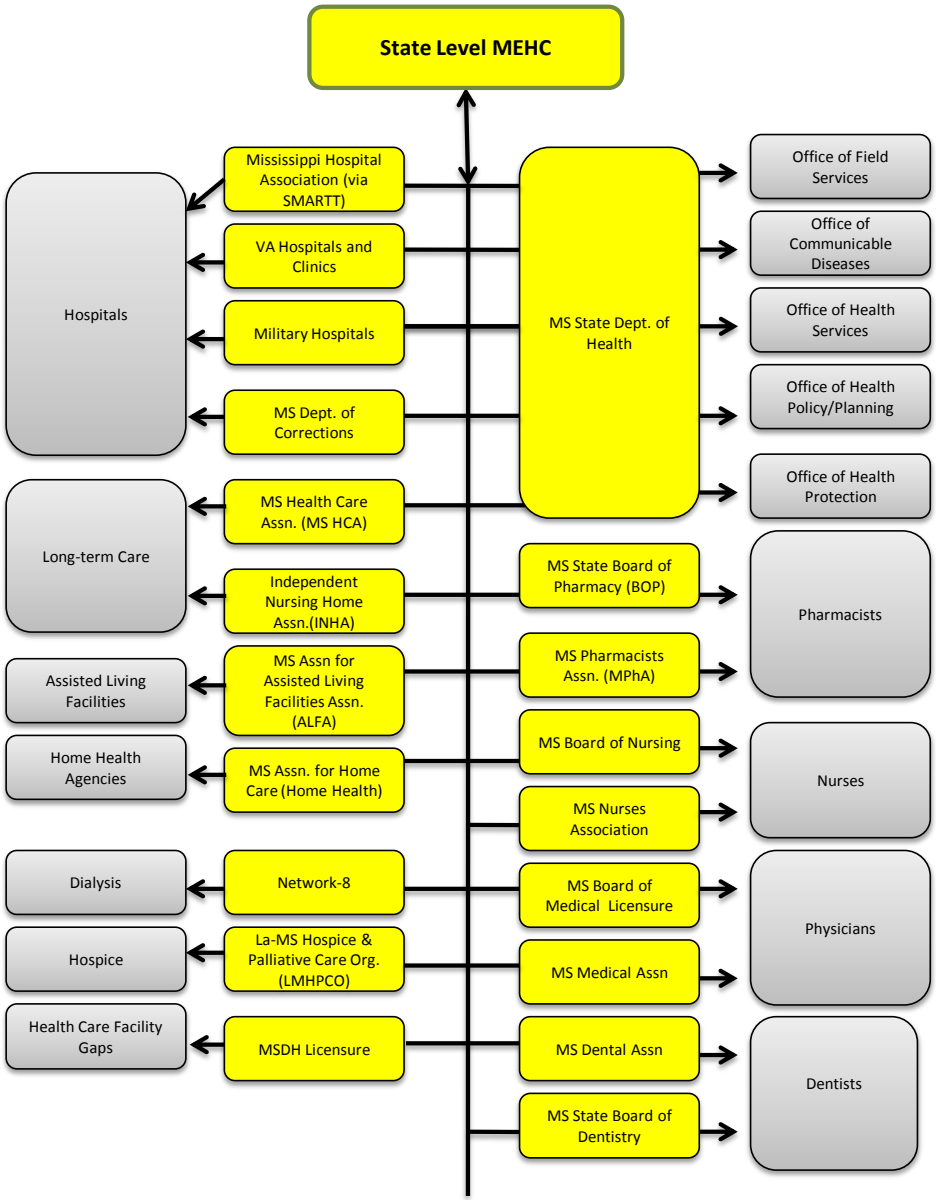


Figure 3. Linear Communication Model

MS ESF-8 Healthcare Coalition (MEHC) State Level Strategic Communications Chart



MS ESF-8 Healthcare Coalition (MEHC)



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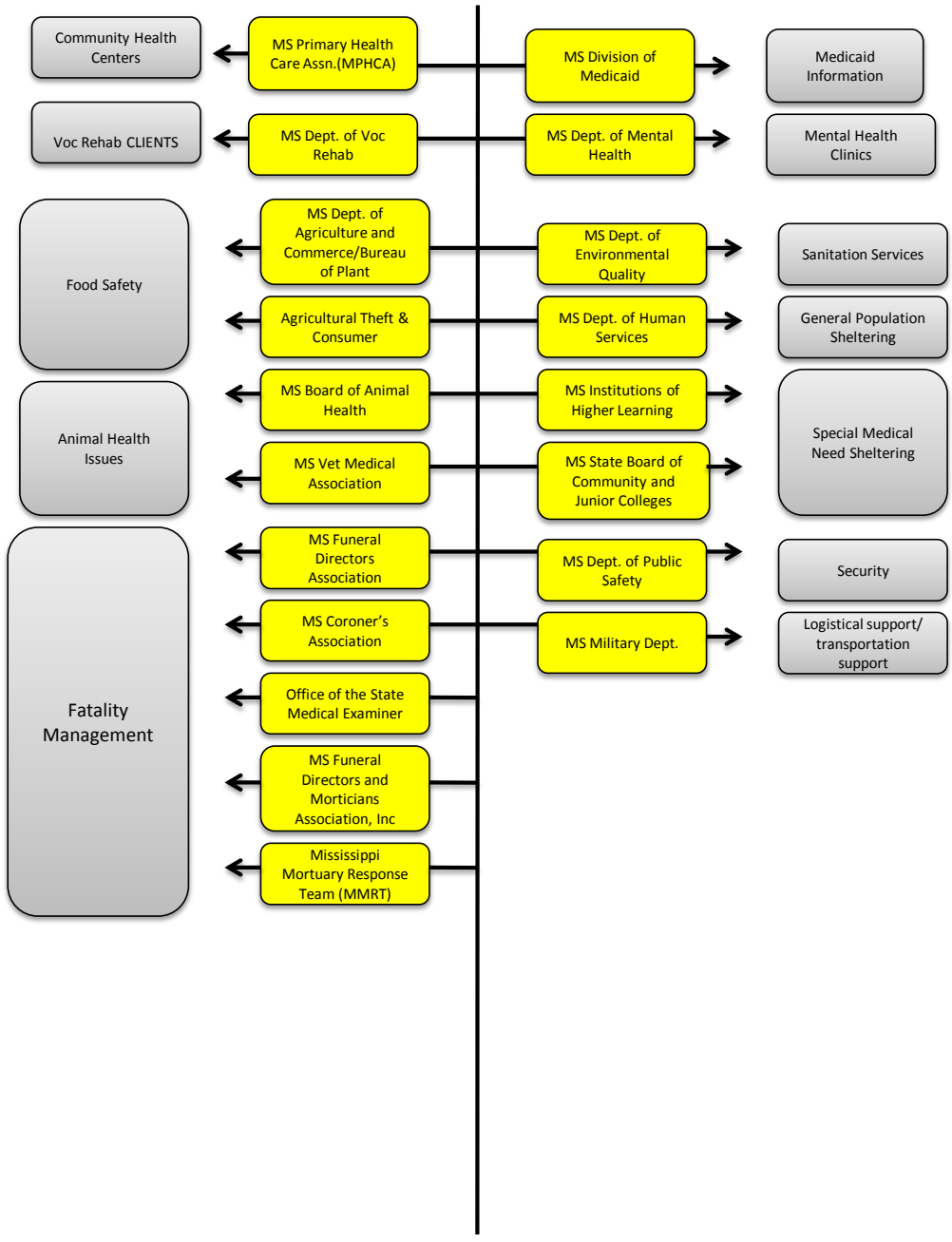

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Figure 4. MEHC Model

C. STRATEGY

1. What Type of Communication?

Many types of communication must occur during any emergency event. Currently, some risk communication plans will guide the information shared with the general public through the media. Also, the MSDH shares information through the agency website and the Health Alert Network. Then, communication is available to ensure that government officials are kept up-to-date as well. Even with all these various communication and information sharing plans, specific strategic communication needs still need to be addressed for those within the ESF-8 community during an event.

In the state of Mississippi, the Governor's Comprehensive Emergency Management Plan guides the response for all emergency support functions. Within each county of the state, the local Emergency Management Agency (EMA) is the coordinator for all events. The multiple emergency support function partners work through their local EMA to plan, respond, and make requests up to the state of MS EMA. Under the ESF-8 group, multiple agencies, organizations, associations, and businesses need coordination for the response to any event. The model presented within this thesis allows for the coordination of information sharing of strategic communication from the state level to the grassroots level.

In January 2008, the Mississippi State Board of Health enacted a regulation requiring licensed hospitals, long-term care, home health, hospice, and personal care homes within the state to have an "all-hazards" emergency operations plan (EOP). These EOPs comply with standards established by the Mississippi State Department of Health and are to be completed and reviewed annually. To assist facilities in complying with this regulation, the MSDH has developed five EOP templates that meet the critical elements of emergency planning such as communications, resources and assets, safety and security, staff responsibilities, utilities and clinical requirements, and support activities.

The "all hazards" approach to planning and response for events considers activities that will occur during each phase of emergency management (preparedness, response, recovery, and mitigation). Having this EOP in place improves the capacity of

healthcare organizations to prepare for, detect, respond to, recover from and mitigate the negative outcomes of multiple potential emergency events. This "all hazards" approach allows each facility to respond to a range of emergencies varying in scale, duration, and cause that will further allow for the protection of the citizens of Mississippi.

While not every stakeholder within the ESF-8 community is required to have an EOP, currently, over 700 entities are required by the MS Board of Health to do so. Therefore, it is easier for all to know the level of expectation of a response within these healthcare facilities. Even without being one of the 700+, this level of planning impacts all other emergency preparedness efforts in the healthcare community by having a basic awareness of planning and response efforts.

It is apparent that much planning has been done in Mississippi to include the ESF-8 community. Therefore, it is very important to determine what types of information would be necessary to be exchanged between the ESF-8 Public Health Command/Coordination Center and the partners across the state. While a primary question to consider is "what unmet needs do you have," the other piece of vital information to consider is the status of the reporting entity. Is the reporting entity at status quo or is a current response element being enacted according to plans or otherwise that would have an impact on the healthcare of Mississippi? Therefore, the type of communication most beneficial to this information-sharing model is to determine the current situational awareness of the healthcare community and to determine any unmet needs.

2. How Often?

The timeframe for information sharing through the MS ESF-8 healthcare coalition strategic communication model will vary according to the incident and will follow the MSDH CONOPS plan for activation. The emergency response mobilization for MSDH begins with the identification of a credible threat, which can be determined by law enforcement, MEMA, or any other notification of an event of significance. The state health officer has the authority to transition from normal operations to a coordinated emergency response by the agency, which will occur if an incident has the potential to

impact the public's health or safety or the potential to disrupt the health/medical systems of the state. The PHCC can be escalated without a declaration of a state of local emergency, will be activated as is appropriate, and will be staffed to the extent and duration required.

The PHCC consists of four levels of operation, and are consistent with the levels of activation in the MS CEMP. As the level numbers decrease, the severity of the incident increases. Level IV is the day-to-day operations, and typically, has an on-call status for after regular business hours. Level III consists of partial activation of the necessary support cells to the PHCC at anytime the State Emergency Operations Center (SEOC) activates with a potential for the need of ESF-8 support. During this level of activation, the command centers are only running on a 12-hour operational cycle. Level II consists of a full activation of the MSDH PHCC and runs on a 24-hour basis to support the state emergency. Finally, Level I is an expansion as necessary to Level II, and usually involves support from outside of the state. It also runs on a 24-hour cycle. While the activation of the MS ESF-8 healthcare coalition strategic communication model could occur with Level III, it is more likely to be utilized with Level I and II occurrences.

The PHCC sponsors a consistent meeting and planning schedule published in the daily ESF-8 situational awareness report. The cycle supports incorporation of the SEOC and governor's meetings during the response cycle as well. During the operational period, the PHCC representative to the MEHC will support a daily conference call at 10:00 am to the ESF-8 partners. This will follow the general 9:00 am PHCC update meeting to allow for the latest information sharing to include weather briefings. Following the 10:00 am conference call, the ESF-8 partners will email their report to the PHCC representative to be compiled into a report for the planning chief by 2:00 pm. Then, the daily release of the ESF-8 situational awareness report can be further communicated back to the partnership across the state via email. For an event that allows for timed planning, such as a hurricane, emails will be utilized as the method of communication until a conference call is announced. For a 0-hour timed event, the PHCC representative will announce a

conference call by email notification. An on-going consistent conference call phone number and time designated for this group will be very beneficial to the consistency of the planning and implementation of the model.

3. Communication Needs

The information needed to be collected by the PHCC from the various ESF-8 groups will be determined by the type of ESF-8 group and will vary according to the incident. An example of the information needed for a Category 2 hurricane from a long-term care facility in the direct path of the storm would be as follows: (1) What are your unmet needs, (2) Do you have electrical power and at what percent, and (3) Do you have food and water for up to 96 hours? Therefore, through the MEHC conference call, the representatives to the long-term care facilities would report out on any facilities that had unmet needs individually, and also, any general long term care issues.

For the various groups, information may need to be collected and shared to portray the actual situational awareness for that group. One example is the pharmacy section. Mississippi has many pharmacists and pharmacies, some of which practice in smaller private practice and others who represent large pharmacy chains. Conduits to these groups are also available from within the MS Board of Pharmacy, as well as the MS Pharmacy Association. During previous responses in Mississippi, the MSDH pharmacy representative from the Office of Emergency Preparedness and Response had specific tasks. Some are: (1) review information sent by RX Response, a national pharmaceutical supply chain monitoring system during emergencies, (2) make contact with Morris and Dickson, the state contracted pharmacy wholesaler, to determine any supply issues, (3) contact the MS Board of Pharmacy for any dispensing information to be posted on its website, and (4) contact MS Pharmacy Association for any issues. This information was then shared with the department head. With the model being proposed, the various persons and groups would be a part of the information sharing and collection process as a standard procedure.

Another example is the dialysis group. Hurricane Katrina was the benchmark that drove the planning within this population due to the life-threatening cause and effect

related to no access to care. As has often been shared in this thesis, strategic information related to this group would not be public information, and yet, would be very important to the overall healthcare response. During the 2011 MS River flood event, the potential for displaced dialysis needs for months had the levees actually breeched was a possibility. The main questions asked were reported by the Network-8 Dialysis group: (1) Are there any clinics within the flood path? (2) Where will those patients receive dialysis and have they been contacted? (3) Are there records that need to be relocated in order to continue access to care uninterrupted? (4) Is there equipment that needs to be relocated in order to prevent a major economical impact to this clinic?

While every emergency situation will present its own unique challenges, it is absolutely essential to have a good grasp on the situation to be able to make the best decisions possible for response. This clear situational awareness can mean the difference in life and death. The MEHC model allows for the collection of good solid information that can then be communicated back to the collaborative group to then allow partners to make critical decisions during emergency events. To have clear situational awareness, strategic communications from the state level to the grassroots level must occur in a timely fashion.

4. Modes of Communication

Multiple modes of communication can and will occur during an emergency event, many of which will be dependent upon the source of electrical power. The primary mode will occur via email and conference calls. Webinar is also an option that will be available as is necessary.

The daily conference call will be an opportunity to provide the latest information regarding the event to include a current weather report. After this conference call, the email reports from each group back to the PHCC representative will allow for a compilation of information to give a timely and accurate situational awareness of ESF-8 on at least a daily basis. When needed, a webinar can provide for more advanced meeting opportunities while being remotely located.

The tactical communication challenges faced by all responders during an event will face this group as well. While redundancy of tactical communication options will need to be explored, the basic tools of email, conference calls, and webinar will be the primary modes utilized.

D. LIMITATIONS

Mississippi is one of 14 states that functions under the centralized public health system. The developed model might be easier to implement in a state with a centralized public health agency. Also, information sharing will be dependent upon the multiple layers and the buy-in of the many partners. Mississippi (and MSDH) has traditionally relied upon its relationships as the key component to the successes of its planning and response efforts across multiple jurisdictions, and then, multiple agencies and organizations. In areas that do not hold relationship building as a valuable commodity, this comprehensive model would be more challenging. In addition, the updating of contact information is an on-going challenge that must be regularly addressed to keep current data.

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VIII. CONCLUSION

"Synergy—the bonus that is achieved when things work together harmoniously"[147]

—Mark Twain,
American author

This thesis developed a communication model currently being implemented in Mississippi. All signs seem to indicate that it will be a marked improvement in the strategic communication within the comprehensive ESF-8 community of the state. More ESF-8 partners and their supporting partnerships of ESF-8 from other emergency support function areas are taking their seat at the table than ever have before. As a result, it is felt that the outcomes to healthcare during any emergency event will be improved and the informed decisions that can be made by the ESF-8 community with ESF-8 situational awareness will ultimately improve health and save lives.

The Presidential Emergency Operations Center (PEOC) was constructed at the White House during World War II under President Franklin D. Roosevelt's leadership.[148] Its original purpose existed to prepare for nuclear contingencies.[149] The PEOC was constructed below the east wing while the situation room is located in the basement of the west wing. The President and his staff would meet with advisors in the situation room to discuss a situation, and the PEOC is considered the actual command center where strategic communication is disseminated. The military staff the PEOC around the clock and it serves two primary purposes, (1) To provide critical people with staff and data necessary to render critical decisions, and (2) Ensure the continuity of the facility and government to disseminate these decisions.[150] Under President Obama's administration, the White House PEOC has undergone upgrades that include a massive communication

[147] Quoteswave, "Mark Twain Quotes (Images)," (n.d.), http://www.quoteswave.com/picture-quotes/372672.

[148] John Pike and Steven Aftergood, "The White House President's Emergency Operations Center-PEOC," *Federation of American Scientists*, Updated October 2, 2000, http://www.fas.org/nuke/guide/usa/c3i/peoc.htm.

[149] Ibid.

[150] Ibid.

data center to disseminate strategic communication information that is timely and accurate to the myriad of partners who will expedite and execute these critical decisions during an event.

From the federal to the state to the local level, strategic communication pathways are imperative to the success of response. Public health has a very important role to play in homeland security and strategic communication is a vital element within this emergency support function. Public health is even considered to be a level 3 tiered critical infrastructure component of the United States. [151] The problem is that no strategic communication model is available in Mississippi for the comprehensive healthcare community (from the local pharmacists to large hospitals) to receive ESF-8 related and other types of information from state public health authorities in a timely manner. Conversely, the state public health authorities do not have a clear strategy for obtaining information from the comprehensive grassroots partnership in a timely manner. The Mississippi River Flood Event of 2011 validated this claim that state health authorities had limited access to the broad health and medical community. The literature review validates that it seems to be a general problem across the country.

Who should be considered partners in ESF-8 in Mississippi? According to the Mississippi Governor's CEMP, ESF-8 is the emergency support function for public health and medical services. It provides the mechanism for coordinated federal assistance to supplement state, tribal, and local resources in response to a public health and medical disaster, potential or actual incidents requiring a coordinated federal response, and/or during a developing potential health and medical emergency. Within this ESF-8 plan, a defined list of potential ESF-8 players includes more than just hospitals and EMS. Some examples of other potential partners include dialysis, pharmacist, dentists, and the military. The problem is that it is unclear how, for example, dialysis clinics can receive information from public health agencies during a crisis. And if they cannot receive accurate, timely, and useful information, they may be at risk of being unable to provide their patients with the proper treatments or possibly even be at risk of transmitting some

[151] Department of Homeland Security, Healthcare and Public Health Sector, "Sector Overview."

type of serious infection or disease, and thus, becoming a part of the disease vector. Although multiple partners are listed in the CEMP, clear communication pathways are lacking that allow critical public health and medical information to be provided to the comprehensive public health and medical community. To ensure that a comprehensive ESF-8 state level healthcare coalition exists, a defined group of partners is necessary that is larger than just a traditional hospital and an EMS. Each group represented needs to understand what it can bring to the table for emergency planning and response to respond better as a state during an emergency. Current federal guidance is suggesting healthcare coalitions as a means of organizing these collaborative efforts that can produce an outcome of coordinated planning and response to all hazards events that can then also create an atmosphere of transparency within a group. The effective comprehensive strategic communications model for ESF-8 was able to answer the questions of "what," "who," and "how."

Value Proposition—Many will ask what the value is of a comprehensive ESF-8 state to grassroots communications model. By utilizing the Blue Ocean Strategy, a value proposition can be determined.[152] The Blue Ocean Strategy is outside of the box thinking and planning for how to do something. Within the Blue Ocean Strategy concept, four actions create a framework. By using this framework, it can then be determined within the current information sharing structure of ESF-8 what needs to be eliminated, reduced, raised, and created as follows.

- Eliminate
    - Gaps in communication for collaborative ESF-8 partnership
    - Multiple models and lists of ESF-8 partners
- Raise
    - Value of information shared in terms of usefulness, accuracy, timeliness
- Reduce
    - Risk of miscommunication

[152] W. Chan Kim and Renee Mauborngne, *Blue Ocean Strategy*, ed. Harvard Business School Publishing Corporation (Boston, MA: Harvard Business School Press, 2005), 240.

    - Lack of communication
    - Inability to contact all ESF-8 partnership
- Create-
    - Timeliness of information
    - Transparency of information
    - Accuracy of information
    - Trust of ESF-8 leadership

The combination of these changes creates the innovation pathways of communication. The following list includes the dimensions of these pathways: organizational, human, technical, and political, etc. With the creation of the timeliness of information, the transparency of information, and the accuracy of information, it will be a natural result to increase the trust of ESF-8 leadership. These four created outcomes will increase the value of the coordination of communication within the MS ESF-8 network.

While value might be thought of in terms of dollars used and saved, value is also measured by the overall impact something has on current policy. The state of Mississippi has 1% of the total population of the United States. Therefore, it receives approximately 1% of the total award of the PHEP/HPP grant dollars. As the economic crisis in this country continues to drive a decrease in funding for grant opportunities, it remains critical to ensure that the value of this communication modeling strategy is cost benefit effective.

Value can also be related to increased performance. In the response phase of a disaster, the timeliness of information can mean the difference in life and death. This system is expected to provide factual information, consistently, in a timely fashion, and correctly, so that decisions can be made that may ultimately prevent morbidity and mortality whether associated with a disease outbreak or incident of man-made cause. This transparency will also automatically lead to greater trust of leadership, which helps to drive more positive opportunity for refinement of planning and response processes. Ultimately, the value is a more prepared medical community.

Multidisciplinary Perspective on Proposed Changes—Since multiple disciplines are associated with the MS ESF-8 network, all partners are not at the same level of preparedness and response activity. Williamson Murray, in *Military Adaptation in War-*

With Fear of Change, is quoted as saying, "And, The general said, "Stop sending officers who understand the system and start sending those who could identify creative solutions to unforeseen problems."[153] The beauty of this concept is that when the value of the newer associates and the potential that they can bring to the table is recognized, an opportunity is presented to problem-solve in areas that might have previously been considered untouchable. A down side to the non-traditional and newer partners at the table is that an increased need occurs for education regarding the basic emergency preparedness concepts. To get all partners to the level of realizing the value of the comprehensive strategic communication model will be a challenge but one worth the effort.

These multiple disciplines are both medical and non-medical persons. The traditional medical groups are hospitals, long-term care facilities, and emergency medical services. Non-traditional medical partners are pharmacists, dentists, dialysis groups, and boards or associations of these partners. The non-medical partners would be those groups that would have a vested interest in the health and medical responses of the citizens of the state which could ultimately be a very large pool of potentials. In Mississippi, some non-traditional non-medical partners of the ESF-8 family are the MS Department of Education, MS Department of Public Safety, MS Department of Human Services, and the MS National Guard. Each of these groups brings something to the table that would be valuable to the planning, mitigation, response, and recovery of the public health and medical issues related to any of the many all-hazards events.

Problems to Address—While the model itself is designed to create a pathway of timely information sharing from the state to the grassroots level and vice versa during an all hazards response, the success is only as good as the groups who activate and implement the plan. Within any group, the information sharing can be held up if the conduit of information stalls the process. Many responses are not considered statewide responses even though the state EOC and Public Health Command/Coordination Center are operational. Therefore, some state level groups may feel it is not necessary to push

[153] Williamson Murray, *Military Adaptation in War-With Fear of Change* (Cambridge, NY:Cambidge University Press, 2011).

information to their constituents at the grassroots level for smaller events. One example might be a tornado event that has affected a local area. The ESF-8 information from that area might not affect other parts of the state directly, and therefore, the state level partner may choose not to disseminate the ESF-8 information to its entire group partnership. These issues create challenges for further review.

Implementation—While the implementation of this model has already begun, its success and value is yet to be completely identified, full filled, or completely understood. Following the identification of the need for such a comprehensive strategy in 2011, the MSDH began the process of coordinating the potential partners within the scope of the Governor's Comprehensive Emergency Management Plan ESF-8 partnership. The Governor also validated the concept after the 2011 MS River Flood Event by advising that the group and communication processes continue indefinitely. This group has continued to evolve through recommendations of other group members. Through the real-world event of the Hattiesburg Tornado of January 2013, and the MS Magnolia Blossom Full Scale Exercise of February 2013, the information-sharing model has been tested and revised. The AARs of each of those events have given clear Improvement Action Plan (IAP) items to continue to refine the model.

Ultimately, the timeliness of information released through the daily situation reports for ESF-8, the transparency of information produced, the accuracy of the information, and the outcomes related to increased trust of ESF-8 leadership will be the factors that will validate any implementation issues that arise. Through the development of this model, the author has determined the what, who, and why associated with the MS ESF-8 strategic communication model. Finally, and most important, this research is the scientific documentation that this model can and will make a difference in the outcomes of public health emergency preparedness and response in the state of Mississippi.

Strategy Canvas—The strategy canvas is one possible way to assess the impact (or the potential impact) of the work associated with this thesis. The following graphic depicts several different strategic communication thoughts, before and after the development of the MS ESF-8 strategic communication model. The bottom line would be the representation of the information sharing within the ESF-8 community prior to the

development of the state level healthcare coalition commonly known as the MEHC. The top line is a portrayal of the information after the development of the MEHC with the high/low being the value that can be placed on policy related to MSDH and ESF-8 strategic communication as a result of this thesis.

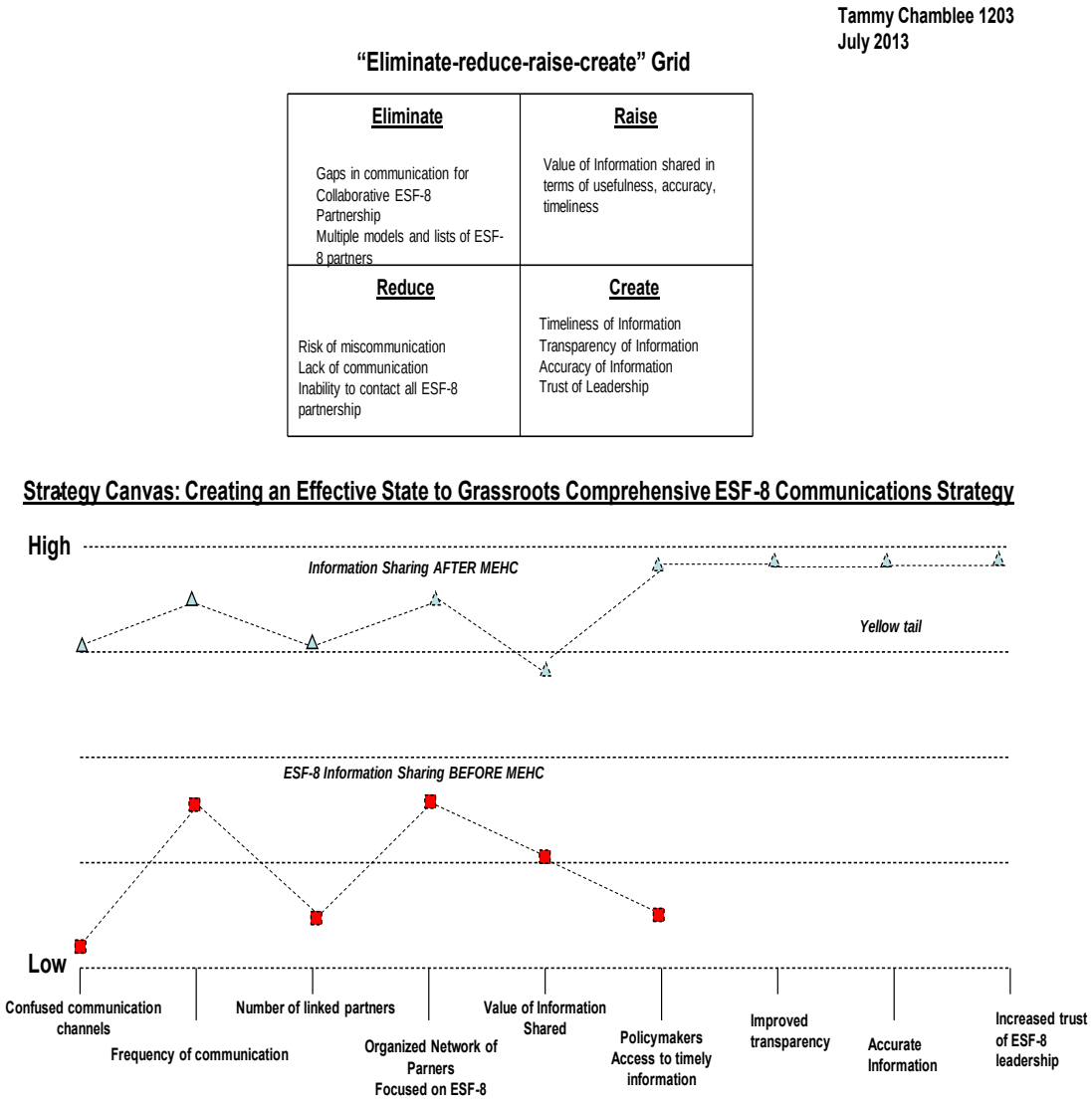

Figure 5. Strategy Canvas

Finally, the development of a comprehensive ESF-8 information-sharing model from the state to the grassroots level in Mississippi will have a positive impact on the health and medical outcomes of the citizens of the state during an all hazards event. These successes could then further impact the public health and medical outcomes of citizens all across the country as other states consider the MS model to create their own state to grassroots level information sharing model. While multiple pathways for information sharing may exist and get the job done on some level for the ESF-8 community, the research done for this thesis has shown that creating a single model from the state to the grassroots level that can be utilized for an all hazards event and is of great value.

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