

Preparing the populations: Identifying educational needs and communication networks regarding
zoonotic-disease outbreaks

by

Mariah E. Bausch

B.S., Kansas State University, 2016

A THESIS

submitted in partial fulfillment of the requirements for the degree

MASTER OF SCIENCE

Department of Communications and Agricultural Education
College of Agriculture

KANSAS STATE UNIVERSITY
Manhattan, Kansas

2019

Approved by:

Co-Major Professor
Dr. Lauri M. Baker

Approved by:

Co-Major Professor
Dr. Gaea Hock

Copyright

© Mariah E. Bausch 2019.

Abstract

As zoonotic-disease epidemics sweep through the country, research is needed to determine preventative measures and control methods to minimize the impact. Previous research has indicated education and communication play major roles in controlling zoonotic-disease outbreaks. This study looked at the educational experiences, communication plans, and levels of preparedness of key audience groups of: livestock producers, veterinarians, medical professionals, and emergency managers. The following questions guided this study: What are audiences' educational experiences related to zoonotic-diseases? What are audiences' experiences with communication planning for zoonotic-disease response? What are audiences' social networks and related information sources for zoonotic-disease? A qualitative approach was taken through semi-structured interviews to determine the communication channels and educational needs of 40 participants throughout targeted counties in Kansas. Counties were selected based on animal population and urban areas throughout the state. Purposive sampling was initially used to contact participants and snowball sampling was used to expand the population. Data was analyzed using Glaser's constant comparative. Social Network Theory guided the study in evaluating the relationships between audience groups. Diffusion of Innovations was also used to identify social networks as well as influences on educational practices. Major themes emerged when responses were identified within all four of the audience groups. All audience groups had innovator and majority adoption categories. Past education often occurred through organizational trainings which developed into a major theme. Two major themes associated with future educational learning preferences were online modules and workshop-based presentations. A need for more collaboration among audience groups and other entities was also identified as a major theme. Veterinarians were seen as having a major role in

communication needs and dissemination efforts among all audience groups. Kansas State University was also seen as a major theme in providing information to audience groups. Recommendations were suggested for research, communication practices, and education. Future studies in understanding a larger population of audience groups, public perception of zoonotic-diseases, and the impact of social media on disseminating information about disease outbreaks should occur. Training and educating audience groups about the importance of crisis communication and the benefits of being transparent are essential for communication practices. Improving education about zoonotic-disease will increase the likelihood of adopting prevention measures and increase collaboration among audiences. Overall, improving planning, prevention, and collaboration through education and communication is critical to controlling and preventing zoonotic-disease outbreaks.

Keywords: zoonotic-disease, diffusion of innovation, social network analysis, crisis communication, education

Table of Contents

List of Figures	viii
List of Tables	ix
Acknowledgements	x
Study Acknowledgement	xii
Dedication	xiii
Chapter 1 - Introduction	1
Background on the National Agricultural Biosecurity Center and National Bio and Agro- Defense Facility Transition Fund	4
Statement of the Problem	5
Purpose of Study and Research Questions	6
Assumptions	6
Definition of Key Terms	7
Summary	10
Chapter 2 - Review of Literature	11
Introduction	11
Zoonotic-disease	11
History	12
Rift Valley Fever	13
Zoonotic-disease Impacts	13
Crisis Communication	14
Zoonotic-disease Communication and Education	15
Diffusion of Innovation: Theoretical Framework	17
Social Network Analysis: Theoretical Literature	20
Summary	21
Chapter 3 - Methods	22
Design of Study	22
Interviewers	23
Subjectivity Statement	24
Questioning Route	25

Screening Process and Selection of Participants	25
Procedure	27
Data Analysis	28
Limitations	34
Summary	34
Chapter 4 - Results	35
RQ1: What are audiences’ levels of adoption for zoonotic-disease preparation?	35
Innovator	36
Majority	37
Laggard.	38
Noteworthy Observations.	38
Results RQ2: What are audiences’ educational experiences related to zoonotic-diseases?	40
Online Modules	42
Dissent	42
Email Updates.	43
Noteworthy Observations.	43
Organization Hosted Training	46
Collegiate Courses.	47
Noteworthy Observations.	48
Results RQ3: What are audiences’ experiences with communication planning for zoonotic-disease response?	49
Importance of Collaboration	49
Chain of Command.	50
No Crisis Communication Plan.	51
Not Specific to Zoonotic-disease Outbreak.	52
Social Media.	53
Noteworthy Observations.	54
Results RQ4: What are audiences’ social networks and related information sources for zoonotic-disease?	57
Veterinarians	57
Kansas State University	58

CDC.....	58
State Veterinarians.....	59
Dissent.....	60
Summary.....	63
Chapter 5 - Conclusion, discussion, recommendations	64
Introduction.....	64
Conclusions and Discussion	65
RQ1: What are audiences’ levels of adoption for zoonotic-disease preparation?	65
RQ2: What are audiences’ educational experiences related to zoonotic-diseases?	66
RQ3: What are audiences’ experiences with communication planning for zoonotic-disease response?.....	67
RQ4: What are audiences’ social networks and related information sources for zoonotic-disease?	69
Recommendations.....	71
Research.....	71
Theory.....	72
Diffusion of Innovation.....	72
Social Network Analysis.....	73
Combining Diffusion of Innovation and Social Network Analysis.....	74
Practice.....	76
Communication.....	76
Education.....	77
Extension.....	78
NBAF and NABC	78
Summary.....	79
Appendix A - IRB Approval.....	91
Appendix B - Agriculture Question Route	103
Appendix C - Non-Agriculture Question Route	106
Appendix D - Consent Form.....	109
Appendix E - Interview Team.....	114

List of Figures

<i>Figure 3.1</i> Map of Study Selected Counties.....	26
<i>Figure 4.1</i> Social Network Map of Audience Groups.....	62
<i>Figure 4.2</i> Gaps in Communication among Audience Groups.....	63
<i>Figure 5.1</i> Simplified Diffusion of Innovation Model for Crisis Communication Planning	73
<i>Figure 5.2</i> Social Network Diffusion of Innovation Model	75

List of Tables

Table 3.1 <i>Livestock Producer Pseudonyms and Adoption Level</i>	29
Table 3.2 <i>Emergency Manager Pseudonyms and Adoption Level</i>	29
Table 3.3 <i>Veterinarian Pseudonyms and Adoption Level</i>	30
Table 3.4 <i>Medical Professional Pseudonyms and Adoption Level</i>	30
Table 3.5 <i>Study References</i>	31
Table 3.6 <i>Level of Innovation Adoption Categories and Example Responses</i>	33
Table 4.1 <i>Preferred Format of Future Education</i>	45
Table 4.2 <i>Complete List of Organizational Trainings</i>	47

Acknowledgements

To my committee, I appreciate all of the time and energy you dedicated into helping me throughout my journey at Kansas State University. You all have been such a critical element in this process for which I know I could not have done it without you all. It was a comforting feeling knowing that I could always count on your support and encouragement.

Dr. Baker, without your help, mentorship, guidance, support and most of all your friendship, I would not be where I am today. You have shown me the path when I didn't know the way. You always had kind words to remind me that I am capable and the research tool. Thank you for sharing a little of your grace and intelligence with me throughout this process. Words cannot express how grateful I am to you for helping me achieve my goals.

Dr. Hock, thank you for your patience and understanding. You always seem to have the advice that I've needed along the way and guide me through my concerns, worries and expectations. You have been my voice of reason.

Dr. Burton, thank you for your insight and new perspective. You always brought a kind, calm, and helpful demeanor to all of our meetings.

Audrey King, thank you for bringing me onboard this wild ride. Along the way you helped me grow into a more confident woman. I have appreciated all of your support and encouraging quotes from near and far.

My mom, Debbie, I cannot express the gratitude I have for everything you have done for me. You did a wonderful job raising us children and always go above and beyond. Thank you for spending countless nights caring for my sweet angel and encouraging me. To the rest of my family, thank you for believing in me and giving me words of wisdom.

To my fellow graduate students, thank you for all the laughs, off topic discussions, rants, endless memes, and becoming cherished friends. I am proud of each of you and of how far we have come over the last few years. I will hold onto our memories made in Umberger 317.

Honorable mentions: Chick-fil-a for the brain food and iced coffee. Carlos O'Kelly's for providing a friendly face. Taco Lucha for the best tacos in town and a perfect celebration spot.

Study Acknowledgement

This work is based on work supported by the State of Kansas, National Bio and Agro-Defense Facility (NBAF) Transition Fund through the National Agricultural Biosecurity Center (NABC) at K-State University.

Dedication

I dedicate this to my daughter, Wynonna Grace, without you I would not have made it here. You have given me the strength to push through the hardest days. You brought joy to everyday of this journey. You are my grace.

Chapter 1 - Introduction

As zoonotic-disease epidemics sweep through the United State, research is needed to determine prevention and control methods to minimize impact. Two key factors in control, prevention, and treatment of zoonotic-disease outbreaks are communication (Zinsstag et al., 2007) and information sources (Ashlock, Cartmell, & Leising, 2009). The present study looks at the information sources, communication plans, and levels of preparedness of key audience groups; livestock producers, veterinarians, medical-professionals, and emergency managers.

Zoonotic-diseases are commonly defined as infectious diseases that pass between animals and humans through various forms of transmission. “Zoonoses are among the most important animal and public health problems that affect the well-being of societies worldwide, yet they are too often forgotten or neglected” (Zinsstag et al., 2007, p. 530). These diseases make up about 60% of infectious diseases seen in humans (Centers for Disease Control and Prevention One Health, n.d.); there are 196 emerging diseases that infect humans, livestock, and wildlife. Of these diseases, there are 15 deadly zoonotic-diseases affecting humans (Gebreyes et al., 2014).

Another threat zoonotic-disease outbreaks hold is that to the economy. The economic impact has several components that should be considered: the potential spread of a zoonotic-diseases, the cost to livelihoods, risk management costs, and risk reduction (Narro, Zinsstag, & Tiongco, 2012). According to Narro et al. (2012), zoonotic-diseases have an estimated cost of \$20 billion within the past decade to the global economy. This affects both industrialized and developing countries.

Understanding the avenues in which stakeholders seek information can in turn help educate and communicate about prevalent issues that surround agricultural industries. Further understanding can also help with implementing adoption techniques of crisis communication

planning and practices to prevent disease spread. “Information sources also have a significant impact on adoption of agricultural innovations and should be considered in developing educational programs” (King & Rollins, 1995, p. 39). Audience groups may use multiple channels of information sources; these should be utilized to effectively reach all stakeholders (Israel & Wilson, 2006). Some forms of sources include, publications, extension agents, online media, peers, and more (Breiner, Barnhardt, Bryant, & Grau, 2007; Riley et al., 2012); however, it is most notable that livestock producers’ number one source of information comes from their veterinarians (Breiner et al., 2007; Israel & Wilson, 2006; Riley et al., 2012).

Social networks are the arrangements in which humans communicate, the messages sent and received, and with whom they are communicating. The information and resources people gather are influenced by their social network (Hawe & Ghali, 2008). These networks also have an impact on both crisis communication and education (Moolenaar & Daly, 2012). According to Moolenaar and Daly (2012, p. 3), social networks can “influence the quantity and quality of resources” as well as “act as both opportunities and constraints for individual and collective action”. An understanding of social networks is necessary in order to determine the implementation of innovation practices and how best to reach audience groups.

Irlbeck et al (2013), identify “when a crisis occurs, it creates a need for information” (p. 20); the sharing of this information with stakeholders is crisis communication. Crises can happen at any time and usually have a negative impact on an organization (Irlbeck et al., 2013). Crisis communication includes target audiences, key messages, communication methods, and planning (Penrose, 2000). Pre-crisis planning is essential in communicating clear, effective, and timely messages. It is also considered “a best practice for crisis communication” (Sellnow et al., 2017, p. 11). Education can also play a major role during a crisis (Sellnow et al., 2017). The ability to

implement a crisis plan will be affected by the knowledge of those involved. Education and communication can also play a role in the diffusion of innovations such as, implementing a crisis communication plan.

“Diffusion is the process by which an innovation is communicated through certain channels over time among the members of a social system” (Rogers, 2003, p. 5). Communication channels, sources of information, and social networks can play a role in the effectiveness of implementation of an innovation (Nilakanta & Scamell, 1990; Riley et al., 2012). The quality of communication will also have an impact on the adoption of practices (Nilakanta & Scamell, 1990). According to Winerman (2009), people are more likely to adopt a practice if others around them, meaning those in their social networks, are also adopting the practice. This aligns with the diffusion of innovation adoption process. Education is also essential to the adoption of new innovations (King & Rollins, 1995). Understanding of an innovation including, the skills necessary, how it works, and the purpose will play a role in adoption and implementation (Veil, 2010).

Education can affect attitudes, activity, and knowledge (Tikka, Kuitunen, & Tynys, 2010). The lack of education on zoonotic-diseases has been identified as a key component for the minimal awareness between stakeholders (Cripps, 2000). Cripps also says, “...although our veterinarians graduate with the appropriate knowledge, many lack the understanding and awareness to look for, recognize, prevent, and control zoonotic-diseases” (2000, p. 79). The level of education of producers along with demographics such as, age, income, and farm size, can also have an effect on the method of information delivery (Jensen, English, & Menard, 2009; Rollins, Bruening, & Radhakrishna, 1991; Suvedi, Campo, & Lapinski, 1999).

Preferred learning methods also play a role in education, communication, and implementation of practices (Riley et al., 2012). Individuals have different preferred learning methods that can influence their innovation adoption. These methods also vary on the needs of the individual (Rollins et al., 1991). Understanding the needs and preferences can help further communicate and educate about zoonotic-disease outbreaks.

Background on the National Agricultural Biosecurity Center and National Bio and Agro-Defense Facility Transition Fund

This work is part of a National Agricultural Biosecurity Center (NABC) project at Kansas State University, with funding provided through the State of Kansas National Bio and Agro-Defense Facility (NBAF) Transition Fund. NABC supports research in Foreign Animal Disease (FAD) emergency response planning, training, education, and risk analysis for animal diseases that have the potential for grave impact on livestock and human health.

According to the Kansas State University website, NABC's objectives include:

Developing, implementing, and managing research projects and training programs for multiple state and federal agencies — ranging from the U.S. Departments of Defense, Agriculture, and Homeland Security — to the intelligence community (paragraph 2).

NABC is dedicated to increasing public awareness of agro-terrorism and developing solutions for improving agricultural and food production safeguards (paragraph 3).

This NABC project sought to identify potential pathways of introduction for three classes of pathogens to be studied in the soon to be operational National Bio and Agro-Defense Facility – non-vector borne and non-zoonotic (classical swine fever), vector-borne and non-zoonotic (African swine fever), and vector-borne and zoonotic (Rift Valley Fever). In addition to

addressing the potential routes for introduction, NABC felt it was critical to identify the economic impact of disease introduction and risk communication in rural communities.

Statement of the Problem

Zoonotic-diseases provide a real threat to human health, animal health, agricultural, and natural industries, and economics (Cripps, 2000). These diseases pose such a threat because these are not commonly seen by producers or veterinarians (Moennig, 2000). The most effective way of controlling these diseases is through communication and education. There is an increasing need for more research in the area of perceptions of zoonotic risk, communication, understanding (Decker et al., 2010), and education. Research is also needed to understand the communication needs of producers and agricultural communicators, along with educational needs for veterinarians, extension services, medical-professionals, and agricultural educators (Ashlock et al., 2009).

Target audiences identified within this study include livestock producers, veterinary medicine, human health professionals, and emergency managers within the state of Kansas. Kansas was the location for participants because of the impact of NBAF moving to the state. It is imperative to know how communities are prepared, the social networks that exist in sharing information, and the role of the NBAF move. Livestock producers are those individuals or businesses that raise, transport, and care for livestock animals. This group provides a reference to the initial stages of disease detection and measures to control the disease spread (Anderson, 2010). Veterinarians provide identification, testing, and treatment to livestock (Chomel & Marano, 2009). They are well versed in animal health. Human health professionals provide services and information to the general public. In disease outbreaks, they should be informed of symptoms, medical care, prevention methods, and educational needs. Emergency managers help

train members of the communities in which they work to prepare for such occurrences. These individuals are also highly important to the control aspect of disease outbreaks; they manage quarantine perimeters, livestock transportation, and crisis situations (Kolic, 2014). Literature has identified the importance of each of these audiences and the need for more communication between stakeholders.

Purpose of Study and Research Questions

The purpose of this study was to identify the communication preparedness and educational needs of the key audience groups: livestock producers, veterinary medicine, human health professionals, and emergency managers. The following are the research questions that guided the study:

RQ1: What are audiences' levels of adoption for zoonotic-disease preparation?

RQ2: What are audiences' educational experiences related to zoonotic-diseases?

RQ3: What are audiences' experiences with communication planning for zoonotic-disease response?

RQ4: What are audiences' social networks and related information sources for zoonotic-disease?

Assumptions

The leading assumption in this study is the lack of communication between audience groups including: livestock producers, veterinarians, human health professionals, emergency managers, state and federal agencies, the media, and general public (Ashlock et al., 2017; Cripps, 2000; Grant & Olsen, 1999; Irlbeck et al., 2013; Kolic, 2014). Another assumption, individuals

have preferred methods of learning and gathering information (Israel & Wilson, 2006; Riley et al., 2012; Rollins et al., 1991). Finally, as all qualitative research entails, studies rely on participant experiences, and how they perceive and explain these experiences (Creswell, 2007).

Definition of Key Terms

Biosecurity: measures taken to prevent the introduction or spread of diseases (Anderson, 2010).

Biosecurity Research Institute (BRI): a facility located at Kansas State University specializing in research and education of infectious disease and biosecurity research (Kansas State University Biosecurity Research Institute, n.d.).

Centers for Disease Control and Prevention (CDC): government organization within the Department of Health and Human Services that focuses on health, safety, and security threats in the U.S. (Centers for Disease Control and Prevention About CDC 24-7, n.d.)

Communicable Disease: infectious and contagious disease spread from person to person (Indiana University, n.d.).

Crisis Communication: communication practices before, during, and after a crisis designed for target audience groups (Ulmer, Sellnow, & Seeger, 2018).

Crisis and Emergency Risk Communication (CERC): a program within CDC to provide health professionals and emergency responders with tools and training to be effective communicators (Centers for Disease Control and Prevention Emergency Preparedness and Response, n.d.).

Crisis Planning: identifying risks and developing a plan before a crisis occurs in order to reduce potential consequences (Ulmer et al., 2018; Whiting, Tucker, & Whaley, 2004).

Diffusion: the way in which information about an idea is shared through a social network (Rogers, 2003).

Diffusion of Innovation: “the process by which an innovation is communicated through certain channels over time among the members of a social system,” (Rogers, 2003, p. 11).

Emerging Disease: newly recognized or resurgence of diseases the majority of which are zoonotic-disease (Gubler, 2002).

Extension: partnership between levels of government and Kansas State University to disseminate information about research and education of agricultural topics (Kansas State University Research and Extension, n.d).

Foot and Mouth Disease (FMD): contagious animal disease with tendency to spread quickly, which has increased awareness of disease control (Grubman & Baxt, 2004).

Innovation: perceived new idea, practice, or invention that is shared through diffusion of information in a social network (Rogers, 2003).

Livestock Producers: any individual owning or operating a livestock organization including beef cattle, dairy cattle, and swine (Ashlock et al., 2009)

Medical-professionals: human health sector including county health departments, physicians, and nurses who help identify diseases and control methods (Kahn, 2006; Narrod et al., 2012).

National Agricultural Biosecurity Center (NABC): interdisciplinary research unit at Kansas State University specializing in animal disease and other areas of agriculture affecting livestock and human health (Kansas State University National Agricultural Biosecurity Center, n.d.).

National Bio and Agro-defense Facility (NBAF): Federal animal disease research facility currently under construction in Manhattan, Kansas, with the mission to develop vaccines and diagnostic platforms, provide fundamental research, train veterinarians on foreign animal disease recognition, and house the Foreign Animal Disease Diagnostic Laboratory (FADDL) (Department of Homeland Security, n.d.).

Opinion Leader: one who influences others' opinions and serves as a lead change agent (Rogers, 2003).

Rift Valley Fever (RVF): a viral zoonotic-disease first found in Kenya resulting in deaths of livestock (sheep) and humans (Gerdes, 2004).

Social Network Analysis: models the patterns individuals have with others and how information is accessed (Scott, 1988; Hawe & Ghali, 2008).

Transboundary Disease: diseases transmitted past national borders and spread quickly, typically these are highly contagious (Food and Agriculture Organization of the United Nations, n.d.).

United States Department of Agriculture (USDA): government agency responsible for policy development in food, agriculture, and natural resources (United States Department of Agriculture, n.d.).

Veterinarian: individuals responsible for diagnosing, help maintaining animal health, and treatment of animal diseases (Anderson, 2010).

Zoonotic-disease: diseases that are transmitted from animal to human (Anderson, 2010; Cripps, 2000; Narrod et al., 2012).

Summary

Zoonotic-diseases are prominent in human and animal disease outbreaks and also a concern for research. The main control efforts, communication and education, remain understudied (Ashlock et al., 2009; Cripps, 2000; Decker et al., 2010; Sell, 2017). Information sources, knowledge, social networks, and communication will affect the adoption of control and prevention innovations. With assistance from NABC and financial support through the NBAF Transition Fund, this study seeks to understand the communication planning and preparedness, information sources, and educational backgrounds of target audience groups, livestock producers, veterinarians, medical-professionals, and emergency managers.

Chapter 2 - Review of Literature

Introduction

There is an increasing need for more research in the area of perceptions of zoonotic risk, communication, understanding (Decker et al., 2010), and education. Research is also needed to understand the communication needs of producers and agricultural communicators, along with educational needs for veterinarians, extension services, medical-professionals, and agricultural educators (Ashlock et al., 2009).

The purpose of this study is to gain an understanding of the communication readiness and educational needs among stakeholders. This will be identified through the following questions:

1) What are audiences' levels of adoption for zoonotic-disease preparation? 2) What are audiences' educational experiences related to zoonotic-diseases? 3) What are audiences' experiences with communication planning for zoonotic-disease response? 4) What are audiences' social networks and related information sources for zoonotic-disease?

This chapter will look at previous literature related to zoonotic-disease history; impacts of disease outbreaks; crisis communication, communication and education related to zoonotic-diseases; and the theoretical framework of diffusion of innovation. This chapter outlines the gap in research and the need for the current study.

Zoonotic-disease

Zoonotic-diseases are “diseases that can be transmitted from wild and domestic animals to humans and are public health threats worldwide” (Kahn, 2006, p. 556). According to the CDC (Centers for Disease Control and Prevention One Health, n.d.), “Scientists estimate that more than 6 out of every 10 known infectious diseases in people are spread from animals, and 3 out of

every 4 new or emerging infectious diseases in people are spread from animals” (p. 4). These diseases are caused by viruses, bacteria, fungi, and parasites that spread through means such as, direct contact, indirect contact, food borne, and vector borne (Bender & Shulman, 2004; CDC, 2018; Durga, 2016). The impact of these diseases can be widespread and affect the agricultural industry, food safety, economics, international trade, animal health, and human health (Domenech et al., 2006).

History

The first known zoonotic-disease outbreaks were spread by fleas carried via small rodents such as rats; one of the first outbreaks commonly known as the Black Death was a plague that originated in China in 1334 then spread to kill millions in Europe in the Middle Ages (Centers for Disease Control and Prevention Plague, n.d.). Since the first outbreaks, there have been other zoonotic-diseases that have developed. More recently, the common zoonotic-disease outbreaks consist of rabies, *Salmonella*, *E. coli*, and anthrax (Allen, 2015). It is known that zoonotic-diseases will continue to develop and spread; however, “it cannot be predicted which zoonotic pathogens are likely to emerge next or cause the biggest problem” (Lederberg, 2002, p. 114).

National Agricultural Biosecurity Center (NABC), an agency researching animal diseases, through the Transition Fund, selected three diseases to model potential disease outbreaks. These diseases have key characteristics that would allow the models to be used for other disease outbreaks that may occur. The models portrayed the economic impact, disease spread, and affected areas that would transpire due to the outbreak. Rift Valley Fever is one of the pathogens highlighted for risk analysis study by NABC.

Rift Valley Fever

Rift Valley Fever (RVF) is a viral zoonotic-disease commonly found in sheep and cattle. During 1910, the first outbreak occurred in the Rift Valley of Kenya which then broke out several times in varying countries of Africa in the following decades; in 1950, it killed 100,000 sheep; 600 humans died in 1977; and again in 1987 an outbreak affected the human population (Centers for Disease Control and Prevention Rift Valley Fever, n.d.). “Rift Valley Fever remains difficult to predict but devastating in its effect on both humans and animals,” (Gerdes, 2004, p. 619). Proper biosecurity measures should be taken to control the disease; however, once it is identified in a country, it is likely to remain there permanently (Gerdes, 2004).

Zoonotic-disease Impacts

Zinsstag, et al. (2007) studied the impact of zoonotic-disease on industrialized countries versus countries with limited resources. The latter countries have difficulty in responding to outbreaks due to lack of financial and human resources. It recognized the economic impact of vaccinating against certain diseases; vaccinations are cost effective and efficient at preventing the spread of zoonotic-diseases (Zinsstag et al., 2007). According to Edwards et al., most countries control and eradicate diseases through vaccinations (2000). Vaccinations are the most cost effective method when considering overall effect of both the human health perspective and the animal sector (Narro et al., 2012). Economic and social factors play a role in this control method (Edwards et al., 2000). Other costs should be considered when deciding how to manage an outbreak. The potential disease spread impact, cost to industries and livelihoods, risk management, and control methods are all factors that should be considered when analyzing the economic and societal costs (Narro et al., 2012). Another important factor in controlling

zoonoses for both types of countries are information and communication. It is suggested that zoonotic-disease control should be analyzed and mitigated from a global perspective (Edwards et al., 2000; Zinsstag et al., 2007).

Several factors have been cited as contributing to the increased number of zoonotic outbreaks such as, increased interaction with wildlife, increased globalization through travel and trade, pet ownership, urbanization, and climate changes (Cascio, Bosilkovski, Rodriguez-Morales, & Pappas, 2011; Patz, Graczyk, Geller, & Vittor, 2000). According to Cascio et al., the “encroachment of humans into previously uninhabited areas: this not only affects the ecology of wildlife habitats, unleashing dynamics that allow for zoonotic pathogen or vector predominance” (2011, p. 338). Human acts have altered the ecological settings which then change disease vectors, transmission, and development (Patz et al., 2000). Examples of the effect climate change and ecological change has on zoonotic-disease emergence include Sin Nombre virus in the USA, Rift Valley fever in Africa, haemorrhagic fever in China, and more (Cascio et al., 2011).

Crisis Communication

Crises happen in all industries and requires a level of preparedness that allows for successful communication to help minimize the impact. Communication is the most important factor in crisis management (Coombs & Holladay, 2012). According to Sell (2017), “No matter how effective the planned response, poor communication with the public will greatly undermine its effectiveness” (p. 28). A crisis communication plan needs to be in place before a crisis occurs even when the risk is not realized (Irlbeck et al., 2013).

Components of crisis communication include building a relationship with media sources, knowing the stakeholders and audience, appointing a spokesperson, and training (Coombs &

Holladay, 2012). Literature continually indicates the importance of media relations with crisis communication; these relations with the media help to disperse information quickly. Timeliness is also an important factor in communicating (Irlbeck et al., 2013).

Correct communication is not sufficient in mitigating crisis. Trust plays a major role in communication as well as the acceptance and understanding of the message. According to Quinn et al. (2013), “Trust can affect perceptions of communication, and, conversely, communication can either foster or damage trust” (p. 97). Timeliness and transparency help build audience trust (Irlbeck et al., 2013; Reynolds & Quinn, 2008). Trust and credibility should be established with audience groups before a crisis occurs (Kolich, 2014).

Zoonotic-disease Communication and Education

The University of Wisconsin conducted a survey with physicians and veterinarians to identify their perceptions of zoonotic-disease risk and prevention. This study identified there is very little communication between physicians and veterinarians. Physicians believe veterinarians should play a larger role in controlling, preventing, and providing information about zoonotic-diseases (Grant & Olsen, 1999). It also identified, patients do not view veterinarians as a reference for zoonotic-disease information. Recommendations from the study suggest greater communication between physicians and veterinarians, physicians contacting state health departments for information, and more training and education for the two groups about risks and prevention (Grant & Olsen, 1999). “Closer collaborations are needed between veterinarians, physicians, and public health professionals...controlling zoonotic-diseases is to be improved, greater communication and collaboration between veterinarians, physicians, and public health officials at the local level are needed,” (Kahn, 2006, p. 556; p. 560). Lederberg (2002) also

expressed the need for communication between these groups along with the need of cooperation between government organizations. Cripps (2000) identifies the need for more communication between government agencies within the veterinary and human health disciplines. The lack of communication between key organizations was seen as a hindrance in managing a disease outbreak according to Kahn (2006).

A study conducted in Oklahoma surveyed beef cattle producers to gauge their perception on trustworthiness of sources, what sources they seek, and the impact of demographics on these sources and trust. It was found beef producers strongly seek information from their veterinarians and view them as the most trusted source for animal disease information (Ashlock et al., 2009). The producers also prefer information to be distributed by the county extension departments followed by the internet; it is seen as a secondary source of information, but it is not seen as a highly trusted source (Ashlock et al., 2009).

Education, awareness, and communication need to be increased among all audiences including, veterinarians, medical-professionals, agricultural producers, and government agencies (Cripps, 2000). Education programs “are needed both to increase awareness of the problems and to minimize undue fears” (Lederberg, 2002, p. 122). Education should occur at all levels: schools, public education programs, government, and leadership to help understand, prevent, and control disease outbreaks (Lederberg, 2002). Cripps outlines that undergraduate and postgraduate courses should include “a greater understanding of the importance of zoonoses and of how to investigate and control them” (2000, p. 77). He goes on to explain a successful approach of an educational course, “Veterinary Public Health”, which “focuses on investigation, control, and prevention of zoonoses” (Cripps, 2000, p. 79). Kahn also identifies the need for interdisciplinary courses, which includes medical, veterinary, and public health schools (2006).

Diffusion of Innovation: Theoretical Framework

As the literature has reflected, there is a need for increased communication planning and educational training. It is suggested that the diffusion of innovation outline the approach to adopting these strategies into practice within the target audience groups. Anholt, Stephen, and Copes (2012) best explain this need by, “the integration of veterinary, medical, and environmental sciences necessary to predict, prevent, or respond to emerging zoonotic-diseases requires effective collaboration and exchange of knowledge across these disciplines” (p. 229).

The diffusion of innovation consists of four main elements: the innovation, communication, time, and social networks. The innovation is an object or concept that is new to those involved. Communication consists of the messages shared in order to inform others about an innovation. According to Rogers, “...communication must take place if the innovation is to spread” (2003, p. 18). Time involves three pieces that should be considered: 1) when a person first learns about an innovation, 2) how reactive a person is to adopting practices, 3) how the person compares to others adopting the same practice. Finally, a social system is made up of interrelated persons that share the same goal. “Information sources and communication networks also describe the adoption of most innovations because they create awareness and educate potential adopters about an innovation” (King & Rollins, 1995, p. 40).

The innovation-decision process should also be considered because “diffusion occurs among units in a social system, but the innovation decision-making takes place with the mind of an individual” (Tackie, Baharanyi, & Findlay, 1996, p. 1). The innovation-decision process is the process in which individuals learn, adopt, and take action in decision making. According to Rogers (2003, p. 168), the five stages are outlined as

1. Knowledge occurs when an individual is exposed to an innovation's existence and gains an understanding of how it functions.
2. Persuasion occurs when an individual forms a favorable or unfavorable attitude toward the innovation.
3. Decision takes place when an individual engages in activities that lead to a choice to adopt or reject the innovation.
4. Implementation occurs when an individual puts a new idea into use.
5. Confirmation takes place when an individual seeks reinforcement of an innovation-decision already made.

These stages help an individual decide if they want to adopt a practice and continue using it (Veil, 2010). The diffusion or communication that occurs within social systems or networks is "more effective in persuading an individual to accept a new idea" (Veil, 2010, p. 37).

Communication and education about an innovation will increase the rate of adoption and implementation, especially in agriculture (Tackie et al., 1996). Extension education plays a vital role in the adoption process for farmers (King & Rollins, 1995). In a study conducted by Tackie et al. (1996), they found farmers utilized the information gleaned from extension efforts to better their operations. Improvement of among extension and patrons should be continuously improved (Meyerholz, 1974). Lui and Kim (2006), found an increasing trend in the number of people who prefer to use online sources to find information. Diffusion of innovations "provides insight into why educational program participants adopt or reject a practice on which they have received information or training" (Hubbard & Sandmann, 2007, p. 4).

Diffusion of innovations can help understand educational practices that will influence the rate of adoption (Hubbard & Sandmann, 2007). "A critical component of adopting innovations is

the educational process used to equip individuals with the necessary knowledge and skills for that innovation” (King & Rollins, 1995). Rate of adoption refers to the time in which it takes someone within the social network to adopt a new innovation (Rogers, 2003). Individuals adopt practices at different rates (Rogers, 2003); these rates are summarized into five adopter categories as follows:

1. Innovators: first to adopt innovation with high uncertainty about the innovation
2. Early Adopters: next to adopt with the most influence for other members
3. Early Majority: adopt innovation before the average member
4. Late Majority: adopt innovation after the average member
5. Laggards: the last to adopt an innovation

It is important to understand where a person falls within the categories in order to best influence their adoption rate (Rollins et al., 1991). Communication channels and networks also influence the rate of adoption (King & Rollins, 1995; Rogers, 2003). Understanding these networks will help education practices disseminate information to influence adoption practices (Taylor & Lamm, 2017).

Diffusion of innovations can help identify communication networks and opinion leaders within the networks (Rogers, 2003). “A communication network consists of interconnected individuals who are linked by patterned flows of information” (Rogers, 2003, p. 337).

Communication within a network or system is the most effective element for influencing others to adopt new innovations (Veil, 2010).

Opinion leaders are another influential component in disseminating information and impacting rates of adoption (Rogers, 2003; Taylor & Lamm, 2017). These are identified as people who are able to influence other’s opinions or actions (Rogers, 2003). Opinion leaders are

considered change agents because they elicit change or adoption of an innovation in other members of a social network (Rogers, 2003; Veil, 2017). “By identifying and using opinion leaders, agricultural educators may be able to leverage individuals who have influences on others’ opinions, thereby speeding up the adoption of new practices,” (Taylor & Lamm, 2017, p. 269).

Social Network Analysis: Theoretical Literature

Social Network Analysis is the individual or collective web of connections that explain patterns (Scott, 1988). Also defined as, “a method for capturing the complexity of social relationships” (Hawe & Ghali, 2008, p. 62). This concept provides an understanding of the relationships between networks, actors, and patterns of communication (Moolenaar & Daly, 2012; Scott, 1988). “The structure of the social network influences the quantity and quality of resources that flow to and from a particular individual in a social system” (Moolenaar & Daly, 2012, p. 3). Social networks can determine the proximity to each other as well as the impact on adoption of new information, education, or methods of innovation (Moolenaar & Daly, 2012; Scott, 1988). “Interpersonal exchanges among people in a particular place create a web of relationships that are integral to understanding system-level phenomena, such as how quickly information gets around or how easy it is to rally resources,” (Hawe & Ghali, 2007, p. 63).

It has been used in many applications such as rural sociology, education, and specifically reactions to disasters (Moolenaar & Daly, 2012; Scott, 1988). Social networks can also be utilized in educational practices. “Social network studies in education, focus on how the pattern of relationships between individuals may facilitate as well as constrain the flow of relations resources and offer insight into how individuals gain access to, are influenced by, and leverage

these resources,” (Moolenaar & Daly, 2012, p. 2). Hossain and Kuti (2010) suggest, increased connectivity within a network can increase effectiveness of the entire network. This, connectivity, will also help with communication efforts during a disaster (Hossain & Kuti, 2010). In agriculture, the flow of information through a network will have a major impact on the adoption of innovations (Bodin & Crona, 2009). A study conducted by Anholt, Stephen, and Copes (2012), argue for an increase in social network connectedness and through disciplines in order to best mitigate zoonotic-disease spread.

Summary

Zoonotic-diseases are becoming increasingly worrisome and the need for disease prevention and control is prevalent. It is critical that communication efforts between disciplines is improved (Grant & Olsen, 1999). It is also crucial that education be enhanced including interdisciplinary courses (Cripps, 2000). Through the theory of diffusion of innovations, educators and stakeholders can utilize communication, information sources, and multidisciplinary collaboration to prepare for potential zoonotic-disease outbreaks.

Chapter 3 - Methods

As literature has suggested, there is a need for more research in order to understand the social networks, communication, and educational needs of those involved in zoonotic-disease outbreaks. An understanding of these needs will help mitigate and improve control and prevention efforts. The following research questions were developed to best understand the communication and education in regards to zoonotic-disease outbreaks of key audience groups:

RQ1: What are audiences' levels of adoption for zoonotic-disease preparation?

RQ2: What are audiences' educational experiences related to zoonotic-diseases?

RQ3: What are audiences' experiences with communication planning for zoonotic-disease response?

RQ4: What are audiences' social networks and related information sources for zoonotic-disease?

To best understand the key stakeholders' communication and education concerning zoonotic-disease outbreaks, a qualitative study was determined the most effective because it allows for in-depth reflection and understanding from the audience's perspective (Creswell, 2014). In-depth, semi-structured interviews was selected as the method of data collection due to its ability to gather rich, personal experience based data. Interviews were conducted throughout the state of Kansas based on the concentration of animals within certain regions of the state.

Design of Study

Qualitative methodology was selected for this study for its ability to learn about the participants' experiences. An in-depth understanding of participants' preparedness, communication practices, and educational needs were needed to understand and develop through

a grounded theory approach. Grounded theory allows for patterns and explanations to be drawn from the data (Creswell & Poth, 2018) and allow researchers to develop a complete picture of what social networks, communication practices, and educational needs for zoonotic-disease looks like in the State of Kansas.

In-depth, semi-structured interviews were conducted. Forty participants were interviewed from four audiences: livestock producers, veterinarians, medical-professionals, and emergency management personnel. Each audience group had a specific question route. Participants were asked specific questions about their role in a zoonotic-disease crisis, sources of information regarding zoonotic-disease, and the training they had regarding zoonotic-disease. Institutional Review Board approval was obtained prior to conducting interviews. See Appendix A for the complete application number 8595.

Interviewers

A team of seven interviewers were selected to conduct the study through face-to-face interviews. Team research is beneficial because it provides new perspectives and different reflections (Ritchie & Lewis, 2003). The method of using a team of interviewers has been seen in Britten (1995), Jamshed (2014), and McNulty et al., (2017). Only two interviewers were present during each interview. The lead interviewer set the pace for interviews which included introductions, opening and closing, leading a conversation while asking the pre-determined questions, and making the participant feel comfortable. An assistant interviewer also accompanied the lead interviewer in order to take field notes to be used for an audit trail as well as provide comprehensive notes of the interaction.

All members of the interview team previously completed Institutional Review Board (IRB) training and other training experiences that consisted of shadowing interviews and mock interviews. Team interviewer training practices and follow-up prompts can be previously seen in Boutain & Hitti (2006). Additionally, all interviewers were trained using the questioning route and procedures prior to conducting interviews.

I, the lead researcher conducted half of the interviews. I transcribed verbatim the interviews that I did not lead (29 interviews); another team member transcribed the interviews that I conducted (11 interviews). After transcriptions were completed, I analyzed all interviews as described later in this chapter. Upon completion of data analysis, I interpreted data into major and minor themes as well as develop conclusions. The following is my subjectivity statement in regards to this research study.

Subjectivity Statement.

This study was completed as a part of my master's requirements in agricultural education and communications. I, a Caucasian female, grew up in a small, rural town in northeastern Kansas that had an urban area in close proximity. Seeing those in my community struggle with running a profitable farm and cattle operation as well as personal experience pushed my educational career. Financial literacy through education has been a passion of mine and especially how it relates to the agricultural industry. I previously obtained a bachelor's degree in personal financial planning before furthering my education in agricultural education and communications.

Questioning Route

The questions were designed with the specific audience groups in mind. The division was based on the knowledge of the audience groups. Also, there is relevant information pertinent to each group. Question routes were developed as “Agriculture producers” and “Non-agriculture related”. The agricultural producers included the veterinarians and livestock producers. Veterinarians were included in this question route based on their knowledge of animal and zoonotic-diseases. The non-agriculture question route was designed for medical-professionals and emergency managers. For a complete list of question routes, go to Appendices B and C. Central research questions were created followed by probing questions. Interviewers also had discretion to ask additional questions as they saw fit or needed more explanation on a specific area. The questioning route was reviewed by a panel of experts prior to submitting to IRB and recruiting participants and practice interviews were conducted to make sure the flow and process made sense.

Screening Process and Selection of Participants

Purposive sampling was used to select areas of Kansas that met specific criteria for the study. Purposive sampling is used when a study seeks to understand the experiences of one specific group (Creswell & Poth, 2018). Target counties in Kansas were selected based upon NASS statistics from 2012. Western counties of Scott, Finney, Haskell, Gray, and Ford were chosen for their high beef cattle production as seen in Figure 3.1. Nemaha County in northeast Kansas was picked for its high dairy cattle and swine operations. Because the capital of the state resides in Shawnee County, it was selected for the study. It also provided an urban area

perspective. Finally, Riley and portions of Pottawatomie County was chosen for the proximity to the NABC and NBAF facilities.

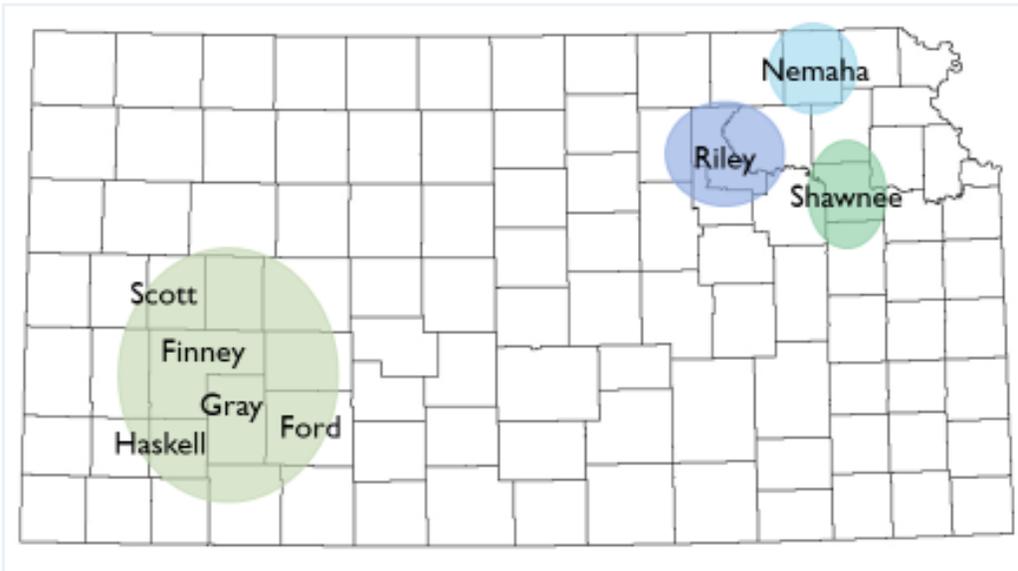


Figure 3.1 Map of Study Selected Counties

Initial participants were recruited initially through purposive sampling of extension agents; they provided contact information to individuals who fulfilled the characteristic of the population. Snowball sampling was used after initial interviews to find participants with specific insight to the county or processes that came up during the interview. Participants were asked, “Is there anyone else we should speak to regarding a zoonotic-disease outbreak?” A total of 40 interviews were conducted during the course of study. Interviews began during March of 2017 and went through July of 2018.

Procedure

Interviews were conducted where it was most convenient for the participants. They took the time out of their day to participate in the study for about an hour, so it was respectful to meet them where they were. Also, it allows for them to provide any documentation they may have such as copies of crisis communication plans or other contact information for future participants. Another reason to meet at their location, is to grasp an idea of what their operation looks like. This could provide background information that may not be revealed through the interview.

Participants were asked for their permission to participate and signed a consent form (Appendix D). They were also reminded their answers and identity will be kept confidential. Interviews were recorded and field notes were collected, creating an audit trail. Interviews were transcribed by the team of researchers. Validity was established through member-checks, comparing interviewer and assistant interviewer notes, and transcriptions. Validity creates credibility and trustworthiness within a study (Creswell, 2014). Member checks are in progress to be conducted by sending a list of major themes to a selection of members within each participant group to confirm that this accurately reflects their experiences and comments.

Saturation was met when all audience groups and all regions of the state began to respond with similar ideas, perceptions, and answers. During the data collection process, there was a discrepancy in responses among the medical professional audience within one region. Researchers decided to collect more data from this area in order to reach saturation. To fulfill a complete understanding of the discrepancies, extension agents from that region were interviewed. These agents (seen in Table 3.5) provided insight into language barriers, cultural differences, different backgrounds, and other demographics. After this point, the researchers felt there was no new information to be gained from conducting more interviews. Along with this,

potential participants had stopped responding to the research requests.

Data Analysis

All identifying information was removed and pseudonyms were assigned based on audience group (Tables 3.1-3.4). Those from the livestock producer category were given names that started with L, veterinarians were assigned V names, medical-professionals assumed names beginning with M, and emergency management personnel had E names. To determine participants' level of preparedness for a zoonotic-disease outbreak (RQ1), inferences were made based on the totality of the interview and discussion instead of from direct response. Levels of preparedness were categorized into Diffusion of Innovation adopter categories. Those who fell within a high level of preparedness were interpreted to be in the innovator and early adopters; for this study, they are called innovators. Innovators tend to have previous training experiences, education, or past experiences that improved their preparedness level. Participants with a moderate level of preparedness were classified as majority. This category is those who have some level of preparation but are not confident of their procedures. Low levels of preparedness were considered as late majority and laggards; to simplify, they are called laggards. Participants within this category do not have procedures in place for a zoonotic-disease outbreak. Tables 3.1-3.4 list the regions, pseudonyms, and level of adoption from the selected areas by audience group. Table 3.5 provides a list of references used throughout the study including extension agents and medical doctors that participants identified.

Table 3.1

Livestock Producer Pseudonyms and Adoption Level

Name	Region	Level of Adoption
Lane	Nemaha	Innovator
Lyle	Nemaha	Laggard
Levi	Nemaha	Laggard
Lawton	Nemaha	Laggard
Lee	Nemaha	Laggard
Larry	Riley	Laggard
Larson	Shawnee	Laggard
Lincoln	Western	Majority
Liam	Western	Majority
Landon	Western	Laggard
Logan	Western	Innovator
Lucas	Western	Laggard
Laurence	Western	Laggard
Leo	Western	Majority

Table 3.2

Emergency Manager Pseudonyms and Adoption Level

Name	Region	Level of Adoption
Eric	Nemaha	Majority
Easton	Riley	Innovator
Emmitt	Riley	Innovator
Elliot	Western	Innovator
Evan	Western	Majority

Table 3.3

Veterinarian Pseudonyms and Adoption Level

Name	Region	Level of Adoption
Virgil	Nemaha	Laggard
Vale	Riley	Majority
Vern	Riley	Majority
Victoria	Riley	Innovator
Vance	Western	Majority
Victor	Western	Laggard
Vincent	Western	Majority
Vaughn	Western	Laggard
Vann	Western	Laggard

Table 3.4

Medical Professional Pseudonyms and Adoption Level

Name	Region	Level of Adoption
Melanie	Nemaha	Majority
Mark	Riley	Laggard
Maddison	Riley	Laggard
Megan	Shawnee	Laggard
Michael	Shawnee	Laggard
Macy	Shawnee	Laggard
Melissa	Shawnee	Majority
Miles	Western	Innovator
Max	Western	Innovator
Mandy	Western	Laggard
Mason	Western	Innovator
Matthew	Western	Innovator

Table 3.5

Study References

Position	Pseudonym	Region
Agent	Amy	Western
Agent	Alice	Western
Doctor	Dr. A	Shawnee
Doctor	Dr. B	Riley

Interviews were then analyzed using NVivo 12. Analysis was conducted by one researcher to maintain consistency. Transcripts were analyzed using Glaser’s constant comparative (1965). Responses from each participant were coded and then compared with other responses. Codes were classified into categories which aligns with Creswell and Poth’s (2018) data analysis process. Major themes were identified from these categories. Major themes emerged when a theme appeared in all four audience groups. Minor themes were assessed on the basis of being present in three of the four audience groups. This process was used for all research questions. RQ1 responses were assessed based on Roger’s adoption categories, for this study only three levels were used: innovator, majority, and laggard. The innovation was considered to be the level of preparedness for a zoonotic-disease outbreak. This preparedness was based on biosecurity measures, communication planning, and disease outbreak training the respondents have experienced. Review Table 3.6 for a summary of preparedness levels. Participant responses were analyzed to determine which level they fell within; this was based on participants’ perceptions. As seen in chapter 4, other comments made by participants may fall within another level of adoption from their designated category. For RQ4, determining the social networks, audience groups were analyzed to determine connections with sources of information and

communication among groups and other entities. This process will allow the researcher to develop a map of social networks to better understand the flow of information related to zoonotic-disease.

The innovation in the present study is preparation measures for a zoonotic-disease outbreak. Refer to Table 3.6 for details on determination of participant adoption of this innovation and chapter four for details on how participants determined major and minor themes. Adoption levels were based on participant perception.

Table 3.6

Level of Innovation Adoption Categories and Example Responses

Adoption Level	Participant Perception of Adoption	Biosecurity Practices for Adoption
Innovator	“I would say fairly well prepared.” Miles	“We’re pretty self-contained with our own transportation, our own feed mill, and with biosecurity plans that we have in place. We have a, our truck wash is setup to be able to wash and dry plus we got a biosecurity flow chart as far as people moving in between places and then we also we really limit the number of visitors that actually get on site to see, you know to look at pigs. It’s very regulated in that regard. We don’t let employees cross back and forth between farms. So it’s, I would say we’re an eight, you know.”- Lane
Majority	“Probably about a five to six.” Lincoln	“I mean the number one thing that is well prescribed with any of our feed yards is due to hand washing and cleanliness. And if you go out through the feed yard through the processing and hospital facilities, are routinely cleaned and scrubbed to try to reduce the incidents of some of those things happening. And also routinely hand washing has, is highly stressed over you know whenever we do any type of training material with any of our feed yard employees and managers. That’s one of the things that we highly stress to reduce those chances.” -Vance
Laggard	“Oh, probably not as much as we’d like to be” Victor	“The biggest ones are shower in and shower out for hog facilities. The ones that are least at risk, require every employee, anybody comes on the farm to change your clothes, shower, put on boots and coveralls that are farm specific. The other thing that we really are, truck washes and drying. We don’t want anybody to come to our farm that hasn’t been to a truck wash of some type or down time dried. Cause things don’t live as long as dried. Those are the biggest things.” -Virgil

Limitations

All qualitative research studies share some limitations. One of which, is the inability to generalize the data for the general population (Creswell & Poth, 2018). However, this data may be transferable to other states with similar characteristics and experiences. Another limitation appears through conducting interviews through a team approach. Each interviewer has a different style, establishing rapport with participants may differ, and inconsistencies in following the moderator's guide are all limitations to having multiple interviewers. Similar limitations were seen in Matteson & Lincoln (2008), which illustrated differences of interviewers' interactions and positivity with participants. An additional limitation appears in the geographical locations selected. Only portions of the state of Kansas were interviewed based on population of livestock, human population, and proximity to the future NBAF facility; because the entire state was not included, results cannot be generalized for the state nor across the country. Lastly, some bias may be formed through using extension agents as the initial purposive sampling contact.

Summary

In-depth, semi-structured interviews were used to gain an understanding of stakeholders' communication and education related to zoonotic-diseases. Purposive sampling occurred with the help of extension agents and then snowball sampling followed by participant referrals. An interviewing team conducted 40 interviews in Kansas. Audience groups, livestock producers, veterinarians, medical-professionals, and emergency managers, were divided into two question routes developed to gain an appropriate understanding related to their field of expertise. Interviews were audio recorded, transcribed, and analyzed using Glaser's constant comparative method to identify themes throughout the data.

Chapter 4 - Results

Zoonotic-diseases are becoming more prevalent and impacting human health, animal health, and economics causing a need for more research in communication and education about these diseases. Research can better identify prevention efforts, information dissemination, and educational practices to reduce the effects of disease outbreaks. This chapter will focus on the results of the study, organized by the research questions of: RQ1: What are audiences' levels of adoption for zoonotic-disease preparation? RQ2: What are audiences' educational experiences related to zoonotic-diseases? RQ3: What are audiences' experiences with communication planning for zoonotic-disease response? RQ4: What are audiences' social networks and related information sources for zoonotic-disease? Major and minor themes will be introduced, any dissent from the themes will be explored, and any other noteworthy observations that did not rise to the level of a theme.

RQ1: What are audiences' levels of adoption for zoonotic-disease preparation?

Levels of adoption practices in regards to preparing for zoonotic-disease outbreaks was explored in discussions throughout the interview process as well as with the specific question: How prepared are you for a zoonotic-disease outbreak? See Tables 3.6 for a list of categories and example responses. Major themes that appeared in all audience groups included the identification of two groups: innovators and majority. A minor theme emerged with a laggard level of adoption in three of the four audience groups.

Innovator

Major themes identified were high levels of preparation categorized as innovators; those were ahead of planning for an outbreak and had past experiences or trainings. An emergency manager from the Riley county region, Easton, drew upon past experiences to describe his preparedness:

...we spent like I say we have had several exercises on foreign animal disease. I'd say we are closer than a lot of counties, but the state has just gone through another exercise where they have made some changes in their plan and I don't believe we have, we have addressed those, they haven't put them out to us yet so we can change our plan yet.

Western Kansas livestock producer, Logan, identified the equipment and other person involved in the process of being prepared:

We could get the equipment if we need it and get it [zoonotic-disease outbreak] taken care of... You know, and like I said, our vet is, he'd be the first one to know and he could, we'd have a plan and away we go.

Matthew, medical professional, from the Western Kansas region also mentioned other agencies that would play a role in taking action during an outbreak:

How prepared I would say from the standpoint of us, here at this clinic, I feel like we're as prepared as we need to be. But that responsibility falls more so on our kind [of] local city and kind of the governmental agencies. Either, you know, locally or in a broader scope, statewide and even nationally.

Majority

Another major theme occurred at a majority level. These individuals felt they were partially prepared; however, there were still actions to be taken to be fully prepared. Medical professional, Melissa, from Shawnee county region said:

I think we have the resources if that were to happen in our unit to put a plan together very quickly if we needed to. I can't 100% speak if we have one in place or maybe one we haven't been informed about yet, but I think we've got such a good working relationship with both the state universities and other hospital nationwide to figure out about that [zoonotic-disease outbreak].

Leo a livestock producer from the western region of the state also mentioned having a plan but felt he wasn't fully prepared, "I mean we've got plans. You know, everybody's got to have a plan. We got a plan but it's initiating the plan that might be the problem."

Emergency manager, Evan, identified planning measures he has been a part of but also the lack of resources and other dilemmas, which played into his preparedness:

I'd say somewhere between minimally and moderately because just in the little bit that I've been involved with FMD planning, I just think local agencies are going to be so overwhelmed that you can have some basics in place, but it's going to be so difficult to manage. And then, when you add in disease processes that affect both animals and humans, you're looking at affecting peoples' livelihoods and their way of life, plus their ability to carry that on. So I think one of the things that you have to plan for and try to do the best you can. But I think, you know, you're going to be hit so hard and have so many things to try to deal with, especially

if it happens on a regional or statewide level that resources are going to be exhausted so quickly.

Laggard.

A minor theme was laggards who do not feel prepared for a disease outbreak; this was seen within livestock producers, medical professionals, and veterinarians. Larry, a livestock producer from Riley County stated, “Well, we’re sure not prepared for that, I know that.” Medical professional from Shawnee County, Macy, said, “Probably not prepared at all.” Veterinarian, Vann, identified other roles that impact his level of preparedness, “Nobody’s prepared till it happens. We do our best... [I] don’t think anybody’s prepared for it [zoonotic-disease outbreak]. Every country has to have an emergency plan in place and that’s as prepared as everybody is.”

Noteworthy Observations.

All audience groups mentioned some form of Biosecurity practices, whether they have them in place or if those precautions are something they are missing. Veterinarian, Virgil, laggard commented about the process his clinic takes in examining animals, “We go from healthiest to sickliest, or the dirtiest, or least bio-secure...we do communicate very rapidly about diagnostic results, positives, negatives, because we change the biosecurity flow.” An innovator from Nemaha county region discussed their biosecurity flow chart, or how people move about:

We’re pretty self-contained with our own transportation, our own feed mill, and with biosecurity plans that we have in place. We have our truck wash setup to be

able to wash and dry. Plus, we got a biosecurity flow chart as far as people moving in between places.

He went on to discuss past experiences with disease outbreaks and the role communication played in controlling it:

Back when PED came about, we did have one sow unit that did break. We were able to within a matter of hours have everybody that need to be informed, had shipments cancelled, had feed movement cancelled and rescheduled, and we ended up limiting it just strictly to that one unit. From what I understand that was kind of a rarity in most systems that had PED. I truly believe it was our, it was just that communication that we had that we got to everybody quickly and easily.

Emergency manager, Elliot discussed collaboration between agencies that would be enacted to take biosecurity measures:

After the exercises, I've been working trying to put some plans together with some of the feedlots so we know what the parameters are to begin with so now I'm taking and preplanning some of the feedlots to where if KDA comes down and says 'Hey, we have a potential we already have our sites set up to where we need to do our road blocks,' you know set up deacon things of that nature right off the bat. So I think that we're there's one transportation routes here where we're going to our boundaries on the other one right here so the problem with ours is we have so many feedlots that are almost connected to other feedlots so you get one involved well now this next ones involved so you now you got to start spreading out.

Results RQ2: What are audiences' educational experiences related to zoonotic-diseases?

In order to understand audiences' knowledge, education, and experiences regarding zoonotic-diseases the following questions were asked: What formal or informal training have you had on zoonotic-diseases? What format do you prefer to learn about zoonotic-diseases? Do you think extension services is an appropriate avenue for training in this area? What are the main barriers to getting the information you need about zoonotic-diseases? The major themes developed within preferred methods of learning occur in workshop-based presentations or online modules. Minor themes of preferred learning include email updates. Another major theme emerged from previous informal training of participants and organization hosted training. Previous educational experiences lead to one minor theme occurring within collegiate courses.

Workshop-based Presentations

A major theme of preferred learning method was the format of workshop-based presentations, scenarios, or exercises. These are identified as having some face-to-face interaction with experts, extension, and peers. Larson, a livestock producer with a laggard category of adoption said, "...I do like, I always like in-depth seminars given by multiple people on different subjects. Just an afternoon seminar or morning seminar or whatever, I find very, very useful."

Collaboration among peers was a reason for participants to favor a workshop-based learning format. Vern, a veterinarian from the Riley County region with a majority preparedness level said:

I would prefer in-person, you know, if you were to gather all the veterinarians up in the area for one night, you know, and have an evening talk about disease or day or afternoon or whatever...Cause not only would that bring us together with whatever authority is giving that, but it would allow all of us veterinarians to also network together so that we could be in communication(s).

Collaboration with other agencies such as federal or state organizations would be beneficial to training. Along with collaboration, training individuals who are in new roles should also be a consideration of educational formats. Emergency manager, Easton, with an innovator adopted preparedness level has the following response:

If I was going to do it, what I would like to do is actually participate in an exercise where we brought the federal, the state, local partners in and practice or exercise getting that communication up to the top and then back down appropriately. I think that's probably the big thing is, is the joint information center aspect of this and bringing new people. I mean, we have a new, actually they are interviewing for a new PIO [Public Information Officer] at the police department. People change hands, we have a new PIO at the fire department, you know. We need to get those people in. We need a PIO from the zoo to participate. We need a PIO from vet med because it may not be somebody from communications that's doing this. So yeah, I just think because of turnover we need to have that kind of training almost annually.

Online Modules

When asked about their preferred format of learning about zoonotic-diseases, online modules was a major theme. These modules can take the form of videos, webinars, courses, or self-guided instruction. Virgil, a veterinarian from the Nemaha county region with a laggard preparedness level stated, “I think the modules, the video modules are great...”

A medical professional, Melissa, with a majority zoonotic-disease preparedness adoption level identified the convenience of online modules:

For me, I like just for ease and convenience, electronic mail, audio-visual type things that could come across webinars, things like that. It’s difficult for me to break free of my current schedule on a certain day to attend a meeting or things like that, so anything electronic for me is best.

Emmitt, an emergency manager with innovator adoption level from Riley County, mentioned different styles that he finds acceptable. He said, “I think the top two forms would be hands-on programs, but there’s also, in this day and age, a lot can be done online. You know, through videos, or webinars, I think webinars work well.”

Dissent.

Dissent was expressed through the lack of collaboration that would be associated with online, module-based learning. A highly prepared, livestock producer from Nemaha County, Lane stated:

I mean, well, the thing with [a] group setting is we can have discussions amongst ourselves and “Hey, that ideas, you know might work” or “Hey, yeah, I’ve tried that and this is what I’ve seen and this is what happened.”

He went on to identify online modules provide basic knowledge; however, they would not allow for applicable practice:

I mean, the modules would be great for getting a base, okay, and getting that formal knowledge but then taking it from there and then saying okay, getting in that like I said, the group setting where you take your peers and discuss it and have presentations and then have an open discussion about it and go from there.

Email Updates.

A minor theme was identified within audience groups, livestock producers, medical professionals, and veterinarians, for their preference of receiving email updates. Leo, a livestock producer with majority adoption stated, “Email would be best.” A medical professional, Miles, with innovator adoption responded, “Usually by email or computer.” Laggard veterinarian, Vaughn, mentioned different formats, “Probably continuing education through K-State would be an ideal format for me. And then emails...” This also aligns with the next notable result.

Noteworthy Observations.

After being prompted all audience groups agreed extension services would be an appropriate avenue to provide information and education about zoonotic-diseases. Majority veterinarian, Vance stated, “I do believe it could be a great opportunity for extension to step in and develop some of these [instructional information] and execute them.” Prompting participants reminded them of extension services. Melanie a majority medical professional said, “Sure, I should have mentioned them so thank you. We do work with extension also. So yeah, we

definitely have a good relationship with our extension office.” Easton an innovator from the Riley region spoke of past trainings offered through extension services:

I do. I think the ADRT training is good...Extension sees a lot of people out there and I think just educating people that need to be involved in training is the key. I don't know that they would provide the actual hands-on training, but I think contact that they have and a number of contacts that they have in the community would be great if they could get half of those people to attend some type of training about a foreign animal disease would be great.

Several participants mentioned the desire to obtain accreditation or continuing education credits in connection to educational formats. This was seen within the medical professional and veterinarian audience groups. Vance, and majority adopter stated, “I do think the USDA accreditation process does a great job of going through zoonotic-diseases and going through those video trainings are very helpful.” Another veterinarian with majority level of preparedness said, “They [state and federal government agencies] could provide some CE electronically, that'd be great.” Medical professional, Michael, with a laggard adoption rate, provided insight on the incentive presented by continuing education credits, “If there's an attached, like continuing education credits for whatever, professional, that makes people want to do them...Cause then you can kind [of] do more things and it would encourage people.” Table 4.1 has a complete list of responses.

Table 4.1

Preferred Format of Future Education

Response	Number of Respondents
Workshop-based Presentation	21
Online	14
Accreditation or Continuing Education Credits	8
Email	4
Written	4
Beef Quality Assurance (BQA)	3
All Formats	2
Extension	1
Podcast	1

Organization Hosted Training

Several participants discussed informal training they've had with different organizations, such as, Biosecurity Research Institute (BRI), Kansas Department of Health and Environment (KDHE), Kansas Division of Emergency Management, county agencies, and more. For a complete list of organizations and trainings, see Table 4.2. Emmitt from Riley county region who is an innovator said:

When BRI first came here, we had some training on, as far as what they do and what they operate and what they see...and through our emergency management program on hoof and mouth disease and how outbreaks occur, and [what] they do about them, and you know, the implications.

Medical professional, Melanie, who is a majority adopter explained it has been a number of years since she has had training about zoonotic-disease outbreaks, "I know that our county did an exercise, it's probably been ten years ago, with specially the zoonotic-disease. And I have attended some, a couple trainings before that were held, you know, that KDHE sponsored."

Livestock producer, Lincoln, also with majority adopter rate discussed his training through his local and surrounding counties:

...We've done a couple different scenarios or trial cases here in Gray County, which I think that comprised Gray County, Ford County, [and] I think Haskell and Finney when we did that. So there's different presentations on it a couple different times.

Table 4.2

Complete List of Organizational Trainings

Response	Number of Respondents
No prior training	7
BRI	3
Practice Scenarios	3
Kansas Division of Emergency Management	2
State Veterinarian meetings	2
Reading information	2
Yes, not specified	2
Association of Shelter Veterinarians (ASV)	1
FAD exercises	1
Kansas Department of Health and Environment (KDHE)	1
Midwest Dairy Unit	1
Pork Quality Assurance (QPA)	1

Collegiate Courses.

Collegiate courses also provided an educational background for participants. This included medical, veterinarian school, and other college courses. This minor theme was seen in livestock producers, medical professionals, and veterinarians. Livestock producer, Larson, with a laggard adoption level said, “Had a little bit there in college but that’d be it.” Michael a medical professional who is also a laggard recalled his experience in medical school:

I’m sure there was some parts in our infectious diseases as a med student in second year. That was probably like a week out of the two year of like classes that we had. And then clinically, there’s not really, I mean, there would be here and

there like residency we would have a patient that was infected by that [zoonotic-disease].

Victor, a veterinarian from western counties with a laggard adoption rate identified continuing education as a source of education along with veterinary school:

I guess in vet school, which was a long time ago, we have had epidemiology.

Some classes along that. Since then, like to keep my accreditation, we have to do some online modules every year and some of those are regarding that [zoonotic-diseases].

Noteworthy Observations.

There were several participants from the livestock producer and medical professional audience groups who did not know or understand the terminology “zoonotic-disease” and needed clarification about the disease. This occurred after the interviewer asked the first question regarding zoonotic-diseases. Laggard, Larson asked for an example to clarify, “Zoonotic-disease. Give me an example.” Megan a laggard stated, “I’m just trying to think about what that would be.” Other participants were confused on which diseases are zoonotic or not. Laurence a laggard livestock producer asked, “Like hoof and mouth? No, what’s zoonotic?”

Results RQ3: What are audiences' experiences with communication planning for zoonotic-disease response?

Audiences' experiences about communication and communication planning were assessed through the following questions: Do you have a crisis communication plan? How long have you had your communication plan in place? Does your plan include what to do if there were a zoonotic-disease outbreak? Who do you inform and how do you prioritize those people regarding disease outbreaks? What is your plan for communicating to the public about zoonotic-diseases? What barriers do you see with communicating to the public about these diseases? The major theme that emerged with communication planning was the importance of collaboration among organizations. Having a chain of command, no crisis communication plan, or having one but not specific to a disease outbreak were minor themes as well as the role of social media.

Importance of Collaboration

A major theme developed on importance of collaboration among different agencies and organizations. Audience groups highlighted different elements and reasons why collaborating with other individuals is key. Vance, a veterinarian who is also a majority adopter pointed out the benefits for all of those involved:

So, I think at the end of the day it can be very supportive to implement some of these changes. I think, it's on both sides of the coin. At the end of the day, working together and collaborating on projects is beneficial for both. More on the, I'm going to call the government, more regulatory side, but also on the producer and production side as well. To think that those things don't have, at the end of the day, they have to move hand in hand together.

Melanie, a majority medical professional shared that working with other medical professionals within the area is essential in developing her organization's communication plan:

So, we met with the hospitals, with EMS, behavioral mental health, and so we share that information with them. And then, also, we have a strong coalition in Northeast Kansas at the county health departments of public health and so that helps because we're just kind of a strong force together. We collaborate together and work on these plans and revise them as necessary.

Emergency manager, Evan, a majority adopter from the Riley County region highlighted the importance of collaborating in order to share the same message with the public:

...There would be a lot of communication between KDHE and Kansas Department of Agriculture and the animal health division to give out some coordinated messages. I guess that's an assumption that I would have. I don't know for sure that it would work that way, but I think that, you know, we'd be looking to both of those sources for guidance in trying to in turn coordinate those messages for our public. Especially since [we] live in an agriculture based area...I would assume that there would be a coordination at the state level that maybe more in an effect with a zoonotic-disease.

Chain of Command.

Chain of command consisted of having contact information or an order of communication for those individuals or agencies who would need to be contacted in case of a zoonotic-disease outbreak. Livestock producers, medical professionals, and veterinarians were seen within this minor theme. Medical professional, Megan, with a preparedness level of a laggard said:

We do have that [crisis communication plan] in place and it's posted [in the] telephone room if there's a, or our Stormont Veil room. If there's a crisis then there's a number for us to call and they get the word out very quickly.

Majority veterinarian, Vance, mentioned having the contact information compiled; however, it is not a complete crisis communication plan:

That [crisis communication] is something we have discussed amongst ourselves, and we just haven't developed a complete protocol for a communication plan yet. I do think with the contacts that we have amongst ourselves we would be able to get in touch with the right people and in a timely manner to notify, to through the correct chain.

Lane, an innovative livestock producer from the Nemaha County region provided the order in which people would be contacted:

So as soon as, you know, anybody on, at the farm thinks there's an issue they first try to get in touch with me. And if I'm not available, then they go directly to the vet. And then from there, it gets information sent to the office and then it gets from the office sent to truck wash and to the feed mill. Sent out that way.

No Crisis Communication Plan.

Another minor theme was not having a crisis communication plan in place. Audience groups within a crisis communication plan included livestock producers, medical professionals, and veterinarians. Some participants recognized the need for one. Vincent, a veterinarian who qualified as a majority adopter of preparedness practices said, "I don't know that we have a crisis

communication plan. We've got hazmat stuff, but as far as an all-out crisis, you know, I'm going to say we're probably lacking there. That's a good point."

Livestock producer, Lincoln from the western counties who is a majority adopter described his crisis communication plan as, "I think it will be kind of just roll with the punches as they come."

Another livestock producer, Logan, an innovator from western Kansas also said he would handle situations as they arise, "Oh, we just kind of handle it as it comes...If it's an injury, we get it taken care of, you know. You call the appropriate authorities, I guess it, what you do and take care of it."

Not Specific to Zoonotic-disease Outbreak.

Several participants identified having a crisis communication plan; however, these did not specially cover a zoonotic-disease outbreak. Emergency managers, livestock producers, and medical professionals were identified as having a crisis communication that did not include zoonotic-disease outbreaks as this minor theme. Emergency manager, Emmitt, from Riley County, with an innovator level of preparedness described different situations that his organization has a plan for:

...We're in the 'what if' business, so we have different plans in place for different situations. Ours is not just a static-one plane fits all because we have [th]em for if it's a natural disaster. We have [th]em if it's a man-made disaster, which is like an active shooter. If we have wildland fires. The county has one for communicable disease, but that's with county wide. We're a part of that and we work with them on that. So yes, and in a variety of ways.

Landon a livestock producer from the western region with a laggard adoption level also pointed out other issues covered in his crisis communication plan “We do, I mean, it’d be more related to weather problems than it would be animal problems per say... We don’t necessarily have protocol[s] setup for a disease outbreak.”

Macy a medical professional classified as a laggard discussed the minimal exposure to crisis communication she has experienced within her job:

... We as nurses and other health care providers, not physicians I don’t believe, have to do annual training and it’s through the computer. And it talks mainly causalities, weather events, but it would probably involve communicable disease. There is some exposure, minimal.

Social Media.

Social media was seen as minor theme as a supplemental channel to share information about disease outbreaks. Veterinarians, emergency managers, and medical professionals use social media to provide information to their target audiences. It should be noted this form was not the primary means of disseminating information for audiences groups. Elliot, an emergency manager with an innovator adoption rate from the western region responded, “We have, we’ll get the public information officer for the county involved, and we have cod red system. Also, we have Gray county emergency management Facebook and Twitter site.” Medical professional, Melanie, who is a majority adopter from Nemaha County identified several forms of media that her department uses, “...we have communicated through our website, through our Facebook page like with mumps, send it to the radio...”

Vann, classified as a laggard, said his practice uses social media in addition to talking to patients, “Facebook, and then talk to people just one-on-one, but we do post a lot on Facebook.”

Noteworthy Observations.

Noteworthy observations occurred when participants felt the general public does not need to know all of the details about a zoonotic-disease outbreak. This was only seen within the livestock producer audience group. Logan, an innovator from the Western counties discussed past experiences of terminating an employee for posting pictures, “Everything that happens here don’t need to be public knowledge...took a picture of a tractor that was stuck and it got back to me; and I let him go...It ain’t everybody’s business what happens...” Lucas, a livestock producer from Western Kansas said, “I think everybody has learned that you just don’t say nothing unless you know what you’re saying so, we keep that pretty close to lip.” Laggard livestock producer from Riley County, Larry, said his hesitation stems from the fear that could be elicited:

No, I don’t want to [tell] any more people than I have to. And I know that sounds wrong, but I still think, you know, I just talked to [the] state vet and whatever they told you had to do, that’s what we would do. I mean, you know, we have to do what’s right by law of course, but we’re not really, don’t want to alarm anybody or anything.

Another observation occurred in participants worry about the fear or panic that might be elicited in the general public. This worry was shared by livestock producers, medical professionals, and emergency managers. Melissa a majority adopter explained her concern as, “I think the communication with the parents is the hardest part just because trying to promote

education to them without inviting panic is the biggest thing for parents.” Larson who is a laggard suggested the lack of knowledge or understanding can lead to fear”

I think probably just the transfer of knowledge and or communicating the ideas of everything, having a platform. I think it’s very easy, the general public can easily get distracted from the point and not understand what is trying, what you’re trying to communicate. [General public] gets scared easily and [does] not listen to all the facts verses the concerns that possibly might go with them.

Emergency manager, Evan with a majority adoption level discussed the effect of communicating about diseases on the general public’s fear:

I think you know any time you start talking about diseases I think that fear level goes sky high and when fear gets elevated it makes absorbing information all that more difficult. You know, just like there’s the misinformation about foot and mouth disease being the same as hand foot and mouth disease. It’s very easy I think for people to get that confused so not only do we have signs and symptoms to be looking for you know in our family members and our children, I think there’s also the attentional concern ...

Lastly, participants also identified the lack of knowledge on the part of the public or receiving the correct information as additional concerns. Innovator, Lane from Nemaha stated:

We pretty much can get that info. Probably, if I were to say if there’s any barrier it’s how quickly the government is willing to, you know, open up with what they know and get information to us. That’s sometimes a slow process because once again they go back to the same thing I just got done talking about. Perception is everything and so they want to make sure that the information that comes out is

complete and doesn't create a panic but sometimes they have too much caution in that regard and they need to divert some of that information to the producers.

Emergency manager, Emmitt an innovator also highlighted the importance of the correct information as well as the importance of timeliness for releasing information:

I think that another barrier would be understand what the zoonotic you know the disease outbreak is so to make sure that we have, you have the right information and then putting the right information out to the public so and I think that the time line of getting that out because do we have all the experts here in town to be able to answer all those questions or, or anytime you take the communication you go away from local to whether it is state, regional, national, whatever that slows down so getting the right communication with the right people.

Vance a majority veterinarian discussed the impact of the public's lack of understanding of the agricultural industry as a whole:

The number one barrier that jumps to my mind is the general public is so disengaged from production agriculture that they don't understand where the beef comes from, or where the milk comes from. And so explaining to them the zoonotic-disease and how that can impact them is great but we also need to take the additional education and inform them over general practices and what the production agriculture is doing so they know the background.

Results RQ4: What are audiences' social networks and related information sources for zoonotic-disease?

RQ4 was interpreted through questions regarding information sources and social networks such as: Who are your most trusted sources of information about contagious animal diseases? What other organizations or publications are your most trusted sources? Who do you share information with? How do you share information with the public about zoonotic-disease outbreaks? From these questions, the following major themes emerged: veterinarians and Kansas State University serve as the sources of information and communication for all audience. Minor themes included CDC and state veterinarians as playing a role in communicating and educating others about zoonotic-disease outbreaks.

Veterinarians

Veterinarians served as the main source of information, communication, and education regarding zoonotic-disease outbreaks developed as a major theme. Laggard livestock producer, Larson, from the Shawnee County region relies upon his veterinarian for information, “Generally, talk with the local vets on that source. Have a couple of other people that I talk to about different things, but I would say, generally local vets.”

Vale, a veterinarian with a majority level of adoption said he would turn to his peers to gain more information:

One of the probably most trusted sources I have is, is usually the USDA. We do have to complete accreditation modules and protocols every so often in order to keep our status current as veterinarians and renewing that continued education is,

is a big part about foreign animal diseases and then the university and colleagues would come after that for me.

Mark a medical professional with a laggard preparation level would lean on his counterpart veterinarians, “Yeah, obviously would talk more to my veterinary med colleagues I would think of or animal science.”

Kansas State University

Another major theme included the College of Veterinary Medicine at Kansas State University (K-State) was considered as a source of information for all audience groups. Veterinary, Vincent, a majority adopter relies on the research produced by K-State, “I think the university information is, should be nonbiased and backed up by good studies and good people.” Emmitt, an innovative emergency manager described the different sources he would use depending on the type of disease outbreak, “If it’s a traditional communicable disease, our sources of information would be the health department or hospital. If it’s something zoonotic, it would be K-State Vet Med.” Macy, a medical professional with a laggard preparedness also distinguished a difference in sources of information related to the type of disease, “I don’t know if the CDC has anything that still would be a go to. And I would go to the vet school...My first thought is to contact somebody. I’m assuming, I know they have infectious disease veterinarians.”

CDC.

The Center for Disease Control and Prevention served as a source of information, which developed into a minor theme. Veterinarians, medical professionals, and emergency managers all

access the CDC for information about zoonotic-diseases. Vance, veterinarian with a majority preparedness level uses several government agencies including the CDC, “The most trusted resource that we refer to is the USDA information. Whether that’s through the CDC or the Future NBAF or where we’re finding those zoonotic-diseases, where they’re coming from.” Medical professional, Megan, a laggard adopter turns to the CDC as her trusted source of information, “Well, CDC would be the most trusted one because they’re supposed to have all the pertinent information and they’re mandated to get that out to healthcare providers.” Majority adopter, Evan, an emergency manager from Western Kansas, relies on several government agencies to provide information including the CDC:

Well, Kansas Department of Health and Environment is an awesome resource that I use a lot both from the emergency management and public health side and then Center for Disease Control and you know Kansas Division of Emergency Management sometimes shares that information so we can always look at what they have but primarily KDHE, Center for Disease Control as far as animal health I look at the Kansas Division of Animal Health website. I’ve looked some at the world health organization’s website for issues when I’m doing presentations or gathering information those are probably the ones I use most often.

State Veterinarians.

Livestock producers, emergency managers, and veterinarians turn to the state veterinarian for information about disease outbreaks emerged as a minor theme. Livestock producer, Larry, from Riley County who has a laggard adoption rate utilizes the publications produced by the state veterinarian, “For information, would be the pamphlets and things that would come from

the state vet here in Kansas. You know, livestock commissioners and the state vet.” Eric an emergency manager from Nemaha County discussed resources that would be used during an outbreak, “Resource wise, we’d be calling, use our available resources and then be calling in the state resources. Your state veterinarian, I’m sure would already be involved.”

Veterinarian, Vance, with a majority adoption level prioritized his communication network based on types of outbreaks:

I think the reasons for prioritizing it depends on what we’re dealing with. You know, if we’re dealing with something with, such as foreign animal disease, we’re calling our state veterinarian and getting the state involved and turning control over to them. If it’s over zoonotic potential, we’re coordinating with government regulations, but then we’re also coordinating very heavily with the feed yard managers.

Dissent.

Miles, a medical professional considered as an innovator was unclear about the extent to which the CDC would be helpful, “Usually, a source I go to is called Up-to-Date...Hopefully, on something like that [zoonotic-disease outbreak], the CDC would step in and give us some guidance, you know.”

For a complete picture of the communication channels, review the social network map, Figure 4.1. Audience group communication with other audience groups are designated with larger, colored arrows. Arrows going to and from audience groups display the two-way communication that occurs between groups. Arrows with a solid line going in one direction indicated multiple members from that audience groups use that sources. Dashed line indicate

only one participant from the audience group uses that source. Lastly, the arrow looping around indicates a participant citing other colleagues within the same audience group as a source. As a review of themes, veterinarians and KSU served as the two major sources of information and communication for all audience groups as seen on the map. Other frequently used sources by three audience groups include the CDC and state veterinarians. Figure 4.2 provides a simplified diagram of the communication between audience groups; here, gaps in communication can be seen. The following list also details the gaps in communication:

- Veterinarians not communicating with livestock producers
- Emergency managers not communicating with medical professionals or livestock producers
- No communication between medical professionals and livestock producers

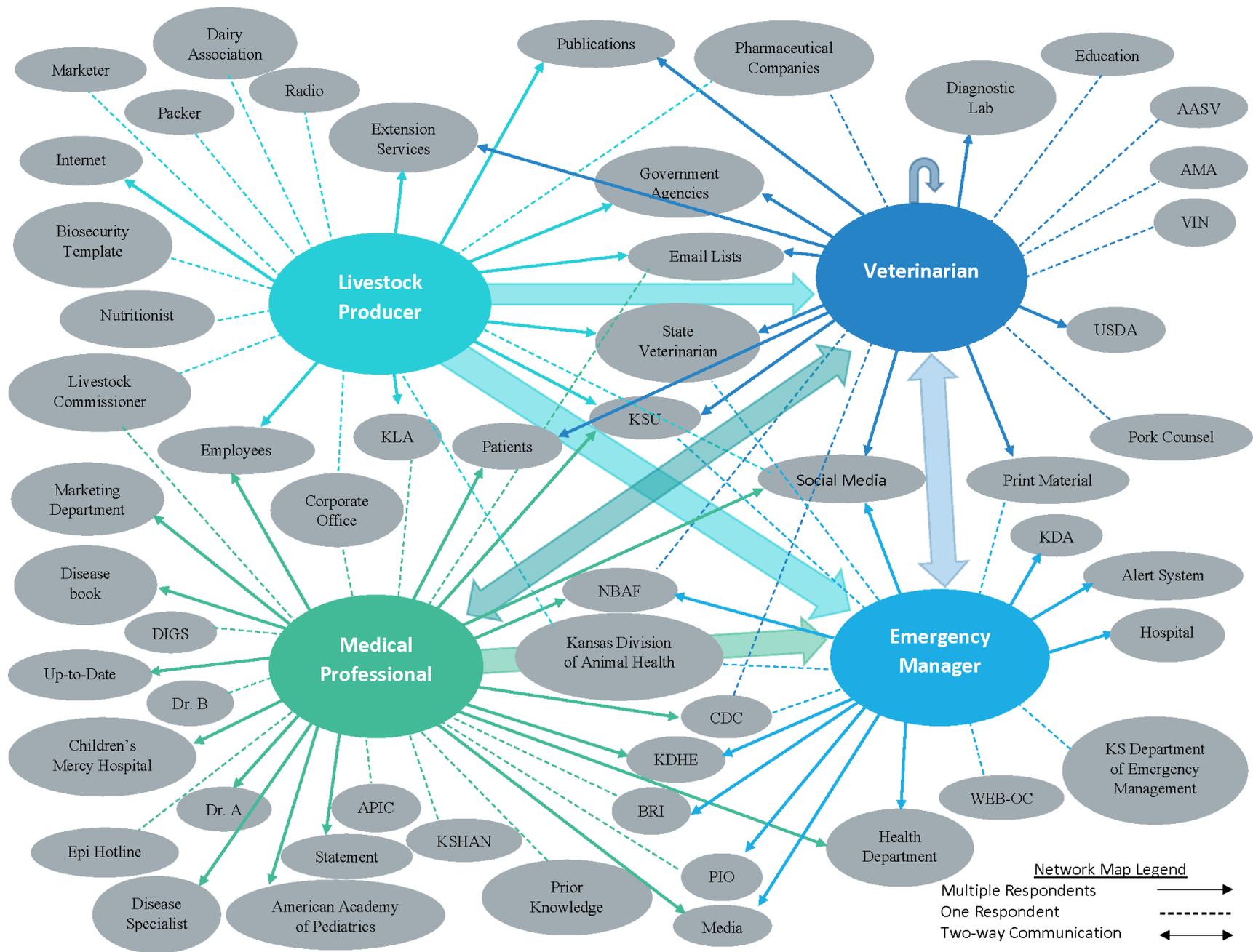


Figure 4.1 Social Network Map of Audience Groups

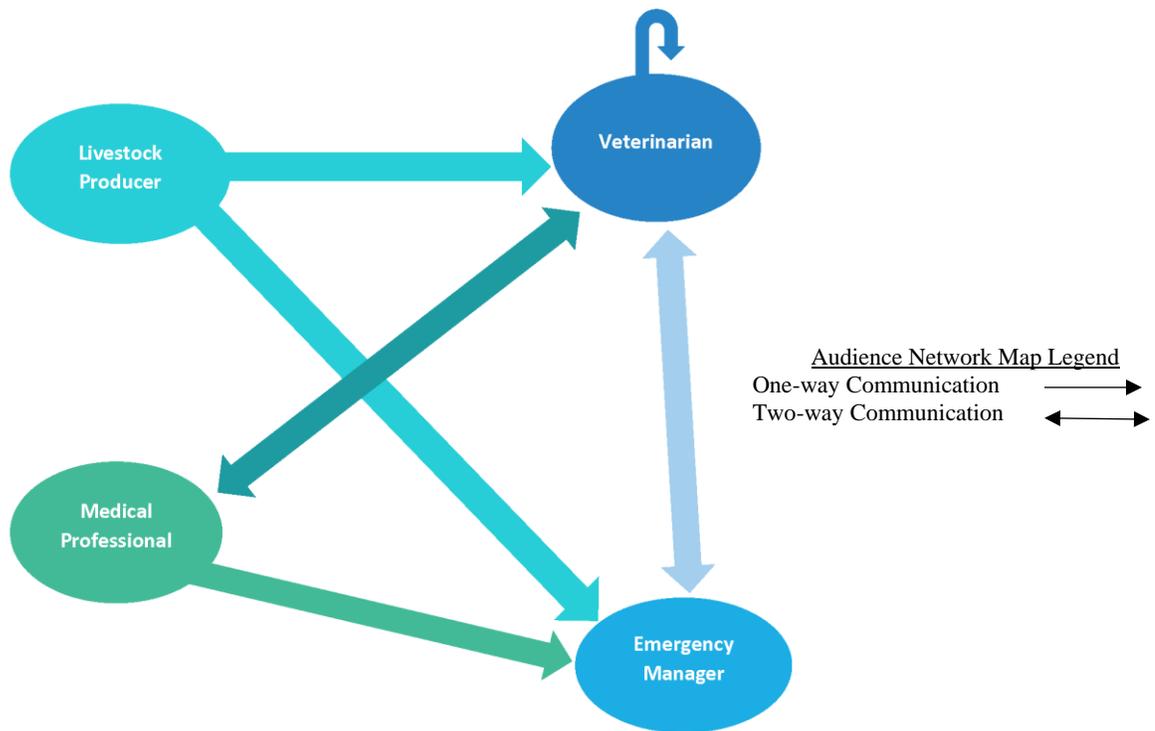


Figure 4.2 Gaps in Communication among Audience Groups

Summary

Audience groups varied among responses to questions. Major themes were developed when all four audience groups were seen within a response and minor themes included three audience groups. Innovators and majority adoption levels of preparedness were seen as a major theme. Past educational experiences were seen within organizational trainings. Future learning is preferred to occur in workshop-based presentation or online modules. Collaboration was highlighted as being very important in terms of communicating and planning for disease outbreaks. Lastly, veterinarians and Kansas State University are the most used source when gathering information and communicating about zoonotic-diseases.

Chapter 5 - Conclusion, discussion, recommendations

Introduction

Key elements in controlling and preventing zoonotic-disease outbreaks include communication and education. This study was designed to understand the educational needs and communication channels of audience groups. Livestock producers, veterinarians, medical professionals, and emergency managers were asked to following questions that guided this study.

RQ1: What are audiences' levels of adoption for zoonotic-disease preparation?

RQ2: What are audiences' educational experiences related to zoonotic-diseases?

RQ3: What are audiences' experiences with communication planning for zoonotic-disease response?

RQ4: What are audiences' social networks and related information sources for zoonotic-disease?

A qualitative approach was taken to explore preparedness levels, educational experiences, communication planning, and social networks of audience members in the state of Kansas. Interviews with participants were transcribed and then analyzed using Glaser's constant comparative method (1965). Results were interpreted by the theory of diffusion of innovation and social network analysis.

This chapter will illustrate conclusions and discussions of the study in relation to past research. It will go on to provide recommendations for furthering research, communication for audience groups and practitioners, education practices, and continuing the efforts of the NABC project.

Conclusions and Discussion

To understand audiences' communication and educational needs, questions were asked about their preparation measures for a zoonotic-disease outbreak; past experiences regarding education and communication planning; and their trusted sources of information. A summary of results for each research question are explained in this section and how it applies to previous literature.

RQ1: What are audiences' levels of adoption for zoonotic-disease preparation?

In order to understand the ways in which audience groups communicate and learn about zoonotic-disease outbreaks, an understanding of their current disease preparation was needed. Audience groups varied in the preparation levels from innovator, majority, to laggard; review Table 3.5 for description of categories. This was determined based on their perception of their readiness for a disease outbreak. Two themes emerged from respondents from all audience groups, with mention from all audience groups falling in the innovator and majority categories. The minor theme included three audiences having at least one participant at the laggard preparedness level.

Adoption levels of preparedness were described by the participants and their perception of their preparedness. Major themes seen in all audience groups included innovators nine participants and majority adopters with a total of seven participants. Minor theme developed as laggard adoption was seen only in livestock producers, medical professionals, and veterinarian audience groups with a total of 18 participants. Innovators are considered to be the leaders in adopting new innovations (Rogers, 2003). Majority adopt new innovations or ideas before the average person and serve as channel of diffusion (Rogers, 2003). Laggards are usually the last to

adopt an innovation because low awareness about the innovation or limited resources (Rogers, 2003). The spread of participants follows Rogers' outline of adopter categories (2003).

When discussing preparedness levels, participants identified agencies that affected their preparedness, preparation or biosecurity measures already in operation, lack of resources, and past learning experiences. Several participants discussed biosecurity measures they have in place. These measures can help in preventing an outbreak or containing one once it occurs (Sellnow et al., 2017). As King and Rollins discussed, information sources, education backgrounds, collaboration among disciplines, and opinion leaders will impact the adoption of innovations (1995). The factors identified by audience groups in the present study align with this literature.

It is indicated from this study that educational backgrounds affect the preparedness levels. Certain training and educational experiences were seen within preparedness adoption levels but not in all. For example, medical professionals that discussed formal collegiate courses were not seen in the laggard adoption category. This aligns with previous literature in that level of knowledge may not affect attitudes or in this case, level of adoption; however, the focus of education does play a role (Tikka et al., 2000).

RQ2: What are audiences' educational experiences related to zoonotic-diseases?

An understanding of audiences past educational experiences and preferred formats of learning provides a basis for identifying means of disseminating future educational material about zoonotic-diseases. It also provides insight into their levels of adopting practices. Audience groups were asked questions about preferred methods of learning and previous education. Major themes included workshop-based presentations and online modules as preferred learning

methods. Email updates developed as a minor theme. Past education developed a major theme of organization hosted training and a minor theme of collegiate courses.

All audience groups identified workshop-based presentations as a method in which they'd prefer to learn about zoonotic-diseases. These presentations would allow for interaction and collaboration among key players in an outbreak. Online modules would be beneficial to those with busy schedules so they can fit the course into available time and work at their own pace. Email updates would provide quick, concise information to support other trainings and new developments.

This aligns with previous literature on the preferred methods of information delivery by Rollins, et al.; this literature identified face-to-face delivery methods as most preferred (1991). The current study had 21 participants who identified workshop-based delivery of information as preferred. See Table 4.2 for a complete list of preferred learning methods. Education is critical in advancing adoption of innovations (King & Rollins, 1995). The current study also supports previous literature in that more people are turning to online sources to learn; 14 participants identified online modules as a preferred learning method. Lui and Kim discussed the rise in number of people looking online for information (2011). Israel and Wilson also highlighted the increase of participants turning to online resources as educational delivery options (2006).

RQ3: What are audiences' experiences with communication planning for zoonotic-disease response?

In order to gain a representation of current communication planning and communication needs, audiences were asked about past experiences and their priority of communicating with others. The importance of collaboration emerged as the major theme. Minor themes included

having no crisis communication plan, communicating in a chain of command form, and the impact of social media. Lastly, noteworthy observations were seen when livestock producers identified the public should not be given details about disease outbreaks and other audience shared a concern of the fear or panic the general public may develop if a disease were to occur.

All audience groups discussed past experiences collaborating with other agencies or the need to collaborate with other agencies in order to minimize the effects of disease outbreaks. This highly aligns with previous research, which said, greater interdisciplinary collaboration is needed among medical professionals, veterinarians, government agencies, educators, and livestock producers (Cripps, 2000; Kahn, 2006; Meyerholz, 1974; Narrod et al., 2012; Sellnow et al., 2017; Zinsstag et al., 2007).

A noteworthy observation occurred when three participants mentioned that the public does not need to know about all the incidents that occur especially a zoonotic-disease outbreak; this directly contradicts literature. This was only seen in the livestock producer audience group. Irlbeck et al. (2013), suggests communication with the public should be symmetrical in order to build relationships and achieve goals. Participants argued that what happens on their operation does not need to be public knowledge; one participant even stated he knew it was wrong to believe this. The same participant went on to say he's afraid it would cause alarm or panic with the public. In research conducted by Stebner, Ray, Becker, and Baker, they found when the agricultural industry is more transparent with the public, it can change viewpoints and perception to be more positive (2015). This transparency can also build trust among the general public towards producers (Stebner et al., 2015).

RQ4: What are audiences' social networks and related information sources for zoonotic-disease?

An understanding of audiences' social networks and where they obtain information allows the study to identify gaps in communication as well as avenues to best disseminate information. Through asking audiences where they seek information and who they communicate with, provides a social network map for future communication dissemination before, during, and after a crisis. All audience groups turned to veterinarians and Kansas State University for information and communication related to zoonotic-disease communication. The CDC and state veterinarians served as other sources interrupted as minor themes. Medical professionals, veterinarians, and emergency managers turned to the CDC for a total of nine participants. Eight participants within the livestock producer, emergency manager, and veterinarian audience groups communicate and gather information from the state veterinarian.

Audience groups regularly rely on veterinarians for information regarding zoonotic-disease outbreaks. This aligns with several previous studies (Ashlock et al., 2009; Israel & Wilson, 2006; Riley et al., 2012). Ashlock et al. identified veterinarians as livestock producers' primary source of information about diseases (2009). Kahn, discussed the emphasis medical professionals place on veterinarians in communicating and educating about diseases (2006). The current study indicated a total of 20 participants from all audience groups seek information from or communicate with veterinarians.

The vast social network indicates the audience groups do not know where to gather information about zoonotic-disease outbreaks. Suvedi, Campo, and Lapinski suggests the not one single source is sufficient at providing all of the information needed by audience groups (1999).

This study shows a wide range of sources audience groups seek information from. It also highlights the communication gaps. The first major gap in communication occurred when veterinarians did not communicate with other audience groups. Throughout the study veterinarians identified sharing information with some audience groups, medical professionals (one occurrence) and emergency managers (two occurrences) but not all, livestock producers. This highlights the little two-way communication that is happening. Other gaps in communication include:

- Veterinarians not communicating with livestock producers
- Emergency managers not communicating with medical professionals or livestock producers
- No communication between medical professionals and livestock producers

It is assumed veterinarians are communicating and educating livestock producers since livestock producers turned to veterinarians for information; however, in this study, veterinarians did not identify communicating with livestock producers. There was only one-way communication identified with emergency managers and medical professionals and livestock producers. Emergency managers were not seen communicating with these two groups. Lastly, there was no communication between medical professionals and livestock producers. Prior studies have indicated the need for greater communication among key players, especially between medical professionals and veterinarians (Chomel & Marano, 2009; Cripps, 2000; Kahn, 2006; Meyerholz, 1974; Narrod et al., 2012; Sellnow et al., 2017; Zinsstag et al., 2007). The current study provides continued support for this.

Veterinarians and KSU were seen as trusted sources of information. Extension services were also seen as appropriate sources of education by all audience groups when asked if

extension would be an appropriate avenue. Majority of participants did not explicitly state the reason for trusting these sources; however, a few stated the unbiased dissemination which led to trust. Trust is essential for crisis management and communication (Coombs, 2019).

Recommendations

Results of this study generated recommendations for research, theory, practice, and education. These recommendations include expanding research, developing training and educational resources, emphasizing communication planning, especially crisis communication planning for all audience groups.

Research

This research filled gaps related to knowledge in understanding communication channels, information sources, and educational experiences of audience groups, but gaps still remain in obtaining a larger picture of educational needs and social networks of audience groups. It is recommended that a quantitative survey methodology be used to gain a larger number of participants and confirm findings in this study. A heavier focus on education and the gaps in education about zoonotic-diseases is suggested. This study lacked an understanding of past education experiences beyond surface explanations and the role it plays in adoption practices.

This study did not look at the general public's understanding and perceptions of zoonotic-diseases. This creates another research gap in comprehending the public perception, information sources, and social networks in regards to zoonotic-disease outbreaks. While the current study lays a foundation for understanding, in order to complete a social network, a complete understanding of information sources of the public is necessary. An explanation of the general

public's information sources and social network would allow for the proper dissemination of information to best reach the public.

Another area to be researched is the impact of social media on the audience groups of this study as well as the general public in the case of a disease outbreak. This study showed an increase in the use of social media for livestock producers, veterinarians, emergency managers, and medical professionals. An understanding of the messages released through social media, the frequency of use, and credibility of messages would have implications on future communication trends.

Theory

Diffusion of Innovation.

This study supported diffusion of innovation in understanding the role of communication and education in influencing adoption of new innovations. Participants often discussed past experiences that influenced their adoption of preparation methods for a zoonotic-disease outbreak. However, based on their description they were not easily categorized into Roger's five adopter categories.

The current study suggests dividing adopter categories into only three categories. This would allow for a simpler evaluation of adoption levels. The first level would be innovators, those who are the first to adopt an innovation and tell others about it. The middle level would be considered the majority, this would include those who pause in adoption, but take action; whether this is learning more about an innovation or implementing portions of it. This category would also be considered as the average person. Finally, a laggard category would encompass those who do not adopt an innovation until after the majority and have high levels of hesitation.

This simplified model may be more appropriate when looking at crisis communication planning specifically and/or communication planning in general. The following figure (Figure 5.1) displays these categories.

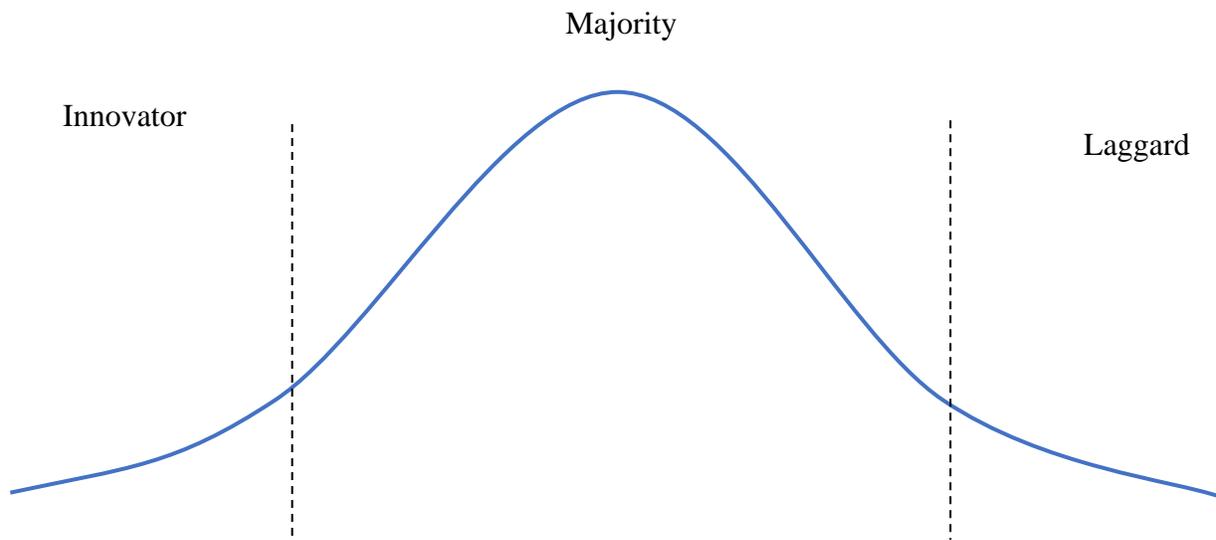


Figure 5.1 Simplified Diffusion of Innovation Model for Crisis Communication Planning

Another modification this study suggests is to expand the concept of an innovation to include behaviors and more abstract ideas than currently considered. The study defined the innovation as adopting preparation practices for a zoonotic-disease outbreak. By including a more abstract view of innovation, the application of diffusion of innovation can be expanded.

Social Network Analysis.

Social network analysis helped deconstruct the complicated connections of the audience groups in this study. It allowed for a visible map and patterns to be identified as well as the gaps in communication about zoonotic-disease outbreaks to be identified. Previously, social network

analysis is of connectedness to each other, this model developed through the current study considers both connections with others and other sources, non-human sources. This study highlights the importance of other actors besides individuals or organizations and the influence on social networks. These other areas provide knowledge and connections within a network.

Modern temporal network theory studies have begun to include other networks such as opinions or rumors (Holme, 2015). These are also looking at movement of disease versus connections with people. This lays the foundation for expanding social networks to include other non-human elements.

Combining Diffusion of Innovation and Social Network Analysis.

Both diffusion of innovation and social network analysis consider the elements and influences key individuals have on sharing information about a topic. The current study showed how both of these can work together to evaluate the influence social networks have on the adoption of new innovations. Social networks diffuse information to other individuals. The closer the connection, the more influence one has on another. Diffusion of innovation takes into account the influence of opinion leaders, innovators, and change agents on others in their adoption process. Combining the two allows for a clear picture of all of the leverage the different elements have on adopting an innovation. The following Figure 5.2 demonstrates the elements influencing adoption.

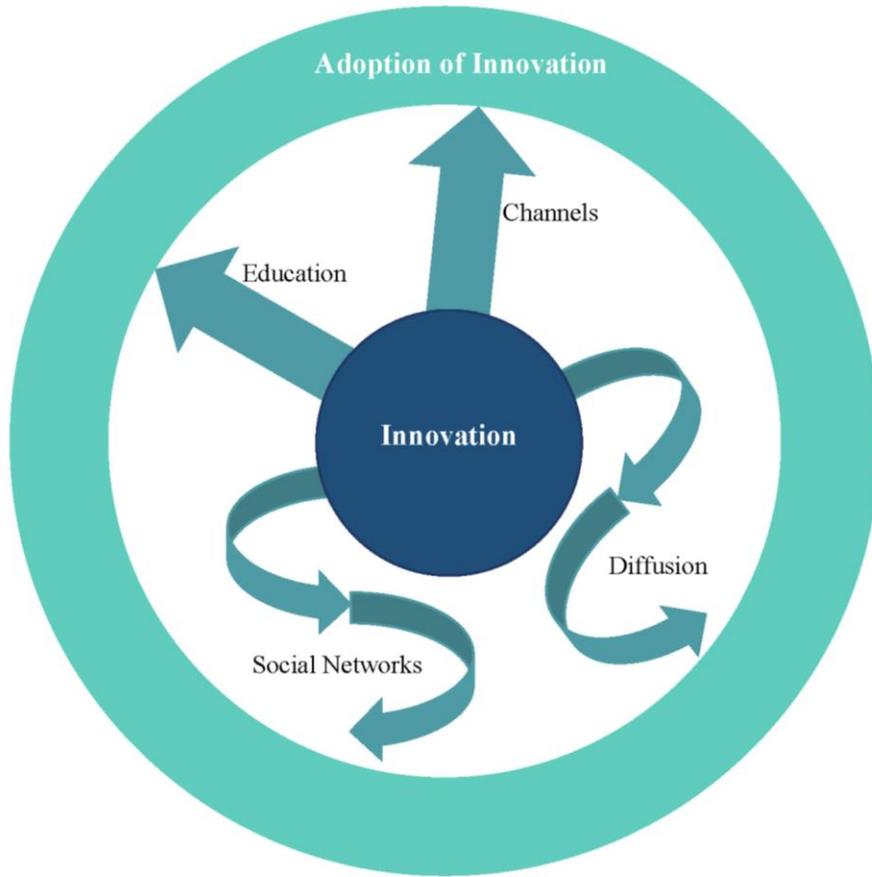


Figure 5.2 Social Network Diffusion of Innovation Model

Practice

Communication.

Because veterinarians play such a major role in providing information to other audience groups as well as to their customers, it would be ideal for them to take courses in crisis communication. Training veterinarians in crisis communication can enhance control and prevention of zoonotic-disease outbreaks through influencing other audience groups. It would also be beneficial for other audience groups to take crisis communication courses as well. Improving communication training can reduce barriers and strengthen collaboration among groups.

Livestock producers and other areas of agriculture would benefit by being more transparent with the general public. This transparency can be used to educate the public and also build trust. Establishing trust is especially important in crisis situations (Coombs, 2019). Livestock producers may need education in the area of communication and the implications of proper and improper communication. The current study identified hesitation on the part of livestock producers to be transparent with the public.

In order to reach the different audience groups to train or educate about communication, it would be most efficient to go through sources they are already using. For example, medical professionals' main source of contact was KDHE or CDC. Veterinarians turn to government agencies and state veterinarians for information. Livestock producers in turn, rely on their local veterinarian. Lastly, emergency managers also seek information from government agencies including KDHE, NBAF, and health departments. Meeting audience groups where they already are reduces the responsibility for them to gather and find the information.

Education.

Another recommended practice is to increase education about zoonotic-diseases.

Improving education would raise awareness among audience groups, especially livestock producers. Education would improve planning and prevention measures through adoption of innovation. The more individuals learn about a topic, the higher the likelihood of adopting the practice. Education would also increase collaboration between key players and emphasize the need for multidisciplinary approaches to disease control. Extension services is one possibility for educating audience groups the inclusion of other audience groups main information sources would increase collaboration and allow for a crossover between education on zoonotic-diseases and communication planning. Other areas of increasing education can occur in the educational institute of the specific audience groups as well as training opportunities. College courses, extension, and organizational trainings provide a foundation for education for livestock producers. Medical or nursing school would be appropriate for the medical professionals. College of veterinary should dedicate more time to educating future veterinarians about zoonotic-diseases as well as the role they have in communicating with their customers and other individuals who trust them to provide information. Lastly, fire academies, emergency management courses, and other training areas can instruct emergency managers about their roles in containment as well as communicating about zoonotic-diseases. Combining efforts among groups is also essential in educating audience groups.

Interdisciplinary courses and trainings should be developed. These courses would begin to build connections among audience groups and promote communication. Courses should be held at all levels; veterinary medicine, public health medicine, government agency trainings, extension services, and emergency management training. These courses would highlight the

importance of the roles of other audience groups involved in a disease outbreak. Collaboration would easily flow from laying the groundwork with interdisciplinary courses. As seen in this study and other research, collaboration among audience groups and other entities is crucial in preventing and controlling zoonotic-disease outbreaks.

Extension.

Extension services were seen as having a role in educating others about zoonotic-disease outbreaks and proper procedures after being asked about the appropriateness of extension. Extension should play a larger role in promoting prevention measures among audience groups as well as education of proper communication planning. Hosting trainings, presenting courses, newsletters, publications, emails, and meetings are all channels that extension could disseminate information about disease outbreaks.

Extension Disaster Education Network (EDEN) has courses developed in Animal Agrosecurity and Emergency Management and other agrosecurity courses. Extension services should promote these courses to livestock producers and other audience groups in which they have contact with. EDEN's course is a great resource that should be utilized to build a foundation for educating others.

NBAF and NABC

This study showed that the objectives from the NABC risk analysis project have value and that sharing of information through risk communication training should be continued and enhanced. It would also be beneficial to better market communication training so that individuals can learn more about opportunities available. Several participants identified that they should be

doing more to be prepared; however, they do not know what they should be doing. If future NBAF or NABC programs could inform the audience groups of measures that should be taken in order to be better prepared or to control a disease outbreak, this would be helpful. Participants also expressed the need for continual education and practice; trainings cannot be a one-time event due to people moving or changing position. Through job attrition, knowledge is lost. Continuing education credits for training should be considered, participants mentioned the desire for continuing education credits; with perhaps in-person, workshop-based training occurring every four years and online training available yearly.

Summary

Zoonotic-disease outbreaks have several implications on human health, animal health, the economy, and agricultural industry. In order to prevent and control disease outbreaks, communication and education should be enhanced. Collaboration among disciplines is also essential in communication, education, controlling, and preventing disease spread.

This study offers several recommendations for education and communication in practice and research. Research should be expanded to include public perceptions as well as a more in-depth understanding of audience's educational experiences influence on adoption of preparedness practices. Crisis communication training should be offered to all audience groups in order to increase collaboration among groups. Education should also be increased to promote preparedness and prevention.

References

- Allen, H. (2015). Characterizing zoonotic disease detection in the United States: Who detects zoonotic disease outbreaks & how fast are they detected? *Journal of Infection and Public Health*, 8(2), 194-201. doi: 10.1016/j.jiph.2014.09.009
- Anderson, D. E. (2010). Survey of biosecurity practices utilized by veterinarians working with farm animal species. *Online Journal of Rural Research & Policy*, 5(7). doi:10.4148/ojrrp.v5i7.263
- Anholt, R. M., Stephen, C., & Copes, R. (2012). Strategies for collaboration in the interdisciplinary field of emerging zoonotic diseases. *Zoonoses and Public Health*, 59, 229-240. doi:10.1111/j.1863-2378.2011.01449.x
- Ashlock, M. A., Cartmell, D. D., & Leising, J. G. (2009). Before it hits the fan: Pre-crisis beef producer information source preferences. *Journal of Applied Communications*, 93(3). doi: 10.4148/1051-0834.1198.
- Bender, J. B. & Shulman, S. A. (2004). Reports of zoonotic disease outbreaks associated with animal exhibits and availability of recommendations for preventing zoonotic disease transmission from animals to people in such settings. *Vet Med Today: Public Veterinary Medicine*, 224(7). 1105-1109. doi:10.2460/javma.2004.224.1105
- Bodin, O. & Crona, B. I. (2009). The role of social networks in natural resource governance: What relational patterns make a difference? *Global Environmental Change*, 19(2009), 366-374. doi: 10.1016/j.gloenvcha.2009.05.002
- Boutain, D.M. & Hitti, J. (2006). Orienting multiple interviewers: The use of an interview orientation and standardized interview. *Qualitative Health Research*, 16(9), 1302-9. doi: 10.1177/1049732306290130

- Breiner, S. J., Grau, S. A., Barnhardt, B. B., & Bryant, A. M. (2007). Veterinarians are most popular source of information utilized by cow-calf producers. *Kansas Agricultural Experiment Station Research Reports*, 0(1). doi: 10.4148/2378-5977.1521
- Britten, N. (1995). Qualitative interviews in medical research. *BMJ*, 311(6999), 251-3. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/7627048>
- Cascio, A., Bosilkovski, M., Rodriguez-Morales, A. J., & Pappas, G. (2011). The socio-ecology of zoonotic infections. *Clin Microbiol Infect*, 17(3), 336-342. doi: 10/1111/j.1469-0691.2010.03451.x
- Centers for Disease Control and Prevention About CDC 24-7. (n.d.). *CDC Organization*. Retrieved from <https://www.cdc.gov/about/organization/cio.htm>
- Centers for Disease Control and Prevention Emergency Preparedness and Response. (n.d.). *Crisis & Emergency Risk Communication (CREC)*. Retrieved from <https://emergency.cdc.gov/cerc/>
- Centers for Disease Control and Prevention One Health. (n.d.). *Zoonotic Diseases*. Retrieved from <https://www.cdc.gov/onehealth/basics/zoonotic-diseases.html>
- Centers for Disease Control and Prevention Plague. (n.d.) *History of the Plague*. Retrieved from <https://www.cdc.gov/plague/history/>
- Centers for Disease Control and Prevention Rift Valley Fever. (n.d.) *RVF*. Retrieved from <https://www.cdc.gov/vhf/rvf/index.html>
- Chomel, B. B., & Marano, N. (2009). Essential veterinary education in emerging infections, modes of introduction of exotic animals, zoonotic diseases, bioterrorism, implications for human and animal health and disease manifestation. *Revue scientifique et technique*,

28(2), 559-565. Retrieved from

<https://pdfs.semanticscholar.org/4bbe/df04c903ce541888193ac7a8d2153523ced1.pdf>

Cleaveland, S., Laurenson, M. K., & Taylor, L. H. (2001). Diseases of humans and their domestic mammals: Pathogen characteristics, host range and the risk of emergence. *Philosophical Transactions of the Royal Society of London. Series B: Biological Sciences*, 356(1411), 991-999. doi: 10.1098/rstb.2001.0889

Coombs, W. T. (2019). *Ongoing crisis communication: Planning, managing, and responding (5th ed.)*. Thousand Oaks, CA: SAGE Publications.

Coombs, W. T. & Holladay, S. J. (2012). *The handbook of crisis communication*. Malden, Massachusetts: Blackwell Publishing.

Creswell, J. W., Hanson, W. E., Clark Plano, V. L., & Morales, A. (2007). Qualitative research designs: Selection and implementation. *The Counseling Psychologist*, 35(2), 236-264. doi: 10.1177/0011000006287390

Creswell, J. W. (2014). *Research design (4th ed.)*. Thousand Oaks, CA: SAGE Publications, Inc.

Creswell, J. W. & Poth, C. N. (2018). *Qualitative inquiry & research design: Choosing among five approaches*. Twin Oaks, CA: SAGE Publications, Inc.

Cripps, P. J. (2000). Veterinay education, zoonoses and public health: A personal perspective. *Acta Tropica*, 76, 77-80. doi:10.1016/S0001-706X(00)00094-2

Decker, D., Evensen, D., Siemer, W., Leong, K., Riley, S., Wild, M., Castle, K., Higgins, C. (2010). Understanding risk perceptions to enhance communication about human-wildlife interactions and the impacts of zoonotic disease, *ILAR Journal*, 51(3), 255-261. doi:10.1093/ilar.51.3.255

Decker, D. J., Siemer, W. F., Wild, M. A., Castle, K. T., Wong, D., Leong, K. M., & Evensen, D. T. N. (2011). Communicating about zoonotic disease: Strategic considerations for wildlife professionals. *Wildlife Society Bulletin*, 35(2), 112-119. doi: 10.1002/wsb.29

Department of Homeland Security. (n.d.). *National Bio and Agro-Defense Facility*. Retrieved from <https://www.dhs.gov/science-and-technology/national-bio-and-agro-defense-facility>

Domenech, J., Lubroth, J., Eddi, C., Martin, V., & Roger, F. (2006). Regional and international approaches on prevention and control of animal transboundary and emerging diseases. *Annals of the New York Academy of Sciences*, 1081(1), 90-107. doi:10.1196/annals.1373.010

Durga, A. (2016). Most common zoonotic diseases: Transmitted from animals to humans. *Research & Reviews: Journal of Zoological Sciences*. Retrieved from <http://www.rroj.com/open-access/pdfdownload.php?download=most-common-zoonotic-diseases-transmitted-from-animals-to-humans-.pdf&aid=78620>

Edwards, S., Fukusho, A., Lefèvre, P.C., Lipowski, A., Pejsak, Z., Roehle, P., & Westergaard, J. (2000). Classical swine fever: The global situation. *Veterinary Microbiology*, 73(2000), 103-119. doi:10.1016/S0378-1135(00)00138-3

Fèvre, E., Bronsvoort, B., Hamilton, K., & Cleaveland, S. (2006). Animal movements and the spread of infectious diseases, *In Trends in Microbiology*, 14(3), 125-131. doi:10.1016/j.tim.2006.01.004.

Food and Agriculture Organization of the United Nations. (n.d.). *Transboundary Animal Diseases*. Retrieved from <http://www.fao.org/emergencies/emergency-types/transboundary-animal-diseases/en/>

Gebreyes, W. A., Dupouy-Camet, J., Newport, M. J., Oliveira, C. J. B., Schlesinger, L. S., Saif, Y. M.,... King, L. J. (2014). The global One Health paradigm: Challenges and

- opportunities for tackling infectious diseases at the human, animal, and environmental interface in low-resource settings. *PLOS Neglected Tropical Diseases*, 8(11). doi: 10.1371/journal.pntd.0003257
- Gerdes, G. H. (2004). Rift valley fever. *Revue Scientifique Et Technique*, 23(2), 613-623. Retrieved from <https://pdfs.semanticscholar.org/abe9/8850bbd310910b95830d6ceaa64ec42fdb23.pdf>
- Glaser, B. G. (1965). The constant comparative method of qualitative analysis. *Social Problems*, 12(4). Retrieved from http://www.jstor.org/stable/798843?seq=1#page_scan_tab_contents
- Grant, S., & Olsen, C. W. (1999). Preventing zoonotic diseases in immunocompromised persons: the role of physicians and veterinarians. *Emerging Infectious Diseases*, 5(1), 159-163. doi: 10.3201/eid0501.990121
- Grubman, M. J. & Baxt, B. (2004). Foot-and-mouth disease. *American Society for Microbiology*, 17(2), 465-493 doi: 10.1128/CMR.17.2.465-493.2004
- Gubler, D. J. (2002). The global emergence/resurgence of arboviral diseases as public health problems. *Archives of Medical Research*, 33(4), 330-342. doi: 10.1016/S0188-4409(02)00378-8
- Hawe, P. & Ghali, L. (2008). Use of social network analysis to map the social relationships of staff and teachers at school. *Health Education Research*, 23(1), 62-69. doi: 10.1093/her/cyl162
- Holme, P. (2015). Modern temporal network theory: A colloquium. *The European Physical Journal B*, 88(9), 324. doi:10.1140/epjb/e2015-60657-4
- Hossain, L. & Kutu, M. (2010). Disaster response preparedness coordination through social networks. *Disasters*, 34(3), 755-786. doi: 10.1111/j.0361-3666.2010.01168.x

- Hubbard, W. G. & Sandmann, L. R. (2007). Using diffusion of innovation concepts for improved program evaluation. *Journal of Extension*, 45(5). Retrieved from <https://www.joe.org/joe/2007october/a1.php>
- Indiana University (n.d.) *Protect IU*. Retrieved from <https://protect.iu.edu/environmental-health/public-health/communicable-diseases/index.html>
- Irlbeck, E., Jennings, J. F., Meyers, C., Gibson, C., & Chambers, T. (2013). A case study of the crisis communications used in the 2009 salmonella outbreak in peanut products. *Journal of Applied Communications*, 97(4), 19-32. doi: 10.4148/1051-0834.1125
- Israel, G. D. & Wilson, K. M. (2006). Sources and Channels of information used by educational program clients. *Journal of Applied Communications*, 90(4). doi: 10.4148/1051-0834.1266
- Jamshed, S. (2014). Qualitative research method-interviewing and observation. *Journal of Basic and Clinical Pharmacy*, 5(4) 87-88. doi: 10.4103/0976-0105.141942
- Jensen, K. L., English, B. C., & Menard, R. J. (2009) Livestock farmers' use of animal or herd health information sources. *Journal of Extension*, 47(1). Retrieved from https://www.researchgate.net/profile/Burton_English/publication/228772524_Livestock_farmers'_use_of_animal_or_herd_health_information_sources/links/02bfe50d07bfc83db9000000.pdf
- Kahn, L. H. (2006). Confronting zoonoses, linking human and veterinary medicine. *Emerging Infectious Disease*, 12(4), 556-561. doi: 10.3201/eid1204.050956
- Kansas State University Biosecurity Research Institute. (n.d.). *About the BRI*. Retrieved from <https://www.bri.k-state.edu/about/index.html>

- Kansas State University National Agricultural Biosecurity Center. (n.d.). *National Agricultural Biosecurity Center*. Retrieved from <http://www.k-state.edu/nabc/>
- Kansas State University Research and Extension. (n.d.). *Research and Extension*. Retrieved from <https://www.ksre.k-state.edu/>
- King, R. N. & Rollins, T. (1995). Factors influencing the adoption decision: An analysis of adopters and nonadopters. *Journal of Agricultural Education*, 36(4), 39-48. doi: 10.5032/jae.1995.04039
- Kolich, H. N. (2014). Risk and emergency communications: How to be heard when the message counts most. *Journal of Extension*, 52(6). Retrieved from <https://www.cabdirect.org/cabdirect/abstract/20153052660>
- Lederberg, J. (2002). Summary and Assessment. In Burroughs, Knobler, & Lederberg (Eds.), *The Emergence of Zoonotic Diseases: Understanding the Impact on Animal and Human Health Workshop Summary*, (113-124). Retrieved from <https://www.nap.edu/read/10338/chapter/7#114>
- Liu, B., Kim, S. (2011). How organizations framed the 2009 H1N1 pandemic via social and traditional media: Implications for U.S. health communicators. *In Public Relations Review*, 37(3), 233-244. doi: 10.1016/j.pubrev.2011.03.005.
- Matteson, S. M. & Lincoln, Y. S. (2008). Using multiple interviewers in qualitative research studies: The influence of ethic of care behaviors in research interview settings. *Qualitative Inquiry*, 15(4), 659-674. doi: 10.1177/1077800408330233
- Meyerholz, G. W. (1974). Extension and the practicing veterinarian. *Journal of Extension*, 13(3) 41-45. Retrieved from <https://eric.ed.gov/?id=EJ102248>

- McNulty, C., Ricketts, E. J., Fredlund, H., Uusküla, A., Town, K., Rugman, C. Tisler-Sala, A...Touboul, P. (2017). Qualitative interviews with healthcare staff in four European countries to inform adaptation of an intervention to increase chlamydia testing. *BMJ Open*. doi: 10.1136/bmjopen-2017-017528
- Moennig, V. (2000). Introduction to classical swine fever: Virus, disease and control policy. *Veterinary Microbiology*, 73(2000), 93-102. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/10785320>
- Moolenaar, N. M., & Daly, A. J. (2012). Social networks in education: Exploring the social side of the reform equation. *American Journal of Education*, 119(1), 1-6. doi:10.1086/667762
- Nilakanta, S. & Scamell, R. W. (1990). The effect of information sources and communication channels on the diffusion of innovation in a data base development environment. *Management Science*, 36(1), 24-40. doi: 10.1287/mnsc.36.1.24
- Narro, C., Zinsstag, J., & Tiongco, M. (2012). A One Health framework for estimating the economic costs of zoonotic diseases on society. *Eco Health*, 9(2), 150-162. doi: 10.1007/s10393-012-0747-9
- Patz, J. A., Graczyk, T. K., Geller, N., Vittor, A. Y. (2000). Effects of environmental change on emerging parasitic diseases. *International Journal of Parasitology*, 30(2000), 1395-1405. doi:10.1016/S0020-7519(00)00141-7
- Penrose, J. M. (2000). The role of perception in crisis planning. *Public Relations Review*, 26(2), 155-171. doi:10.1016/S0363-8111(00)00038-2
- Quinn, S., Parmer, J., Freimuth, V., Hilyard, K., Musa, D., and Kim, K. (2013). Exploring communication, trust in government, and vaccination intention later in the 2009 H1N1 pandemic: Results of a national survey. *Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science*, 11(2), 96-106. doi:10.1089/bsp.2012.0048

- Reynolds, B. & Quinn, S. C. (2008). Effective communication during an influenza pandemic: The value of using a crisis and emergency risk communication framework. *Health Promotion Practice*, 9(4), 13s-17s. doi:10.1177/1524839908325267
- Ritchie, J. & Lewis, J. (2003). *Qualitative research practice: A guide for social science students and researchers*. London, England: SAGE Publications Ltd.
- Riley, K., Cartmell, D., & Naile, T. (2012). Kansas beef feedlot managers' trusted sources of information concerning an agroterrorism event. *Journal of Applied Communications*, 96(2). doi: 10.4148.1051-0834.1152
- Rogers, E. M. (2003). *Diffusion of innovations*. New York, New York: Free Press.
- Rollins, T. J., Bruening, T. B., & Radhakrishna, R. B. (1991). Identifying extension information delivery methods for environmental issues. *Journal of Applied Communications*, 75(2). doi: 10.4148/1051-0834.1496
- Scott, J. (1988). Trend report social network analysis. *Sociology*, 22(1), 109-127. doi:10.1177/0038038588022001007
- Sell, T. K. (2017). When the next disease strikes: How to communicate (and how not to). *Health Security*, 15, 28-30. Doi: 10.1089/hs.2016.0100
- Sellnow, T. L., Parker, J. S., Sellnow, D. D., Littlefield, R. S., & Helsel, E. M. (2017). Improving biosecurity through instructional crisis communication: Lessons learned from the PEDv outbreak. *Journal of Applied Communication*, 101(4), 1-15. doi: 10.4148/1051-0834.1298
- Serrat, O. (2017). *Knowledge Solutions: Tools, Methods, and Approaches to Drive Organizational Performance*. Singapore: Springer Singapore (pp. 39-43). doi: 10.1007/978-981-10-0983-9_9

- Stebner, S., Ray, J., Becker, J., & Baker, L. M. (2015). Totally transparent: A qualitative study about the impact of farm tours on bloggers. *Journal of Applied Communications*, 99(4),48-61. Doi: 10.4148/1051-0834.1059
- Suvedi, M., Campo, S., & Lapinski, M. K. (1999). Trends in Michigan farmers' information seeking behaviors and perspectives on the delivery of information. *Journal of Applied Communications*, 83(3). doi: 10.4148/1051-0834.2143
- Tabbaa, D. (2010). Emerging zoonoses: responsible communication with the media—lessons learned and future perspectives. *International Journal of Antimicrobial Agents*, 36(1), S80-S83. doi:10.1016/j.ijantimicag.2010.06.028
- Tackie, N. O., Baharanyi, N., & Findlay, H. J. (1996). Marketing fruits and vegetables in south central Alabama: The diffusion approach. *Journal of Extension*, 34(5). Retrieved from <https://www.joe.org/joe/1996october/a4.php>
- Taylor, L. H., Latham, S. M. & Woolhouse, M. E. J. (2001). Risk factors for human disease emergence. 356(1411), 983-989. doi: 10.1098/rstb.2001.0888
- Taylor, M. R. & Lamm, A. J. (2017). Identifying the needs of opinion leaders to encourage widespread adoption of water conservation and protection. *Journal of Agricultural Education*, 58(4), 269-281. doi:10.5032/jae.2017.04269
- Tikka, P. M., Kuitunen, M. T., & Tynys, S. M. (2010). Effects of educational background on students' attitudes, activity levels, and knowledge concerning the environment. *The Journal of Environmental Education*, 31(3) 12-19. doi: 10.1080/00958960009598640
- Ulmer, R. R., Sellnow, T. L., & Seeger, M. W. (2018). *Effective crisis communication (4th ed.)*. Thousand Oaks, CA: SAGE Publications.
- United States Department of Agriculture. (n.d.). *About the U.S. Department of Agriculture*. Retrieved from <https://www.usda.gov/our-agency/about-usda>

- Veil, S. R. (2010). Identifying adoption barriers in organizational rhetoric: A response to the strategic plan for the National Animal Identification System. *Journal of Applied Communications*, 94(1), 33-48. doi:10.4148/1051-0834.1185
- Whiting, L. R., Tucker, M., & Whaley, S. R. (2004). Level of preparedness for managing crisis communication on Land-Grant campuses. *Journal of Applied Communications*, 88(3), 7-20. doi:10.4148/1051-0834.1321
- Winerman, L. (2009). Social networking: Crisis communication. *Nature*, 457(1), 376-378. doi: 10.1038/457376a
- Zinsstag, J., Schelling, E., Roth, F., Bonfoh, B., de Savigny, D., & Tanner, M. (2007). Human benefits of animal interventions for zoonosis control. *Emerging Infectious Diseases*, 13(4), 527. doi: org/10.3201/eid1304.060381.

Appendix A - IRB Approval



Committee for Research Involving Human Subjects (IRB) Application for Approval Form

Please send your completed application to comply@k-state.edu

INSTRUCTIONS

Be sure to save the application PDF to your computer before you begin completing the form. You may not be able to save your changes if you edit this form in a web browser.

The KSU IRB is required by law to ensure that all research involving human subjects is adequately reviewed for specific information and is approved prior to inception of any proposed activity. Consequently, it is important that you answer all questions accurately. If you need help or have questions about how to complete this application, please call the Research Compliance Office at 532-3224, or e-mail us at comply@ksu.edu.

Please provide the requested information in the outlined text boxes. The text boxes are designed to accommodate responses within the body of the application. As you type your answers, the text boxes will expand where appropriate and as needed. After completion send your application by e-mail to comply@k-state.edu.

You may sign this form using a digital signature. DO NOT sign the form until it has been completed. You cannot edit the form entries once the form has been digitally signed. If you are making revisions to a previously signed form, right-click the digital signature and select Clear to remove the signature (this can only be done by the person who originally digitally signed the form).

Forms that have not been signed will not be accepted.

Additional material is requested with this application. Be sure to provide electronic copies of the following documents (if applicable) and submit them to comply@k-state.edu along with your application:

- Consent Form (see *Administrative Information, IX. Informed Consent A.*)
- Sponsor's grant application or contract as submitted to the funding agency. (See *Administrative Information*)
- Surveys, instruments, etc used for data collection (see *V. Design and Procedures C.* and *X. Project Information P.*)
- Debriefing statement to be utilized (see *IX. Informed Consent E.*)

FAILURE TO PROVIDE ALL INFORMATION REQUESTED MAY LEAD
TO A DELAY IN PROCESSING YOUR REQUEST.

**Please proof read and check spelling BEFORE submitting the form.
To use Acrobat spelling check, press F7 or select EDIT, CHECK SPELLING**

**PLEASE CONTINUE TO THE NEXT PAGE
TO BEGIN COMPLETING THE FORM**

ADMINISTRATIVE INFORMATION:

Title of Project/Course:

Type of Application: New / Renewal Revision (to a pending new application)
 (check one box) Modification to an existing approved application #:

Principal Investigator Details: (must be a KSU faculty member):

Name: Degree/Title:

Department: Campus Phone:

Campus Address:

E-mail: Fax #:

Responsible Graduate Student: (Person to contact for questions/problems with the form):

Name: Campus Phone:

E-mail:

Does this project involve any collaborators not part of the faculty/staff at KSU? (projects with non-KSU collaborators may require additional coordination and approvals):

No Yes

Project Classification (Is this project part of one of the following?):

Thesis Dissertation Faculty Research
 Other:

Note: Class Projects should use the short form application for class projects.

Copy of the Consent Form: Copy will be submitted to comply@ksu.edu with this application Consent form not used

Funding Source: Internal External (Identify source. You will also need to provide a copy of the sponsor's grant application or contract as submitted to the funding agency. This should be submitted to comply@ksu.edu with your application.)

Based upon criteria found in 45 CFR 46 – and the overview of projects that may qualify for exemption explained at <http://www.hhs.gov/ohrp/policy/checklists/decisioncharts.html>, I believe that my project using human subjects should be determined by the IRB to be exempt from IRB review:

No Yes (If yes, please provide the category of "Exemption" in the space below)

Exempt Projects: 45 CFR 46 identifies six categories of research involving human subjects that may be exempt from IRB review. The categories for exemption are listed here: <http://www.hhs.gov/ohrp/policy/checklists/decisioncharts.html#c2> If you believe that your project qualifies for exemption, please indicate which exemption category applies (1-6). Please remember that only the IRB can make the final determination whether a project is exempt from IRB review, or not.

Exemption Category:

MODIFICATION:

Is this a modification of an approved protocol? No Yes If yes, please comply with the following:

If you are requesting a modification or a change to an IRB approved protocol, please provide a concise description of all of the changes that you are proposing in the following block. Additionally, please highlight or bold the proposed changes in the body of the protocol where appropriate, so that it is clearly discernible to the IRB reviewers what and where the proposed changes are. This will greatly help the committee and facilitate the review.

- I. **NON-TECHNICAL SYNOPSIS** (Please provide a brief narrative description of proposal. This should typically be less than 75 words and be easily understood by nonscientists):

The goal of this project is to create a develop a way to communicate about risk associated with animal disease. **To accomplish that goal we will be conducting qualitative interviews with key informants (veterinarians, medical doctors, OneHealth, Extension agents, etc). These interviews will inventory the existing knowledge among stakeholders, identify influential community members, map communication patterns and identify social networks for information sharing and learning.**

- II. **BACKGROUND** (concise narrative review of the literature and basis for the study):

The US Census of Agriculture 2012, clearly illustrates the essential role that livestock production plays in the US economy. According to the census, livestock sales in the US accounted for 46 percent (US \$182.2 billion) of the nation's annual total market value of products. In order to address potential threats arising from transboundary animal disease introduction into the US, whether accidental or intentional, the methods and pathways of introduction must be investigated, understood, and documented. A 2009 article by Costard, et.al., emphasized the fact that comprehensive risk assessments are needed for all currently free countries in order to identify which introduction pathways are most important and to inform targeted or risk-based surveillance strategies.

- III. **PROJECT/STUDY DESCRIPTION**

(Please provide a concise narrative description of the proposed activity in terms that will allow the IRB or other interested parties to clearly understand what it is that you propose to do that involves human subjects. This description must be in enough detail so that IRB members can make an informed decision about the proposal).

At least 12 Kansas citizens will be interviewed to understand the way they would communicate about animal disease. The questions asked of them will focus on who they would seek information from, how much they know about animal disease, who they would communicate with and related topics. Each interview will last 60-90 minutes and take place at the location of choice of the participant.

- IV. **OBJECTIVE**

(Briefly state the objective of the research – what you hope to learn from the study).

Our goal is to create a methodology to communicate risk associated with animal diseases to 1. mitigate those risks, 2. strengthen risk adaption capabilities, 3. enhance communication and outreach efforts.

- V. **DESIGN AND PROCEDURES** (succinctly outline formal plan for study)

- A. List all sites where this research will be conducted:

Greeley County Kansas
Hamilton County Kansas
Haskell County Kansas
Butler County Kansas
Riley County Kansas
Nemaha County Kansas

- B. Variables to be studied: How people communicate about animal diseases and who they contact for information
- C. Data collection methods: (surveys, instruments, etc - **copies must submitted to comply@k-state.edu**).
Interviews
- D. List any factors that might lead to a subject dropping out or withdrawing from a study. These might include, but are not limited to emotional or physical stress, pain, inconvenience, etc.
Inconvenience
- E. List all biological samples taken: (if any)
None
- F. Debriefing procedures for participants:
A member check will be performed at the end of each interview.

VI. RESEARCH SUBJECTS:

- A. Source:
Contact local extension agents to begin, then snowball sampling from participants
- B. Number: (provide a brief rationale for your sample size)
There will be at least 10 participants in this study, however there could be many more depending on the level of saturation.
- C. Inclusion criteria: (List any unique qualifiers desirable for research subject participation)
Anyone who is effected or involved in a potential zoonotic outbreak.
- D. Exclusion criteria: (list any unique disqualifiers for research subject participation)
Anyone who is NOT effected or involved in a potential zoonotic outbreak.
- E. Recruitment procedures:
How will subjects be identified?
Local extension agents will be used to give the researchers suggestions of community members and stakeholders to interview.
How will subjects be recruited (advertisement, associates, etc.) ?
Subjects will be recruited by phone call or email.
How will subjects be enrolled?
The researchers will contact the subjects by phone or email to set up a time to interview.
Describe any follow-up recruitment procedures: (reminder emails, mailings, etc.)
None

VII. RISK - PROTECTION - BENEFITS: The answers for the three questions below are central to human subjects research. You must demonstrate a reasonable balance between anticipated risks to research participants, protection strategies, and anticipated benefits to participants or others.

A. Risk for Subjects: (check all that apply)

- Exposure to infectious diseases
- Use of confidential records
- Exposure to radiation
- Manipulation of psychological or social variables such as sensory deprivation, social isolation, psychological stressors
- Examining for personal or sensitive information in surveys or interviews
- Presentation of materials which subjects might consider sensitive, offensive, threatening, or degrading
- Invasion of privacy of subject or family
- Social or economic risk
- Risk associated with exercise or physical exertion
- Legal risk
- Review of medical records
- Review of criminal records
- HIV/AIDS or other STD's
- Employment/occupational risk
- Others – Please explain below (Indirect risks, risk to individuals who are not the primary subjects):

B. Minimizing Risk: (Describe specific measures used to minimize or protect subjects from anticipated risks.)

No known risks

C. Benefits: (Describe any reasonably expected benefits for research participants, a class of participants, or to society as a whole.)

Community members will have the opportunity to share their experiences and opinions with the researcher. Although the responses of the participants will be confidential the findings will be used to help develop strategies for effective communication in the face of a zoonotic disease outbreak.

D. More than Minimal Risk? In your opinion, does the research involve more than minimal risk to subjects? (“Minimal risk” means that “the risks of harm anticipated in the proposed research are not greater, considering probability and magnitude, than those ordinarily encountered in daily life or during the performance of routine physical or psychological examinations or tests.”)

- Yes No

VIII. CONFIDENTIALITY: Confidentiality is the formal treatment of information that an individual has disclosed to you in a relationship of trust and with the expectation that it will not be divulged to others without permission in ways that are inconsistent with the understanding of the original disclosure. Consequently, it is your responsibility to protect information that you gather from human research subjects in a way that is consistent with your agreement with the volunteer and with their expectations.

Explain how you are going to protect confidentiality of research subjects and/or data or records. Include plans for maintaining records after completion.

All interviews will be kept confidential and all recordings will be destroyed at the conclusion of the study. Interviews will contain gender-neutral pseudonyms and transcripts will remove any identifying

information that could jeopardize participant confidentiality. The computer with the recordings will be kept in a file cabinet inside a locked room.

- IX. INFORMED CONSENT:** Informed consent is a critical component of human subjects research - it is your responsibility to make sure that any potential subject knows exactly what the project that you are planning is about, and what his/her potential role is. (There may be projects where some forms of “deception” of the subject is necessary for the execution of the study, but it must be carefully justified to and approved by the IRB). A schematic for determining when a waiver or alteration of informed consent may be considered by the IRB is found at <http://www.hhs.gov/ohrp/policy/checklists/decisioncharts.html#c10>

Even if your proposed activity does qualify for a waiver of informed consent, you must still provide potential participants with basic information that informs them of their rights as subjects, i.e. explanation that the project is research and the purpose of the research, length of study, study procedures, debriefing issues to include anticipated benefits, study and administrative contact information, confidentiality strategy, and the fact that participation is entirely voluntary and can be terminated at any time without penalty, etc. Even if your potential subjects are completely anonymous, you are obliged to provide them (and the IRB) with basic information about your project. See informed consent example on the URCO website. It is a federal requirement to maintain informed consent forms for 3 years after the study completion.

Answer the following questions about the informed consent procedures.

Yes No **A.** Are you using a written informed consent form? If “yes,” include a copy with this application. If “no” see B.

Yes No **B.** In accordance with guidance in 45 CFR 46, I am requesting a waiver or alteration of informed consent elements (see section VIII above). If “yes,” provide a basis and/or justification for your request.

Yes No **C.** Are you using the online Consent Form Template provided by the URCO? If “no,” does your Informed Consent document have all the minimum required elements of informed consent found in the Consent Form Template? (Please explain)

Yes No **D.** Are your research subjects anonymous? If they are anonymous, you will not have access to any information that will allow you to determine the identity of the research subjects in your study, or to link research data to a specific individual in any way. Anonymity is a powerful protection for potential research subjects. (An anonymous subject is one whose identity is unknown even to the researcher, or the data or information collected cannot be linked in any way to a specific person).

Yes No **E.** Are subjects debriefed about the purposes, consequences, and benefits of the research? Debriefing refers to a mechanism for informing the research subjects of the results or conclusions, after the data is collected and analyzed, and the study is over. (If “no” explain why.) **Copy of debriefing statement to be utilized should be submitted to comply@k-state.edu with your application.**

F. Describe the Informed Consent Process:

Who is obtaining the consent? (i.e. Principle Investigator, Graduate Student, etc.)

The interviewer will be obtaining consent.

When and where will consent be obtained?

Consent will be obtained prior to the interview at location chosen by the interviewee.

If assent (for minors) is required, please describe who will obtain the assent? (Assent means a child's affirmative agreement to participate in research)

N/A

If assent (for minors) is required, when and where will assent be obtained?

N/A

How will consent be obtained from non-English speaking participants? (a translated written form, orally, identify the name and qualifications of the individual providing the translation)

N/A

Informed Consent Checklist

Items	YES	NO	N/A
Does the title appear at the top of the consent/assent form?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is the consent/assent form written toward the subject?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is there a statement that explains that the study is <i>research</i> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is there a statement that explains the <i>purpose</i> of the research?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are the procedures to be followed explained clearly and adequately?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Does the consent document describe <i>risks or discomforts</i> to subjects as a result of participating in the research?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is the consent/assent form written in the <i>native language</i> of the potential subject?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are participants compensated?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If the subjects' identity is known to the PI, does the form detail how confidentiality of records will be maintained?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is contact information for both the PI and the URCO/IRB office included?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Does the consent document indicate to the participant that he/she can withdraw at any time from the project without penalty or loss of benefit?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are there probable circumstances which would require the PI to terminate a subject's participation regardless of his or her consent?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is the consent document written in lay language (Recommended 8th grade level)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

X. PROJECT INFORMATION: (If you answer Yes to any of the questions below, you should explain them in one of the paragraphs above)

Yes No A. Deception of subjects? If "YES" explain why this is necessary.

Yes No B. Shock or other forms of punishment

Yes No C. Sexually explicit materials or sexual experience

- Yes No D. Sexual orientation
- Yes No E. Sexual abuse
- Yes No F. Handling of money or other valuable commodities
- Yes No G. Extraction or use of blood, other bodily fluids, or tissues (if "yes", you must comply with facility and handling protections detailed in the 5th Edition of the Biosafety in Biomedical Laboratories (BMBL))
- Yes No H. Questions about any kind of illegal or illicit activity
- Yes No I. Questions about protected health information as defined by HIPAA
- Yes No J. Purposeful creation of anxiety
- Yes No K. Any procedure that might be viewed as invasion of privacy
- Yes No L. Physical exercise or stress
- Yes No M. Administration of substances (food, drugs, etc.) to subjects
- Yes No N. Any procedure that might place subjects at risk
- Yes No O. Will there be any use of Radioactive materials and/or use of Radioactive producing machines
- Yes No P. Any form of potential abuse; i.e., psychological, physical, sexual
- Yes No Q. Is there potential for the data from this project to be published in a journal, presented at a conference, etc?
- Yes No R. Use of surveys or questionnaires for data collection. **Copies should be submitted to comply@k-state.edu with your application.**

XI. SUBJECT INFORMATION: (If you answer yes to any of the questions below, you should explain them in one of the paragraphs above)

- Yes No a. Under 18 years of age (these subjects require parental or guardian consent)
- Yes No b. Over 65 years of age
- Yes No c. Minorities as target population
- Yes No d. Physically or mentally disabled
- Yes No e. Economically or educationally disadvantaged
- Yes No f. Unable to provide their own legal informed consent
- Yes No g. Pregnant females as target population
- Yes No h. Victims
- Yes No i. Subjects in institutions (e.g., prisons, nursing homes, halfway houses)
- Yes No j. Are subjects likely to be vulnerable to coercion or undue influence
- Yes No k. Is this international research? If yes, provide details as to if OHRP regulations apply in or near the area you intend to conduct research or if you have contacted individuals for applicable regulations to human subject research.
- Yes No l. Are research subjects in this activity students recruited from university classes or volunteer pools? If so, do you have a reasonable alternative(s) to participation as a research subject in your project, i.e., another activity such as writing or reading that would serve to protect students from unfair pressure or coercion to participate in this project? If you answered this question "Yes," explain any alternatives options for class credit for potential human subject volunteers in your study. (It is also important to remember that: Students must be free to choose not to participate in research that they have signed up for at any time without penalty. Communication of their decision can be conveyed in any manner, to include simply not showing up for the research.)
- Yes No m. Is audio from the subjects recorded? If yes, how do you plan to protect the recorded information and mitigate any additional risks?

All interviews will be kept confidential and all recordings will be destroyed at the conclusion of the study. Interviews will contain gender-neutral pseudonyms and transcripts will remove any identifying information such as business name and other specific details that could jeopardize participant confidentiality. The computer with the recordings will be kept in a file cabinet inside a locked room.

- Yes No n. Are research subjects' images being recorded (video taped, digitally recorded, photographed)? If yes, how do you plan to protect the recorded information and mitigate any additional risks?
-

XII. FDA ACTIVITIES: Answer the following questions about potential FDA regulated activities:

- Yes No a. Is this a Clinical Trial?
 Yes No b. Are you using an FDA approved drug/device/diagnostic test?
 Yes No c. Does this activity involve the use of FDA-Regulated products? (biological products, color additives, food additives, human drugs, etc.)
 Yes No d. Has the protocol been submitted to the FDA, or are there plans to submit it to the FDA?
 Yes No e. Have you submitted an FDA form 3454 or 3455 (conflict of interest)?

XIII. CONFLICT OF INTEREST: Concerns have been growing that financial interests in research may threaten the safety and rights of human research subjects. Financial interests are not in them selves prohibited and may well be appropriate and legitimate. Not all financial interests cause Conflict of Interest (COI) or harm to human subjects. However, to the extent that financial interests may affect the welfare of human subjects in research, IRB's, institutions, and investigators must consider what actions regarding financial interests may be necessary to protect human subjects. Please answer the following questions:

- Yes No a. Do you or the institution have any proprietary interest in a potential product of this research, including patents, trademarks, copyrights, or licensing agreements?
 Yes No b. Do you have an equity interest in the research sponsor (publicly held or a non-publicly held company)?
 Yes No c. Do you receive significant payments of other sorts, eg., grants, equipment, retainers for consultation and/or honoraria from the sponsor of this research?
 Yes No d. Do you receive payment per participant or incentive payments?
 e. If you answered **yes** to any of the above questions, please provide adequate explanatory information so the IRB can assess any potential COI indicated above.

XIV. PROJECT COLLABORATORS:

A. KSU Collaborators: List anyone affiliated with KSU who is collecting or analyzing data: (list all collaborators on the project, including co-principal investigators, undergraduate and graduate students).

Name:	Department:	Campus Phone:	Campus E-mail:
Matthew Sanderson	Sociology	785-539-4969	matttrs@ksu.edu
Audrey King	Communications and Agricultural Education	620-253-3262	audreyking@ksu.edu

B. Non-KSU Collaborators: List all collaborators on your human subjects research project not affiliated with KSU in the spaces below. KSU has negotiated an Assurance with the Office for Human Research Protections (OHRP), the federal office responsible for oversight of research involving human subjects.

Name:	Organization:	Phone:	Institutional E-mail:

Add Row	Delete Row		

C. **Does your non-KSU collaborator’s organization have an Assurance with OHRP?** (for Federalwide Assurance listings of other institutions, please reference the OHRP website under Assurance Information at: <http://ohrp.cit.nih.gov/search>).

Yes No If yes, Collaborator’s FWA #

Is your non-KSU collaborator’s IRB reviewing this proposal?

Yes No If yes, IRB approval #

XV. **IRB Training:**

A. **The URCO must have a copy of the Unaffiliated Investigator Agreement on file for each non-KSU collaborator who is not covered by their own IRB and assurance with OHRP.** When research involving human subjects includes collaborators who are not employees or agents of KSU the activities of those unaffiliated individuals may be covered under the KSU Assurance only in accordance with a formal, written agreement of commitment to relevant human subject protection policies and IRB oversight. The Unaffiliated Investigators Agreement can be found and downloaded at <http://www.k-state.edu/research/comply/irb/forms>

Online Training

TRAINING REQUIREMENTS HAVE RECENTLY CHANGED

The IRB has mandatory training requirements prior to protocol approval. Training is now offered through the Collaborative Institutional Training Initiative (CITI) Program. Instructions for registration and access to training are on the URCO website <http://www.k-state.edu/research/comply/>.

Use the check boxes below to select the training courses that apply to this application. If you have any questions about training, contact URCO at comply@ksu.edu, or (785) 532-3224.

Mandatory Training

Required for all Principal Investigators, research staff and students

Responsible Conduct of Research

IRB core modules

Required (Provost-mandated) for all full-time K-State employees

Export Compliance

Required procedure-specific training (check all that apply to this protocol):

International Research Research in Public Elementary and Secondary Schools Research with Children

Research with Prisoners Internet Research Vulnerable Subjects - Research Involving Workers/Employees

Research with Subjects with Physical Disabilities and Impairments Illegal Activities or Undocument Status in Human Research

Gender and Sexuality Diversity in Human Research Research with human blood, body fluids, or tissues

Research with Older Adults

All new personnel or personnel with expired training are required to register for CITI and take the new training requirements. If you previously completed online IRB modules, your training status will remain current until it expires. URCO will verify training from the previous system as well as the new system prior to approval of any protocol.

INVESTIGATOR ASSURANCE FOR RESEARCH INVOLVING HUMAN SUBJECTS

(Print this page separately because it requires a signature by the PI.)

P.I. Name: Kris Boone

Title of Project: Risk Communication in Animal Health

XVI. ASSURANCES: As the Principal Investigator on this protocol, I provide assurances for the following:

- A. **Research Involving Human Subjects:** This project will be performed in the manner described in this proposal, and in accordance with the Federalwide Assurance FWA00000865 approved for Kansas State University available at <http://www.hhs.gov/ohrp/assurances/forms/filasurt.html>, applicable laws, regulations, and guidelines. Any proposed deviation or modification from the procedures detailed herein must be submitted to the IRB, and be approved by the Committee for Research Involving Human Subjects (IRB) prior to implementation.
- B. **Training:** I assure that all personnel working with human subjects described in this protocol are technically competent for the role described for them, and have completed the required IRB training accessed via the URCO website at: <http://www.k-state.edu/research/comply/irb/training>. I understand that no proposals will receive final IRB approval until the URCO has documentation of completion of training by all appropriate personnel.
- C. **Extramural Funding:** If funded by an extramural source, I assure that this application accurately reflects all procedures involving human subjects as described in the grant/contract proposal to the funding agency. I also assure that I will notify the IRB/URCO, the KSU PreAward Services, and the funding/contract entity if there are modifications or changes made to the protocol after the initial submission to the funding agency.
- D. **Study Duration:** I understand that it is the responsibility of the Committee for Research Involving Human Subjects (IRB) to perform continuing reviews of human subjects research as necessary. I also understand that as continuing reviews are conducted, it is my responsibility to provide timely and accurate review or update information when requested, to include notification of the IRB/URCO when my study is changed or completed.
- E. **Conflict of Interest:** I assure that I have accurately described (in this application) any potential Conflict of Interest that my collaborators, the University, or I may have in association with this proposed research activity.
- F. **Adverse Event Reporting:** I assure that I will promptly report to the IRB/ URCO any unanticipated problems involving risks to subjects or others that involve the protocol as approved. Unanticipated or Adverse Event Form is located on the URCO website at: <http://www.k-state.edu/research/comply/irb/forms>. In the case of a serious event, the Unanticipated or Adverse Events Form may follow a phone call or email contact with the URCO.
- G. **Accuracy:** I assure that the information herein provided to the Committee for Human Subjects Research is to the best of my knowledge complete and accurate.

You may sign this form using a digital signature. DO NOT sign the form until it has been completed.

You cannot edit the form entries once the form has been digitally signed. If you are making revisions to a previously signed form, right-click the digital signature and select Clear to remove the signature (this can only be done by the person who originally digitally signed the form). Forms that have not been signed will not be accepted.

P.I. Signature: Kris Boone

Digitally signed by Kris Boone
Date: 2017.01.04 09:38:04 -0600

Date:

Appendix B - Agriculture Question Route

Agriculture Related Participants

Questioning Route:

Hi, my name is _____. I'm working on a study being conducted through Kansas State University's Department of Communications and Agricultural Education regarding communication planning in preparation for potential animal disease outbreak. This is _____ she is the assistant moderator today and will be taking notes.

Your identity and responses will be kept confidential.

There aren't any expected risks to participate in this study, and there will be no cost to you to participate in this study.

Do you have any questions? Do you agree to participate in this study?

1. Tell me a little bit about your operation/practice/job?

2. Who are your most trusted sources of information about contagious animal diseases?
Why?
 - a. IF: they don't mention what channel/format, ask what kind of format they're talking about? Publications, agents, e-newsletters, website, etc.

3. About how often do you talk with each of those about animal disease?

4. If they did not mention sources beyond humans in #2:
 - a. What organizations or publications are your most trusted for information on communicable diseases (for example: research and extension? TV/Radio? Vet? Trade/industry pubs? Internet sources?)

5. About how often do you consume/read/listen to these formats/sources?

6. How susceptible an animal-disease outbreak?
 - a. How prepared are you for an animal-disease outbreak?

7. How susceptible are you for a zoonotic-disease outbreak?
 - a. How prepared are you for a zoonotic-disease outbreak?

8. What kind of elements do you consider when assessing your animal-disease risk?

9. What practices or protocols do you have in place to prevent (or reduce impact of) these diseases in your operation?
 - a. How long have you had these practices or protocols?
 - b. What prompted you to put this in place?
 - c. Do you have plans to change any of these practices in the future?
 - i. What are the main barriers to you implementing those practices?
 - d. If they don't mention infrastructure ask about infrastructure for containment/moving of livestock

10. What is your plan for communicating with the public about zoonotic-diseases? (i.e. who do you share info with? Who do you prioritize, how do you keep people informed?)
 - a. How long have you had these practices or protocols?
 - b. What prompted you to put these in place?
 - c. Do you have plans to change any of these practices in the future?
 - d. What barriers do you see with communicating with the public about a zoonotic-disease outbreak?

Appendix C - Non-Agriculture Question Route

Non-Agriculture Related Participants

Questioning Route:

Hi, my name is _____. I'm working on a study being conducted through Kansas State University's Department of Communications and Agricultural Education regarding communication planning related to communicable disease. This is _____ she is the assistant moderator today and will be taking notes.

Your identity and responses will be kept confidential.

There aren't any expected risks to participate in this study, and there will be no cost to you to participate in this study.

Do you have any questions? Do you agree to participate in this study?

1. Tell me about your job.

2. Who are your most trusted sources of information about communicable diseases? Why?
 - a. IF: they don't mention what channel/format, ask what kind of format they're talking about? Publications, agents, e-newsletters, website, etc.

3. About how often do you communicate with each of these?

4. If they did not mention sources beyond humans in #2:
 - a. What organizations or publications are your most trusted for information on communicable diseases (for example: research and extension? TV/Radio? Vet? Trade/industry pubs? Internet sources?)

5. About how often do you consume/read/listen to these formats/sources?

6. How prepared are you for an outbreak of a communicable disease?

7. What is your process for communicating with the public about communicable diseases? (i.e. who do you share info with? Who do you prioritize, how do you keep people informed?)
 - a. How long have you had these practices or protocols?
 - b. What prompted you to put these in place?
 - c. Do you have plans to change any of these practices in the future?

8. If they don't mention a crisis communication plan, ask "do you have a crisis communication plan?"
 - a. If they do, ask if they will share a copy with us. Get a copy before you leave or a link to the website if possible.

9. Does your plan or process include what to do if there were a zoonotic-disease (disease that can be transferred from animals to humans) outbreak?
 - a. If yes, what is different about your process/plan for a zoonotic-disease outbreak?
 - b. If not, what do you think your process would look like for communicating with the public about a zoonotic-disease outbreak?

10. How prepared are you for a zoonotic-disease outbreak?

11. How would your sources for information differ from a more traditional communicable disease?
 - a. If they haven't mentioned communicating with local veterinarians, ask "Do you have regular communication with local veterinarians?"

12. What barriers do you see related to communicating with the public about a zoonotic-disease outbreak?

a. What are the main barriers to getting the information you need/want about animal and zoonotic-diseases?

13. What formal or informal training on zoonotic-diseases have you had?

14. Are you interested in receiving information/training on zoonotic-diseases?

a. What format of training would you prefer to learn about zoonotic-diseases?

b. If they don't mention Extension, ask "do you think the Extension service would be an appropriate avenue for training in this area?"

15. Is there anyone else we should speak to regarding a zoonotic-disease outbreak?

Appendix D - Consent Form

- Rick Scheidt, Chair, Committee on Research Involving Human Subjects, 203 Fairchild Hall, Kansas State University, Manhattan, KS 66506, (785) 532-3224.
- Cheryl Doerr, Associate Vice President for Research Compliance, 203 Fairchild Hall, Kansas State University, Manhattan, KS 66506, (785) 532-3224.

SPONSOR OF PROJECT: (funding/contract entity)

PURPOSE OF THE RESEARCH: (Explain in lay terms that this is a research project, and why the research is being done.)

PROCEDURES OR METHODS TO BE USED: (Explain in lay terms and in language understandable at the 8th grade level how the study is going to be conducted and what will be expected of participants. Tell participants if they will be audio or videotaped, if they will be paid, etc.)

ALTERNATIVE PROCEDURES OR TREATMENTS, IF ANY, THAT MIGHT BE ADVANTAGEOUS TO SUBJECT:

LENGTH OF STUDY: (estimate the length of time the subject will be expected to participate)

RISKS OR DISCOMFORTS ANTICIPATED: (Describe any foreseeable risks or discomforts from the study. If there are no known risks, make a statement to that effect)

BENEFITS ANTICIPATED: (describe any *reasonably expected* benefits from the research to the participant or others from the research)

EXTENT OF CONFIDENTIALITY: (explain how you plan to protect confidentiality)

IS COMPENSATION OR MEDICAL TREATMENT AVAILABLE IF INJURY OCCURS: (*in cases where more than minimal risk is involved*)

PARENTAL APPROVAL FOR MINORS: (if minors or those who require the approval of a parent or guardian are participants, you should include a space for their consenting signature)

TERMS OF PARTICIPATION: (Include the following statements or one minimally modified) **I understand this project is research, and that my participation is completely voluntary. I also understand that if I decide to participate in this study, I may withdraw my consent at any time, and stop participating at any time without explanation, penalty, or loss of benefits, or academic standing to which I may otherwise be entitled.**

I verify that my signature below indicates that I have read and understand this consent form, and willingly agree to participate in this study under the terms described, and that my signature acknowledges that I have received a signed and dated copy of this consent form.

(Remember that it is a requirement for the P.I. to maintain a signed and dated copy of the same consent form signed and kept by the participant

Participant Name: _____

Participant Signature: _____ **Date:** _____

Witness to Signature: (project staff) _____ **Date:** _____

Last revised on May 20, 2016

KANSAS STATE UNIVERSITY
INFORMED CONSENT TEMPLATE

PROJECT TITLE: Risk Communication in Animal Health

APPROVAL DATE OF PROJECT: _____ EXPIRATION DATE OF PROJECT: _____

PRINCIPAL INVESTIGATOR: CO-INVESTIGATOR(S): Kris Boone

CONTACT AND PHONE FOR ANY PROBLEMS/QUESTIONS: 785-532-5804

IRB CHAIR CONTACT/PHONE INFORMATION: Rick Scheidt, 785-532-3224

SPONSOR OF PROJECT: NBAF Transistion Project

PURPOSE OF THE RESEARCH: The goal of this project is to create a develop a way to communicate about risk associated with animal disease. To accomplish that goal we will be conducting qualitative interviews with key informants (veterinarians, medical doctors, OneHealth, Extension agents, etc). These interviews will inventory the existing knowledge among stakeholders, identify influential community members, map communication patterns and identify social networks for information sharing and learning.

PROCEDURES OR METHODS TO BE USED: Interviews

ALTERNATIVE PROCEDURES OR TREATMENTS, IF ANY, THAT MIGHT BE ADVANTAGEOUS TO SUBJECT:

LENGTH OF STUDY: 60-90 minutes

RISKS ANTICIPATED: None

BENEFITS ANTICIPATED: Community members will have the oppportunity to share their experiences and opinions with the researcher. Although the responses of the participants will be confidential the findings will be used to help develop strategies for effective communication in the face of a zoonotic disease outbreak.

EXTENT OF CONFIDENTIALITY: All interviews will be kept confidential and all recordings will be destroyed at the conclusion of the study. Interviews will contain gender-neutral pseudonyms and transcripts will remove any identifying information that could jeopardize participant confidentiality. The computer with the recordings will be kept in a file cabinet inside a locked room.

IS COMPENSATION OR MEDICAL TREATMENT AVAILABLE IF INJURY OCCURS: No

PARENTAL APPROVAL FOR MINORS: _____

Last revised on May 20, 2016

TERMS OF PARTICIPATION: I understand this project is research, and that my participation is completely voluntary. I also understand that if I decide to participate in this study, I may withdraw my consent at any time, and stop participating at any time without explanation, penalty, or loss of benefits, or academic standing to which I may otherwise be entitled.

I verify that my signature below indicates that I have read and understand this consent form, and willingly agree to participate in this study under the terms described, and that my signature acknowledges that I have received a signed and dated copy of this consent form.

(Remember that it is a requirement for the P.I. to maintain a signed and dated copy of the same consent form signed and kept by the participant)

Participant Name: _____

Participant Signature: _____ Date: _____

Witness to Signature: (project staff) _____ Date: _____

Appendix E - Interview Team

