EMERGENCY TELEHEALTH USE IN MONTANA

by

Kristen Staley Beck

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DEDICATION

I dedicate this project to Evan, my family, and all the friends that have been so supportive along my nursing journey. The encouragement and fun times in between really kept me going, and for that I am forever grateful.

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ABSTRACT

Over 75% of Montana's population resides in rural or frontier areas which often lack access to high quality emergency care services and/or specialty expertise found at larger hospitals. Specifically, rural emergency patients have disproportionately higher morbidity and mortality than their urban counterparts due to increased distance to hospitals, lack of specialty resources, and decreased encounters with such patients. Emergency telehealth has come to the forefront in delivering high quality emergency care for rural patients. Because other rural states have successfully implemented emergency telehealth, it is pertinent to know how Montana is utilizing this technology. The purpose of this project was to document the use of emergency telehealth in Montana and to identify perceived barriers to implementation and sustainability of emergency telehealth. A 26 question survey regarding telehealth use and its associated barriers was emailed to all hospitals within the state. Results indicated that Montana is in line with national use standards as 88% of respondents reported using at least one telehealth service. Emergency telehealth is the second most utilized service after in-house education in Montana's critical access hospitals with a large projected growth in other critical care areas such as stroke, intensive care unit, and burns. Top perceived barriers to implementation and sustainability of telehealth services were lack of specialist availability and provider buy-in. Furthermore, the most concerning regulatory barrier to telehealth use was government reimbursement. Such findings warrant further investigation and state-specific initiatives to promote emergency telehealth use and continued success. Because of the critical benefits of this technology and the high demand for services, it is evident that continued development and access to emergency telehealth services is imperative for rural Montanans.

CHAPTER ONE

INTRODUCTION

Over 75% of Montana's population resides in rural or frontier areas which often lack access to quality health care services (DPHHS, 2011). Federally designated critical access hospitals (CAHs) provide care to many of Montana's rural residents with 48 hospitals throughout the state. Critical access hospitals are certified under a set of Medicare conditions with requirements such as have no more than 25 inpatient beds, located more than 35 miles from another hospital, maintain an annual average length of stay of no more than 96 hours for acute inpatient care, and offer 24/7- emergency care services (Rural Health Information Hub, 2016). Many of these hospitals operate with minimal staff and on-call providers due to rural location and low patient census.

"Geographic isolation and the long distances between towns and health care organizations are often barriers to health care access in Montana" (DPHHS, 2011, p. 4). Rural trauma patients have disproportionately higher morbidity and mortality than their urban trauma counterparts due to increased distance to hospitals, lack of specialty resources, and decreased encounters with such patients (Ricci, Caputo, Amour, Rogers, Sartorelli… & Malone, 2003).

Telehealth has recently emerged as a viable means to increase access to health care in rural underserved areas. More specifically, emergency telehealth has come to the forefront in delivering high quality emergency care for rural patients (Bjorn, 2012). For this scholarly project, emergency telehealth encompasses video-conferencing,

transmission of diagnostic images, remote patient monitoring, consultation, lifesaving advice, and/or instruction during resuscitation and stabilization efforts in the emergency room (Lewis, Thomas, Wilson, & Mbarika, 2012; McSwain, Rotondo, Meade, & Duchesne, 2012; Ricci, et. al, 2003). Ricci, Caputo, Amour, Rogers, Sartorelli… & Malone, 2003).

Background

Patients injured in rural areas have approximately double the mortality rate as do their urban counterparts with similar injuries (Ricci, et al. 2003). Discrepancies in care for the rural emergency patient often lead to increased costs including unnecessary transfers to outside facilities (McSwain, et al., 2012; Ricci, et al., 2003; Wesson, & Kupperschmidt, 2013). Such discrepancies can be alleviated by implementation of emergency telehealth services connecting rural providers with appropriate specialists for expert consultation. Emergency telehealth has been shown to reduce such discrepancies in rural areas of Arizona and Mississippi (Henderson, Davis, Smith, & King, 2014) (Latifi, Hadeed, Rhee, O'Keeffe, Friese … & Judkins, 2009).

Significance

Forty eight of Montana's 65 hospitals are federally recognized critical access hospitals (CAHs). Many of these hospitals operate with minimal staff and on-call providers due to a national CAH average daily census of 4.2 patients (Lindsay, Palmer, Hill, Schauer, Buckingham, & Tenenbaum, 2014). Rural trauma presents a unique

disadvantage due to “geographic isolation, time between injury and discovery, distances to healthcare, and limited availability of local healthcare resources” (DPHHS, 2012). Because rural populations have disproportionately higher injury mortality rates, Montana is at an increased disadvantage as decreased population density is the strongest predictor of mortality (Peek-Asa, Zwerling & Stallones, 2004). Montana’s rural hospitals help numerous trauma patients each year; requiring collaborative efforts between EMS, CAHs, and receiving tertiary hospitals. Part of Montana’s rural health plan includes assisting CAH’s in meeting statewide goals of trauma facility standards to improve emergency room standards for improved patient outcomes (DPHHS, 2011). Because emergency telehealth in rural hospitals has been successfully implemented in other states, it is pertinent to know how Montana is currently utilizing such technology. Previous studies have shown that many barriers exist to the implementation of telehealth, ranging from extensive operational costs to administrative and legislative roadblocks (Rogove, Demaerschalk, & Vespa, 2012). Due to the lack of available current literature examining Montana’s use of emergency telehealth, this study was designed to evaluate current use patterns and barriers to utilization of such technology.

Theoretical Underpinning

Diffusion of Innovation

Rogers’ theory on diffusion of innovation was used to guide the author through this project. “Diffusion is the process by which an innovation is communicated through certain channels over time among members of a particular social system” (Haider &

Krepps, 2001, p.3). More specifically, Haider and Krepps assert “social change (including decisions that affect public health) can occur as a result of certain consequences due to the invention, diffusion, and adoption or rejection of new ideas (i.e., innovations)” (2001, p.4).

The diffusion of innovations consists of four overlapping elements: the innovation, communication channels, social systems, and time. For the purpose of this project, the innovation is emergency telehealth, communication consist of dissemination within the healthcare community, social systems of adopting organizations, and time from knowledge introduction to innovation decision. In addition, innovations in public health have additional characteristics that influence variability in adoption which include: “relative advantage, compatibility, complexity, trailability, and observability” (Haider & Krepps, 2001, p.4). Haider and Krepps advocate for the optimization of these five factors for more rapid adoption of the innovation (2001).

Advantages of emergency telehealth consist of improved patient outcomes, decreased unnecessary costs and transfers, keeping healthcare dollars local, and increased training and competency of staff through continual learning (Audebert, Schultes, Tietz, Heuschmann, Bogdahn… & Schenkel, 2009).

Compatibility and complexity appear to be a hindrance to widespread adoption with the various complex telehealth interface systems currently available. For many systems, dedicated hard lines and specific IT equipment are required for connection; often entailing monthly subscription and IT support. Through a Rural Policy Grant, the Partners in Health Telemedicine Network (PHTN) has implemented an emergency

telehealth system using a tablet with a HIPPA-compliant internet connection (Pollard, personal communication, 2015). Innovations such as these are helping to alleviate current compatibility issues and allow for more widespread access to emergency telehealth services.

Implementation of telehealth services requires a major commitment from the healthcare organization with purchase of new equipment, training of staff, and development of relationships with outside facilities. These factors pose a challenge to trialability as telehealth requires initial investment of a significant amount of resources before any outcomes can be measured.

Both patients and providers must perceive the potential benefits from emergency telehealth services in their local community for successful implementation. Observability may be achieved through public forums and education sessions on emergency telehealth implementation in similar communities. Frequent reporting of measurable outcomes by the hospital will hold interest and create community investment in the new program.

Rogers' Diffusion of Innovation Theory involves 5 main steps: knowledge, persuasion, decision, implementation, and confirmation (Haider & Krepps, 2001). Knowledge occurs when the audience learns of the innovation and begins to understand its benefits. Persuasion is the formation of a favorable opinion regarding the innovation. Decision begins when the audience takes action in choices to either accept or reject the innovation. Implementation is when the innovation is utilized and put specifically into practice. Finally, confirmation occurs through reinforcement of the innovation made or the decision to not use the innovation due to conflicting outcomes (Haider & Krepps,

2001). A thorough understanding of the innovation-decision process in its relation to the particular setting is crucial to increasing diffusion and rate of adoptability (Haider & Krepps, 2001).

Rural Nursing Theory

Because a registered nurse or nurse practitioner may be the first point of contact for a rural emergency patient, the rural nursing theory was also chosen to guide the graduate student through this project. Long and Weinert (1989) define rural nursing as "the provision of health care by professional nurses living in sparsely populated areas" (p.114). This theory base was developed to identify unique commonalities in rural patient health needs and elements of rural nursing to guide and improve rural nursing practice (Long & Weinert, 1989, p.114). When providing care in the rural setting, it is important to understand exactly how patients define health, understand individual health-seeking behaviors, and prepare oneself for the lack of anonymity and role diffusion experienced (Long & Weinert, 1989).

Utilization of emergency and trauma telehealth in rural applications allows providers to "reduce the burdens of inferior health care access through utilization of technology" (Duchesne, Kyle, Simmons, Islam, Schmieg, Olivier, & McSwain, 2008, p.92). Many of the front line providers are nurse practitioners that have limited ancillary staff and resources to work with. In addition, rural patients will "often delay seeking health care until they are gravely ill or incapacitated" creating an emergent situation for the rural practitioner (Long & Weinert, 1989, p.124).

Specifically within the rural nursing theory, the graduate student will use provider role diffusion and the emerging theme of availability of resources to guide this project. Provider role diffusion occurs with the expectation from the rural dweller for the provider to be able to handle any situation a patient presents with as rural “nurses are often expected to function as expert generalists” (Winters, Thomlinson, O’Lynn, Lee, McDonagh, Edge, & Reimer, 2010, p.42). Throughout this project, the graduate student will utilize this concept to justify the use of emergency telehealth applications for appropriate specialist consultation in resuscitation and stabilization measures for the rural emergency patient. In addition, the graduate student will use the concept of role diffusion to guide the assertion that strong collaborative relationships can be established through emergency telehealth to help improve patient outcomes.

Considering that “availability of resources is a concept that directly impacts access to health care services” (Lee & McDonagh, 2010, p.29), emergency telehealth could potentially remove barriers to access by providing real-time evaluation by appropriate specialist in emergent situations. Lee and McDonagh assert “studying patterns of health care use and feedback loops among residents may add to the understanding of the complexity of accessing health care services in rural and remote areas” (2010, p.30). Understanding these patterns of use in relation to the availability of resources will contribute to the knowledge base in support of the utilization of emergency telehealth in rural hospitals. The graduate student anticipates uncovering such patterns through the aforementioned telehealth survey.

Role diffusion and availability of resources are both important concepts in the rural nursing theory that will assist in the guidance and development of this emergency telehealth project. These concepts are uniquely embedded in the rural setting and their incorporation into this project will lead to a better understanding of rural patients' needs with a strong commitment of improving patient outcomes.

Purpose and Objectives

Currently, there is limited data on emergency telehealth use in Montana. Lack of such data inhibits state-specific initiatives to promote emergency telehealth to improve outcomes in rural trauma patients. The purpose of this project is to document the use of emergency telehealth in Montana and to identify perceived barriers to implementation and sustainability of emergency telehealth.

CHAPTER 2

REVIEW OF THE EVIDENCE

Rural Trauma

Trauma is defined as “death or severe injury to the human body caused by mechanical, environmental, thermal or other physical forces” (DPHHS, 2012, p.1). Approximately 20% of the U.S. population resides in rural areas; however, over 60% of trauma deaths occur in these isolated geographic regions (UNCC, 2013, p.3). Factors such as longer travel distances, fewer health care providers per capita, decreased specialists, and healthcare facilities with limited scopes of service contribute to disparities in access to trauma care for the rural patient (UNCC, 2013, p.1). Rural areas have higher risk factors for trauma such as “a higher prevalence of alcohol use while driving, a higher prevalence of loaded unlocked firearms at home, an increase in life-threatening/serious farm related-injuries due to exposure to agriculture machinery, and when injuries occur, there is an associated issue of prolonged discovery and extrication (period from discovery to treatment) times” (UNCC, 2013, p.2). Initial contact time with an ED provider averages 6 times longer compared to urban settings, and as a result the crude death rate is three times as high in rural versus urban areas (UNCC, 2013). When stratified by phase of care, rural death rates from injury are three times greater than those occurring in the urban setting with rates of inappropriate care in the ED remarkably high (UNCC, 2013). A study in Montana revealed rates of inappropriate care for pediatric patients in the ED to

be 36%, most often involving airway management and chest injuries (Esposito, Sanddal, Dean, Hansen, Reynolds, & Battan, 1999).

Ninety percent of Montana is considered frontier, having a population density of less than six persons per mile, see Appendix A (DPHHS, 2011). This rural landscape directly contributes to the increased morbidity and mortality Montanans suffer compared to more urban states. Distance to healthcare is a common barrier for rural Montanans with 13% of residents traveling more than 30 miles each way to seek healthcare (DPHHS, 2011). Such distances also add to the critical nature of rural trauma patients, increasing transport time to definitive care in the hospital. Increased distances to appropriate facilities and lack of hospital resources contribute to the challenges of medical emergencies in this rural setting (Rogers, et al., 2001).

Recruitment and retention of qualified providers is another barrier for rural trauma patients. Forty six of Montana's fifty five rural and frontier counties are designated as Health Professional Shortage Areas (HPSA) (DPHHS, 2011). Although a small percentage of the patient base, trauma patients present a unique challenge to rural providers. "Many rural providers may have limited opportunities to care for major trauma patients compared with colleagues practicing in urban centers" leading to decreased competency when caring for trauma patients (Wesson & Kupperschmidt, 2013).

Unintentional injury is the leading cause of death for Montanans aged 1-44 (DPHHS, 2011). In 2007, Montana's injury death rate was 43% higher than the national

average at 85 per 100,000 (DPHHS, 2008). Montana's high trauma rates include an alcohol fatality rate double the national rate (DPHHS, 2011).

Montana's trauma system is "an inclusive voluntary system designed to provide an organized, preplanned response for the state's trauma patients by assuring optimal patient care through enhancement of systems, clinical care processes and facility linkages for efficient use of limited health care resources (DPHHS, 2012.). Since its inception, the Montana Trauma System has reduced the preventable trauma death rate through injury prevention, trauma education, performance improvement measures using trauma registry data, funding for local trauma projects, and trauma facility designations throughout the state (DPPHS, 2012). Initial treatment for the majority of these patients begins with rural emergency medical services (EMS) and local providers in rural hospitals. Emergency telehealth has the capacity to further propel such improvement initiatives for rural trauma patients.

Emergency Telehealth

Analysis of the 2013 Healthcare Information and Management Systems Society (HIMSS) database revealed one third of reporting hospitals (n=4,727) had at least one telehealth service currently in use and with no significant difference in utilization rates between urban and rural hospitals; however, they found that rural hospitals were significantly less likely to have multiple services (Ward, Ullrich, & Mueller, 2014). CAHs were most likely to implement telehealth services in radiology (MRI, CT, EEG, EKG, and ultrasound) and emergency/trauma care compared to large, urban, and

academic hospitals which are more likely to have telehealth services for cardiology/stroke/heart attack programs (Ward, et. al, 2014). Specifically, emergency/trauma telehealth services were utilized 8.8% and 6.3% in rural and urban hospitals respectively (Ward, et. al, 2014, p.3).

Advances in technology through telehealth allow for real-time evaluation by emergency specialist which can "help prevent departures from the standard of care and avoid errors experienced in low-volume rural emergency centers" (Latifi, Hadeed, Rhee, O'Keeffe, Friese, Wynne, Ziemba, & Judkins, 2009). Advanced emergency and trauma telehealth in rural applications allow providers to "reduce the burdens of inferior health care access through utilization of technology" (Duchesne, et. al, 2008). Telehealth allows for specialty care to be available in resource-poor areas leading to improved outcomes and higher quality of care. Such technology supports clinical decision making in emergency situations with "reductions in the mortality and morbidity associated with acute trauma" (Wong, Poon, Jacobs, Goh, Leung, … & Chow, 2006). The University of Mississippi Medical Center boasts successful implementation of an emergency telehealth network utilizing specialty trained NPs as distant site providers that connect with board-certified emergency physicians at a level I trauma center (Henderson, Davis, Smith, & King, 2014).

Emergency telehealth has also proved useful in rural pediatric patients through direct observation and real-time recommendations for treatment/stabilization measures and reduction of unnecessary transfers (Dharmar, Kuppermann, Romano, Yang, Nesbitt … & Marcin, 2013). When compared to either telephone or no consultation at all,

pediatric medication errors in the ED were significantly reduced with utilization of telehealth and appropriate pediatric specialist consultation (Dharmar, et. al, 2013).

Neurological emergencies have been successfully managed through telehealth applications via transmission of images with superior diagnostic accuracy and recommendations for immediate stabilization and treatment (Audebert, et al., 2009). In addition, specialized stroke wards in community hospitals in Southeast Bavaria with 24/7 access to neurological specialists have shown promising results with reduced death and disability for patients (Audebert, et al., 2009)

Telehealth in Montana

Currently, Montana has access to a moderate variety of fragmented telehealth networks and services across the state; however, actual utilization rates and services are not well documented. Approximately six major telehealth networks offer services such as pharmacology, radiology, cardiology, stroke, emergency, psychology, burn and several others. These services are vital to Montana community members as distances to such specialists interfere with timely care and often affect patient outcomes.

The REACH (Realizing Education and Community Health) Montana Telemedicine Network made its' debut in radiology image transmission via a modem-based network back in 1993 out of the former Montana Deaconess Medical Center of Great Falls (REACH, 2013). The original network consisted of Montana Deaconess Medical Center, and CAHs in Choteau, Conrad, and Fort Benton. REACH Montana Telehealth Network serves approximately 13 distance sites in North Central Montana

with services including but not limited to radiology, psychiatry, oncology, cardiology, speech therapy, diabetic, pediatrics, gastroenterology, neo-natal, and post-surgical care.

The Eastern Montana Telemedicine Network (EMTN) was created in 1993 through a partnership between Billings Clinic and five rural healthcare facilities in efforts to improve access to specialty medical and mental health care services (EMTN, 2006). EMTN is a non-profit group of medical and mental health care facilities with 26 partners in 19 communities throughout South Central Montana and Northern Wyoming.

Partners in Health Telemedicine Network (PHTN) is based out of St. Vincent Health Care in Billings, MT and is a collaborative partnership of healthcare facilities throughout Montana and Wyoming with videoconferencing services for telemedicine, continuing education, administrative, and business purposes. Specialist connections are available to the Intermountain Burn and Trauma Center in Utah, Children's Hospital in Denver, and the Seattle Children's Hospital (St. Vincent's Healthcare, 2016).

Western Montana Telemedicine Network (WMTN) is based out of Kalispell Regional Medical Center and provides services including but not limited to diabetes care, neurological consults, and NICU specialist consultations (Network of Care, N.D.). WMTN currently offers services in Polson, Ronan, Eureka, Libby, and Plains MT.

The Montana Stroke Initiative© is a collaborative effort between the Montana Department of Public Health, the Cardiovascular Health Program, and the American Stroke Association to provide access to the best stroke care regardless of where patients live in Montana. Through the use of telehealth, the MT Telestroke Network (MTN) has made great strides in providing rural stroke victims with prompt evaluation and treatment

decisions by neurology specialists. Currently, the MT Telestroke Network services Glasgow, Lewistown, Havre, Libby, Ronan, and Plains. Since its inception in 2009, Montana telestroke has assisted with over 97 acute consultations. A recent study showed twenty seven percent of patients received t-PA treatment which is well above the national t-pA utilization average of 5% (McNamera, 2015, personal communication). Of those patients receiving t-pA, 50% experienced minor improvements and 15% had major improvements (McNamera, 2015, personal communication). With increased implementation across the state, the above-mentioned patient outcome improvements will have wide reaching implications in stroke care by improving access to specialty stroke care for rural patients across Montana.

Avera Health is an integrated health care system based out of Sioux Falls, SD that offers emergency telehealth services through eCare. Since its inception in 2009, eCare has provided emergency telehealth support to over 100 hospitals across the nation. Remote hospitals are supported by board certified emergency physicians and expert nurses that offer immediate medical direction, ordering of diagnostic tests while awaiting the bedside provider, expedited air ambulance transfer, nursing documentation, and emergency specialty consults (Avera, 2016).

An exhaustive search of the literature revealed there was a paucity of state-specific information on emergency telehealth use in Montana. Personal communications, then, became a necessary resource for information at the state and local levels.

Nurse Practitioners in Telehealth

Over 25% of Americans have their emergency care in rural hospitals; however, only 10% of physicians work in these hospitals (Barnason & Morris, 2011). Many rural hospitals utilize nurse practitioners for both primary care services in the clinic and emergency department coverage. A study on the role of nurse practitioners in rural hospitals revealed that 40% of surveyed CAHs utilized NPs in the ED, and 60% of CAHs gave nurse practitioners admitting privileges (Barnason & Morris, 2011). Many of these providers are trained in family practice with no formal education and/or limited experience in emergency care; which can result in departures from the standard of care in the management of critical care patients. Emergency telehealth can facilitate real-time consultations for immediate advice during resuscitation and consultation for these critical patients.

Since 2003, the University of Mississippi Medical Center has been utilizing specialty-trained nurse practitioners in rural hospitals to connect with board certified emergency physicians at a level 1 trauma center via telehealth during emergency consultations (Henderson, Davis, Smith, & King, 2014). In comparison to historical discrepancies, a study evaluating the impact of this technology found similar patient outcomes for cardiopulmonary arrest patients in the rural and academic medical hospitals when using the emergency telehealth (Henderson, et al., 2014).

Barriers to Emergency Telehealth

Barriers to telehealth consist of startup costs, technology reliability, licensing, credentialing, malpractice concerns, reimbursement issues, and acceptability in practice. Currently, there are limited studies examining such barriers.

Rogove, McArthur & Demaerschalk investigated barriers to telehealth adoption by surveying current robotic telemedicine users in acute care settings (2012). The authors utilized a 96 question survey to examine cultural, administrative, patient-related, exposure, technology, and regulated issues (Rogove, et. al., 2012). The most confounding barriers found were regulatory barriers for providers, financial barriers of reimbursement versus cost of technology, and cultural barriers of unwillingness to change current clinical practices (Rogove, et. al., 2012). Their study highlights that humans rather than technical factors are currently hindering the widespread adoption of telehealth services (Rogove, et. al., 2012).

A national survey by Foley and Lardner found that over 90% of those surveyed had already developed or implemented some form of telehealth program (2014). Their survey revealed that reimbursement was the number one barrier to implementation and sustainability of telehealth programs (2014). More specifically, the authors found that varying reimbursement rates deterred many respondents from widespread telehealth implementation, with 41% citing no reimbursement for visits (Foley & Lardner, 2014). In addition, they cited physician buy-in and regulatory issues as top hurdles of implementing telehealth services.

With a more thorough understanding of barriers to telehealth implementation, we will be better prepared to take action at both the state and national level in order to alleviate such obstacles.

Initiatives to Promote Telehealth

Nationwide, Medicare will only reimburse for specified live video telehealth services and eligible providers are limited to physicians, nurse practitioners, physician assistants, nurse midwives, clinical nurse specialists, clinical psychologists, clinical social workers, registered dieticians, and nutrition professionals (see Appendix B). Even more hindering are the geographic location requirements of originating sites to be located within a rural census tract determined by the Office of Rural Health Policy (CCHP, 2015). Furthermore, Medicare-eligible originating sites only consist of hospitals, CAHs, provider offices, rural health clinics, federally qualified health centers, skilled nursing facilities, community mental health centers, and hospital-based renal dialysis centers. Medicare does reimburse for an origination site fee. Reintroduced in July 2015, the Medicare Telehealth Parity Act intends to increase expansion of covered providers and services as well as include other origination sites (HR 2948).

Each state determines its own regulations, laws, and Medicaid-specific policies regarding telehealth definitions and reimbursement. The Center for Connected Health Policy (CCHP) reveal that live-video consultation is the most common form of telehealth reimbursed by Medicaid (CCHPCA, 2015).

Current Montana law requires reimbursement of live video consultations by private payer insurance equivalent to in-person coverage (CCHP, 2016). Eligible providers include physicians, advanced practice nurses, registered nurses, certified genetic counselors, and certified diabetes educators. Eligible facilities include CAHs, hospitals, hospice, long term care facilities, outpatient primary care, outpatient surgical centers, and mental health centers (CCHP, 2016). Montana Medicaid will reimburse for live video services provided by a Medicaid enrolled provider.

As of October 1, 2015 Montana adopted the Federation of State Medical Board's language for the implementation of an interstate medical licensure compact creating a streamlined process for physicians to become licensed in multiple states; therefore increasing portability of medical licenses while ensuring patient safety (HB0429).

Inconsistent Medicaid coverage has prompted many states to introduce legislation with 36 states introducing bills during the 2014 legislative session (CCHP, 2014). Further policy change is warranted to modify Medicare's restrictive reimbursement policies to address equal access to high quality healthcare regardless of geographic location.

CHAPTER 3

METHODS

Population

Over 75% of Montanans live in either rural or frontier areas, often lacking access to high quality emergency care services and/or specialty expertise found at major trauma centers (DPHHS, 2011). Due to the lack of available information on Montana's current emergency telehealth use and projected growth, every hospital in the state was selected to be surveyed for this project. Surveys were emailed to the organization's CEO with instructions to delegate survey completion to the most appropriate employee.

Setting

The setting of this clinical project was hospitals throughout the state. Montana's CAHs were of particular interest as these facilities often have limited resources and specialists compared to the state's larger urban community hospitals.

Timeline and Procedure

Multiple literature reviews were performed between 2014 and 2015 to inform the direction of this project and aid in the development of the survey. A twenty six question survey on telehealth use and associated barriers was developed using current literature with specific questions adapted with permission from Dr. Rogove's original research on barriers to telemedicine (Rogove, McArthur, Demaerschalk, & Vespa, 2012). Questions

were designed to capture all current telehealth use, future telehealth projects, and perceived barriers to implementation and sustainability of telehealth services in Montana (see Appendix C). The project was deemed exempt from human subject review in the spring of 2016 by the IRB of from Montana State University. Montana State University's Qualtrics system platform was utilized for distribution and data analysis. Surveys were dispersed via email by a representative of the Montana Hospital Association (MHA) to all member agencies. The graduate student sent out two additional surveys to hospitals that were not included on the MHA email list. A total of 78 surveys were dispersed. Participants were given a two week window to complete and return surveys (see Appendix D). A reminder email and survey was resent 2 weeks following distribution of the first email.

CHAPTER FOUR

RESULTS

Statistical analysis of all data was performed by using the Qualtrics software. Emergency telehealth use and its associated barriers were extrapolated from the data set. A total of 19 surveys were completed for an initial response rate of 24%. Two non-hospital-respondents were excluded from the data set to capture the intended audience of hospitals across Montana. Of the 64 hospitals surveyed, 17 responded to the survey for a final response rate of 26%; however, not every hospital respondent answered every question. Surveys were sent via email by a Montana Hospital Association representative to the MHA email list during the spring of 2016. Findings were incorporated into a formal report and disseminated to the above-mentioned groups.

Of those respondents, 13 were CAH and 4 were urban community hospitals. Survey respondents for the CAHs were predominantly Chief Executive Officers (CEOs), followed by Information Technology (IT), and other; 77%, 16% and 8% respectively. The other respondent was an ER manager. Urban community hospital respondents all selected other, indicating positions of CMIO, Virtual Health Director, Telemedicine Director, and Telehealth Service Director.

When surveyed about telehealth use, 85% of CAH respondents indicated some form of current use and 92% indicated interest in telehealth use in the future. All of the urban community hospitals surveyed are currently using telehealth and are also interested in future telehealth use. CAHs indicated using fiber optics followed by cable for internet

connectivity, 19% and 18% respectively. Urban community hospitals predominately reported using fiber optics (76%) with one respondent indicating “other”.

Regarding CAHs’ telehealth progress, 15% reported no telehealth, 15% reported pilot stage, 31% reported implementation phase, 15% reported optimization phase, and 15% reported having mature telehealth programs. In contrast, urban community hospitals reported 50% in implementation phase and 50% had mature programs.

Both CAH and urban community hospitals indicated the primary reason of implementing telehealth was to improve quality care (81.82% and 50% respectively). Both types of hospitals also cited increased patient access to specialty services and healthcare costs; however, urban community hospitals reported patient demand as a reason. 89% of CAHs report being able to utilize their telehealth equipment across applications compared to 100% of urban community hospitals. 90% of CAH respondents reported that their telehealth systems were portable compared to 100% of urban community hospitals. When asked about telehealth guidelines in place, 89% of CAH respondents reported yes compared to 100% of urban community hospitals.

Telehealth systems in use by CAHs consisted of predominately Polycom, followed by iPad and Avera. All urban community hospitals surveyed reported using Polycom, with two of those reporting concurrent use of Vidyo, and a third reporting concurrent use of Vidyo and Intouch. The most predominant form of telehealth for all hospitals was real-time interactive, 91% and 100% for CAHs and urban community hospitals respectively. Of the CAHs surveyed, 27% reported utilizing store and forward, 18% reported using remote monitoring and 18% reported using mobile health. Of the

urban community hospitals surveyed, 50% reported utilizing store and forward, 25% reported using remote monitoring, and 75% reported use of mobile health.

The most common telehealth network for the CAHs respondents were EMTN (45%), followed by Avera (27%), PTHN (27%), REACH (18%), MTN (18%), and the Veterans Administration (9%). Urban community hospitals surveyed reported equal use of EMTN, PHTM, REACH, WMTN, and MTN at 25%

The most frequently utilized telehealth programs reported by CAHs were in house-education (67%), followed by emergency care (58%), psychiatry (42%), radiology (42%), cardiology (25%), stroke, (25%), other (25%), dermatology (17%), pediatrics (17%), and burns (17%). The largest growing demand of telehealth services indicated by CAHs respondents was in pediatrics (28%), followed by intensive care (27%), cardiology (20%), stroke (20%), and burns (19%). See Figure 1.

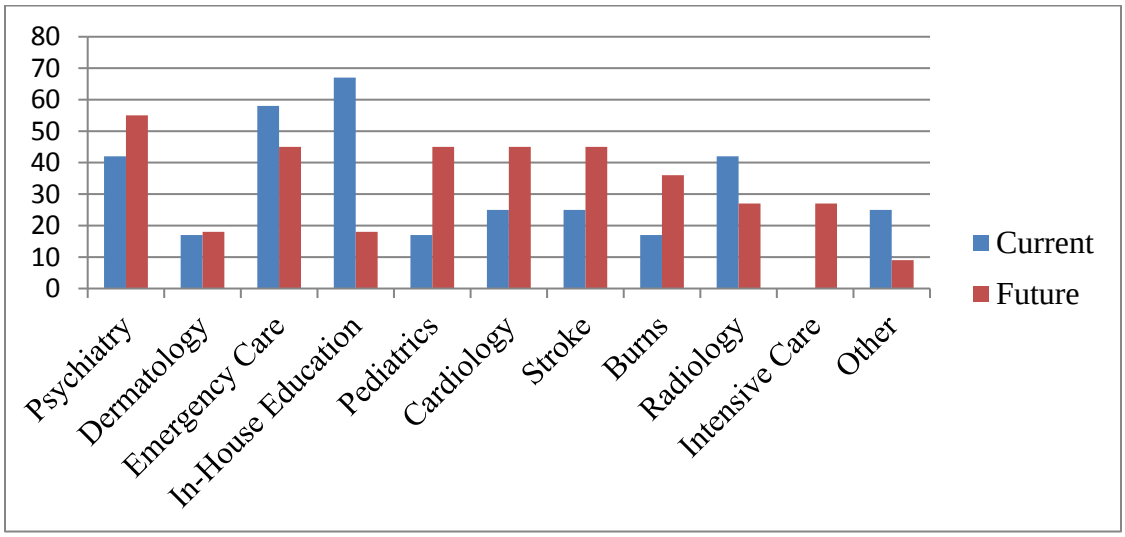


Figure 1. CAH Telehealth Applications

Of the urban community hospitals surveyed, 100% indicated use of in-house education and cardiology telehealth programs, followed by pediatrics, stroke, burns, radiology, and other (75%), psychiatry, dermatology, and emergency care (50%), and intensive care 25%. Future demand of telehealth services was seen only in intensive care with a percentage growth of 25%. See Figure 2.

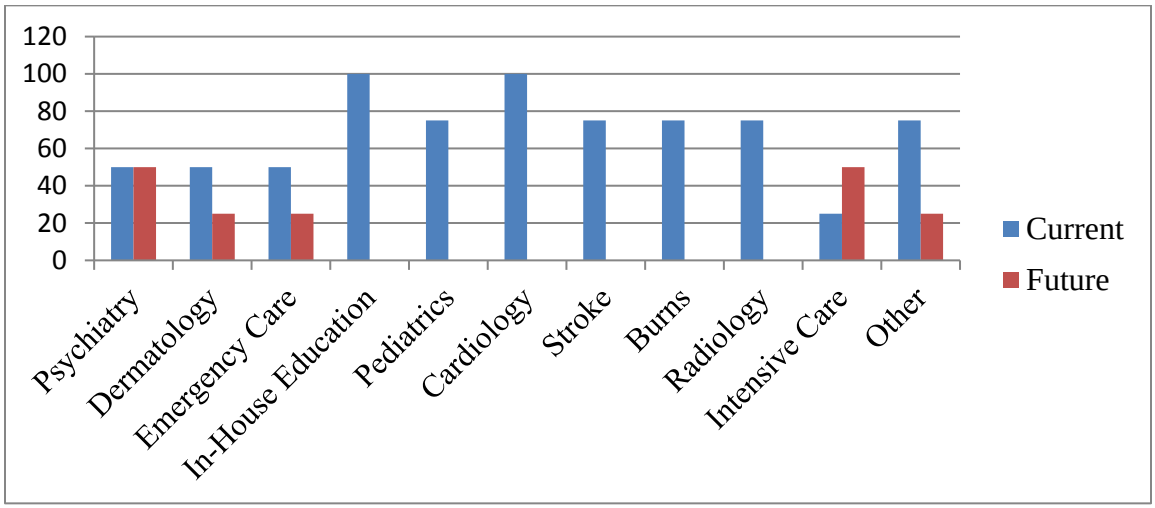


Figure 2. Urban Community Hospital Telehealth Applications.

When asked specifically about telehealth implementation, the majority of CAH respondents indicated that specialist availability (40%) was a major barrier to implementation of services followed by cost of equipment (30%), provider buy-in (10%), billing and reimbursement (10%), and other/applicability (10%). Conversely, when asked about telehealth sustainability, CAH respondents indicated provider buy-in (45%) as a major barrier to sustainability of telehealth services, followed by billing and reimbursement (27%), specialist availability (18%) and cost of equipment (10%). See Figure 3.

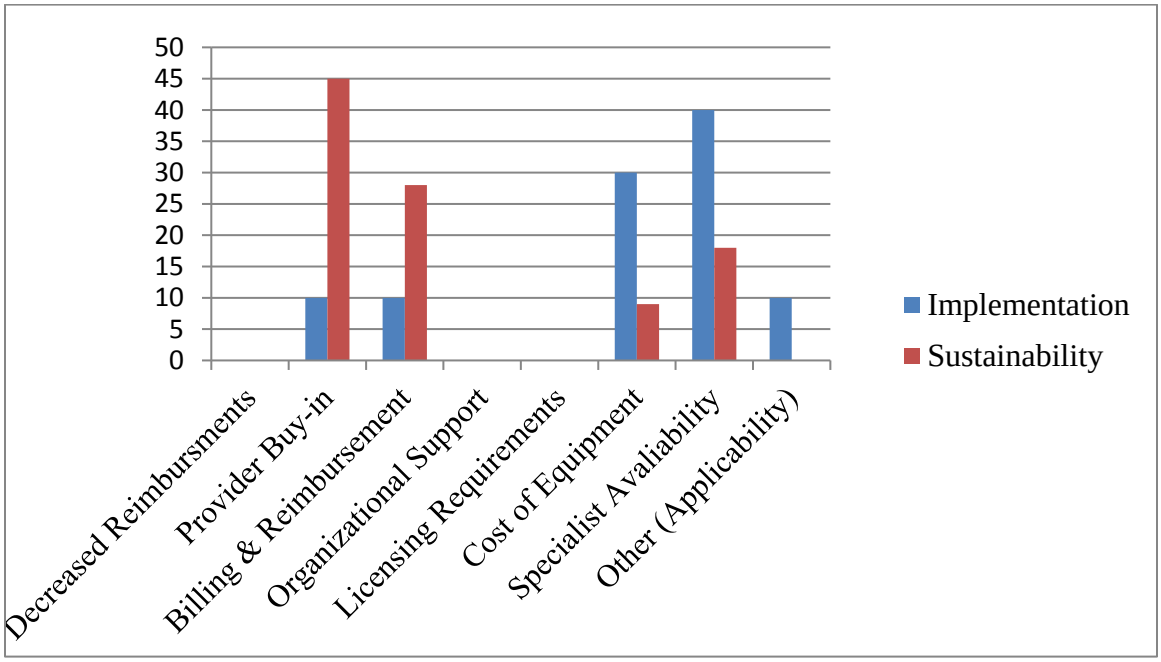


Figure 3. CAH Barriers to Telehealth.

When asked about telehealth implementation, urban community hospitals indicated specialist availability (50%) and provider buy-in (50%) as major barriers. In contrast, when asked about the sustainability of telehealth, the urban community respondents each selected different barriers: billing and reimbursement (33%), organizational support (33%), and other/integrating telehealth into providers' schedules (33%). See Figure 4.

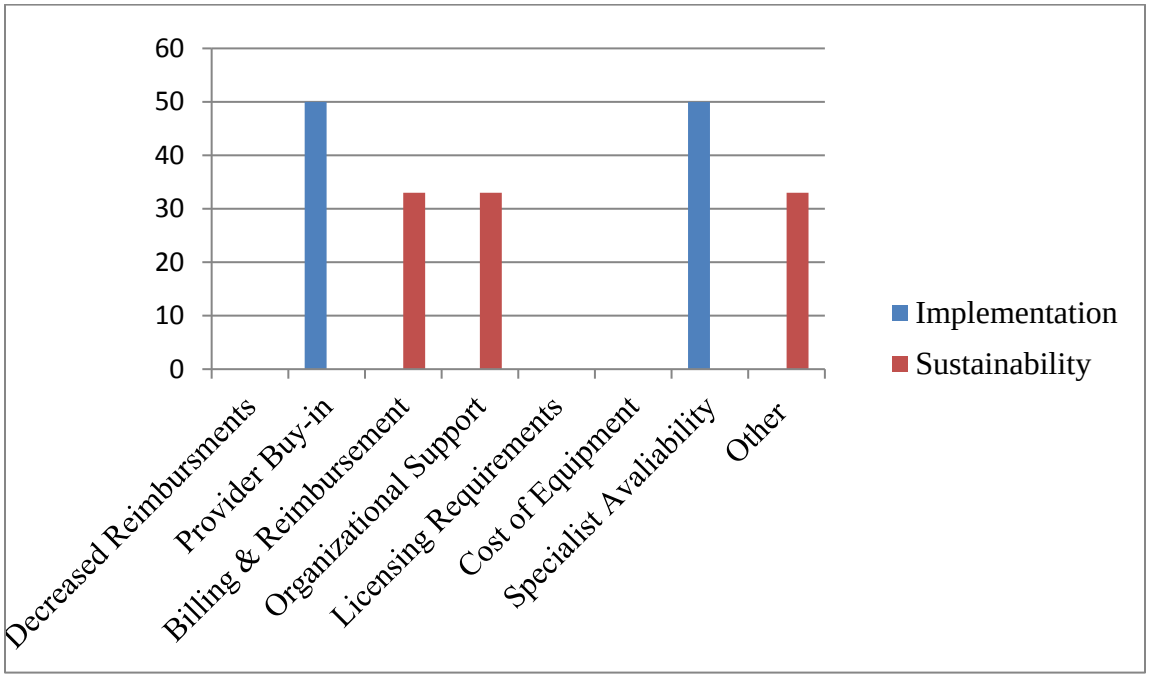


Figure 4. Urban Community Hospital Barriers to Telehealth

The primary concern for CAHs regarding reimbursement for telehealth services was lower rate of reimbursement for telehealth versus in person care (50%), followed by too few services covered by Medicare (37.5%), and other/reimbursement as the originating site (12.5%). In contrast, urban community hospitals reported their primary concern regarding reimbursement of telehealth services was that Medicare covers too few services (66.7%) followed by Medicare reimburses too few provider types (33.3%).

Amongst the CAH respondents, the most significant issue within the organization regarding provider acceptance of telehealth was selected equally between ensuring providers believe telehealth is a credible and high-quality supplement to their practice (50%) and ensuring providers feel confident that the telehealth system will be reliable when needed (50%). Of the three urban community hospital respondents for this

particular question, each selected a different issue within their organization regarding provider acceptance of telehealth: ensuring providers feel adequately compensated when using telehealth in their practice (33%), ensuring providers believe telehealth is a credible and high-quality supplement to their practice (33%), and ensuring providers feel confident that the telehealth system will be reliable when needed (33%).

When asked about cultural barriers to telehealth in rank order format, CAH respondents' most prevalent cultural barrier by average rank (1 being greatest concern) was that patients do not like telehealth (2.4), followed by providers lack incentive to use telehealth (2.8), providers do not like telehealth (3.2), telehealth is seen as loss of control (4.4), nurses do not like telehealth (4.4), and telehealth is seen as a threat (4.7). Of the urban community hospital respondents, only 2 responded which was insufficient to analyze in a meaningful way.

Regarding technological barriers to implementation and use of telehealth, CAH respondents' most concerning barrier by average rank was useability, followed by internet connectivity, reliability, documentation and billing, remote data access, and technical support. For technological barriers regarding sustainability of telehealth, CAH respondents selected the same order with the exception of technical support before remote data access. Of the urban community hospital respondents, only 2 responded which was insufficient to analyze in a meaningful way.

CAHs reported the most concerning regulatory barrier to telehealth use in rank order was government reimbursement (2.1), followed by non-government reimbursement (3.4), credentialing (3.4), malpractice (3.7), useability (3.7), and DEA licensing (4.7).

Only 1 urban community hospital responded to this question which was insufficient to analyze; however, the respondent selected a similar rank order as the CAHs respondents.

When asked about what limits telehealth success within their organization, CAHs respondents indicated system reliability (16.7%), inability to bill for services rendered (16.7%), patient quality of care issues (16.7%), and lack of effective leadership (16.7%), followed by equipment cost (8.3%), lack of understanding of telehealth capabilities (8.3%), lack of experience using telehealth (8.3%), and limited access to practitioners outside the community who will utilize telehealth in their practice (8.3%). Urban community hospitals indicated lack of understanding of telehealth capabilities (33%), lack of experience using telehealth (33%), and lack of staff (33%) all limited telehealth success within their organizations.

The doctoral student presented a review of the literature about emergency telehealth use and the preliminary survey results in a PowerPoint presentation in July 2016 to the MT DPHHS's stroke workgroup. A report was published in the Montana PULSE to increase awareness of the current state of emergency telehealth use along with state-specific perceived barriers to the implementation and use of emergency telehealth in MT. Findings from this project were shared with the Montana Hospital Association and the Rural Telehealth Research Center to inform policy initiatives and practice changes regarding the use of emergency telehealth in Montana.

CHAPTER 5

DISCUSSION

Overall, this survey unveiled useful information about telehealth use in Montana including a strong and continued demand for telehealth services across the state. As 15% of CAH respondents and only 50% of urban hospital respondents reported mature telehealth programs, there is tremendous room for development of future services that can benefit the citizens of Montana.

The top reasons for implementation of telehealth services for both types of hospitals consisted of: improved quality of care; increased -access to specialty services; and a desire to decrease healthcare costs, showing a clear patient-centered demand for telehealth services across Montana. Through a national survey of healthcare leaders, Foley and Larder also found improving quality of care for patients was a primary motivation for implementing telehealth programs (2014).

Montana is ahead of national findings for having telehealth practice guidelines in place. The majority of CAH and urban community hospital respondents reported having telehealth guidelines in place, 89% and 100% respectively; compared to only 51% reported by Foley and Lardner (2014).

A study by Foley and Lardner (2014) found 90% of respondents used at least one form of telehealth, revealing that Montana's telehealth use (88%) is in line with national standards. Conversely, national telehealth utilization rates of 33% derived from the 2013 HIMSS database show that Montana appears to be ahead of the national average as 88%

of hospital respondents reported use of telehealth services. Similar to the HIMSS database analysis, Montana's rural hospitals were more likely to have services in emergency care and radiology compared to urban hospitals that were more likely to have services in cardiology and stroke (Ward, Ullrich, & Mueller, 2014). Interestingly, rural hospitals were also more likely to have psychiatry telehealth services equal to those of radiology (40%).

Emergency telehealth is the second most utilized service after in-house education in Montana's CAHs with a large projected growth in other critical care areas such as stroke, intensive care unit, and burns. Rural emergency care is complicated by time from injury to discovery, geographic isolation, distances to health care, and limited specialty resources making development and access of emergency telehealth services imperative for rural Montanans (DPHHS, 2012).

The top perceived barrier for implementation of telehealth services amongst CAHs and urban community hospitals was lack of specialist availability, indicating yet another health care professional shortage issue within in the state. Such findings suggest a need for increased recruitment and retention of specialist providers throughout the state to help fill this void. Other rural states that have successfully implemented emergency telehealth programs such as Mississippi could be consulted on the issue for future recommendations. Connecting to out of state specialty providers via telehealth and emergency telehealth could also combat these deficits.

Survey respondents indicated provider buy-in was a major perceived barrier in telehealth sustainability for CAHs and telehealth implementation for urban community

hospitals; demonstrating possible benefit of telehealth education and training programs geared toward providers. Furthermore, based off responses regarding provider acceptance by CAHs these programs should illustrate the credibility, quality, and reliability of emergency telehealth through real examples and testimony from other providers using such programs.

A common theme throughout both national surveys and Montana's survey results was reimbursement issues. Such responses on telehealth reimbursement and its negative impact on use and sustainability have major implications for future legislation if this technology is to succeed and continue providing benefits for rural Americans.

Montana's CAH respondents reported lower rates of reimbursement versus in person care as their primary reimbursement concern and urban community hospital respondents reported Medicare covers too few services. In contrast, Foley and Lardener's national survey found 41% of respondents received no reimbursement for telehealth services at all (2014).

Regarding cultural barriers, Montana's CAH respondents indicated a top barrier of patients not liking telehealth in contrast to Rogove, McArthur & Demaerschalk's study which found that specific barrier to be of lowest concern; however, the CAH respondents selected lack of provider incentive as a close second which was Rogove's top cultural barrier within the national survey (2012). The finding of patients not liking telehealth comes as a surprise as the majority of hospitals surveyed indicated improving quality of patient care was the top reason for implementing telehealth services. As the top perceived cultural barrier was patients do not like telehealth, it would be pertinent to further explore

this idea. Perhaps a patient-consumer survey could elucidate these findings and shed light on appropriate interventions to ensure patient confidence in this technology.

Top technological barriers selected by CAHs respondents were useability and internet connectivity which is in contrast to Rogove's national findings of documentation and billing, and remote data access (Rogove, et. al, 2012). Remarkably, both surveys revealed reliability as the third most concerning technological barrier to telehealth use.

Regulatory barriers reported by CAHs were closely in line to Rogove's national study with non-government reimbursement as the top concern (Rogove, et. al, 2012). The two survey findings differed in that the national findings ranked credentialing as number 2 and non-government reimbursement as number 3 versus Montana's choosing of non-government reimbursement then credentialing. Both surveys found malpractice ranked 4th and DEA licensing was of least concern.

Montana's respondents indicated a variety of top factors that hamper telehealth success; however, inability to bill for services was also a top reason in the Rogrove national study which implies a need to create additional state-specific legislation to ease this barrier and promote more widespread use of telehealth across a state with such expanse geologic and resource barriers.

Limitations

Due to the response rate of 26%, many hospitals were not included in the survey and therefore it is uncertain whether the results of the survey are entirely representative of the state as a whole. Average online survey response rates are approximately 33% versus

surveys handed out in person 56% (Nulty, 2008). As it was not feasible for the graduate student to travel to each hospital across the state, other methods could have been employed to boost response rates such telephone reminders and incentives to respondents awarded through a lottery (Nulty, 2008). In addition, towards the end of the survey, not all of the urban community hospitals continued the survey which further skewed percentage responses.

The rank order questions regarding technological, regulatory, and cultural barriers to telehealth were not easily interpreted and could have been reformatted into a multiple choice question format for better results and perhaps better response rates from the urban community hospital respondents.

Implications

It is clear the demand for telehealth and emergency telehealth services is prevalent across the state; however there are a variety of barriers to overcome before full benefits from this technology can be realized. Rogers' Theory on Diffusion of Innovations can be utilized to help understand and work through the above-mentioned barriers.

Overlapping elements of the theory consist of the innovation, communication channels, social systems, and time; all which need to be capitalized on for successful implementation. In addition, an organization must go through the five main steps of knowledge, persuasion, decision, implementation, and confirmation for full implementation and sustainability of an innovation (Haider & Krepps, 2001). The knowledge of the benefits of emergency telehealth is apparent and has been replicated by

other rural states including Mississippi and Arizona (Henderson, et. al, 2014) (Latifi,et. al, 2009). The decision to pursue emergency telehealth is evidenced by over half of all hospital respondents reporting current use; however, the persuasion piece may be lacking as indicated by provider buy-in as a major perceived barrier to telehealth implementation and continued sustainability for both hospital respondent types. Both hospital types have implemented a variety of telehealth applications and it appears the final step is continued confirmation of the improved outcomes this technology can bring to rural Montanans in resource-limited settings.

Understanding the Rural Nursing Theory confirms the benefits and need for emergency telehealth services in Montana as this technology helps to reduce the burdens of inferior health care access by connecting rural providers in resource-limited areas to specialty providers for expert consultation in crisis situations (Duchesne, et. al, 2008, p.92). Many of Montana's frontline providers are NPs in CAHs; often having limited local resources while being expected to function as expert generalists (Winters, et. al, 2010).

Specifically, the concepts of role diffusion and availability of resources are entrenched in the rural healthcare setting. Characteristics of Montana such as longer travel distances, fewer health care providers, decreased specialists, and healthcare facilities with limited scopes of service contribute to disparities in access and further compound these concepts (UNCC, 2013, p.1). Pressures of role diffusion can be alleviated through immediate access to a variety of experts for consultation in emergency and life-saving situations. In addition, frontline providers can immediately expand their

resources and specialty knowledge by connecting via emergency telehealth for consultation and facilitate improved continuity of care to a higher level if needed.

Emergency telehealth is a vital technology that directly impacts the health of Montana's citizens through decision support and integration of care between all phases of treatment for the rural emergency patient (Bjorn, 2012). Benefits of emergency telehealth include decreased discrepancies in care, enhanced skills for local providers and staff, improved patient outcomes, decreased unnecessary costs, and improved recruitment and retention of providers (Mueller, Potter, MacKinney & Ward, 2014).

Through the findings of this project, it is clear that emergency telehealth is a growing service across Montana. Top perceived barriers to implementation and sustainability of telehealth services consisted of lack of specialist availability and provider buy-in. In addition, the most concerning regulatory barrier to telehealth use was government reimbursement. These findings warrant further investigation and state-specific initiatives to promote emergency telehealth use and its continued success.

APPENDICES

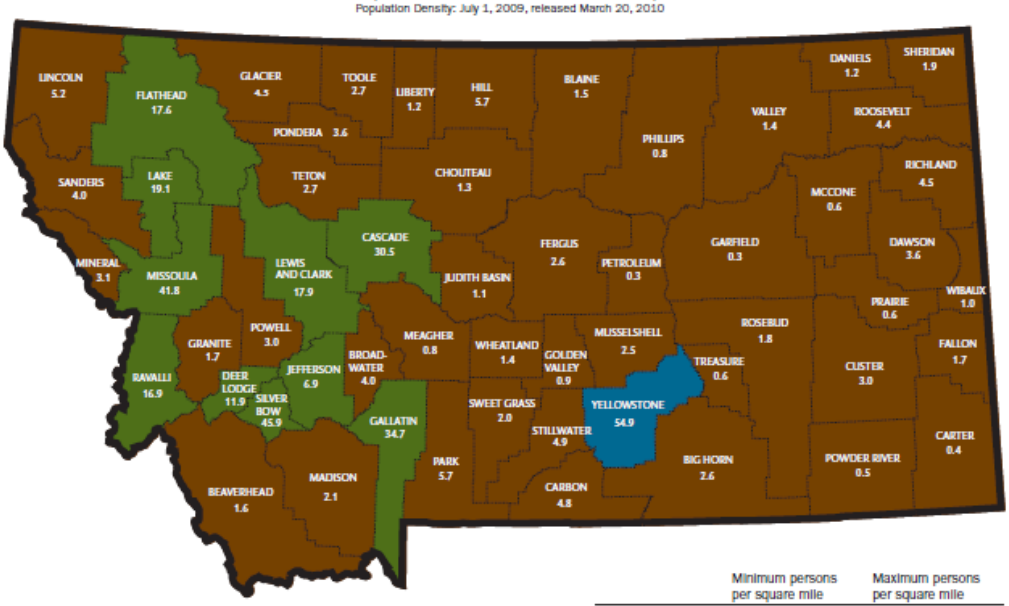
APPENDIX A

MONTANA URBAN, RURAL, AND FRONTIER COUNTIES MAP #37

Montana Urban, Rural and Frontier Counties[155]

Map # 37

Source: Population Division, US Census Bureau, Estimates of Population – Population Density: July 1, 2009, released March 20, 2010



	Minimum persons per square mile	Maximum persons per square mile
Urban	more than 50	none
Rural	more than 6	fewer than 50
Frontier	none	6 or fewer

MONTANA STATE UNIVERSITY | Office of Rural Health
Area Health Education Center

APPENDIX B

DHHS TELEHEALTH SERVICES RURAL HEALTH FACT CHEET SERIES

DEPARTMENT OF HEALTH AND HUMAN SERVICES
Centers for Medicare & Medicaid Services

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Telehealth Services

RURAL HEALTH FACT SHEET SERIES

Please note: The information in this publication applies only to the Medicare Fee-For-Service Program (also known as Original Medicare).

This publication provides the following information on calendar year (CY) 2015 Medicare telehealth services:

- Originating sites;
- Distant site practitioners;
- Telehealth services;
- Billing and payment for professional services furnished via telehealth;
- Billing and payment for the originating site facility fee;
- Resources; and
- Lists of helpful websites and Regional Office Rural Health Coordinators.

When "you" is used in this publication, we are referring to physicians or practitioners at the distant site.

Medicare pays for a limited number of Part B services furnished by a physician or practitioner to an eligible beneficiary via a telecommunications system. For eligible telehealth services, the use of a telecommunications system substitutes for an in-person encounter.

ORIGINATING SITES

An originating site is the location of an eligible Medicare beneficiary at the time the service furnished via a telecommunications system occurs. Medicare beneficiaries are eligible for telehealth services only if they are presented from an originating site located in:

- A rural Health Professional Shortage Area (HPSA) located either outside of a Metropolitan Statistical Area (MSA) or in a rural census tract; or
- A county outside of a MSA.

ICN 901705 December 2014

The Health Resources and Services Administration (HRSA) determines HPSAs, and the United States (U.S.) Census Bureau determines MSAs. You can access HRSA's website tool to determine a potential originating site's eligibility for Medicare telehealth payment at http://www.cms.gov/Medicare/Medicare-General-Information/Telehealth on the Centers for Medicare & Medicaid Services (CMS) website.

Entities that participate in a Federal telemedicine demonstration project approved by (or receiving funding from) the Secretary of the Department of Health and Human Services as of December 31, 2000, qualify as originating sites regardless of geographic location.

Each CY, the geographic eligibility of an originating site is established based on the status of the area as of December 31st of the prior calendar year, and such eligibility continues for the full CY.

The originating sites authorized by law are:

- ❖ The offices of physicians or practitioners;
- ❖ Hospitals;
- ❖ Critical Access Hospitals (CAH);
- ❖ Rural Health Clinics;
- ❖ Federally Qualified Health Centers;
- ❖ Hospital-based or CAH-based Renal Dialysis Centers (including satellites);
- ❖ Skilled Nursing Facilities (SNF); and
- ❖ Community Mental Health Centers (CMHC).

Note: Independent Renal Dialysis Facilities are not eligible originating sites.

DISTANT SITE PRACTITIONERS

Practitioners at the distant site who may furnish and receive payment for covered telehealth services (subject to State law) are:

- ❖ Physicians;
- ❖ Nurse practitioners (NP);
- ❖ Physician assistants (PA);
- ❖ Nurse-midwives;
- ❖ Clinical nurse specialists (CNS);
- ❖ Certified registered nurse anesthetists;

- ❖ Clinical psychologists (CP) and clinical social workers (CSW). CPs and CSWs cannot bill for psychiatric diagnostic interview examinations with medical services or medical evaluation and management services under Medicare. These practitioners may not bill or receive payment for Current Procedural Terminology (CPT) codes 90792, 90833, 90836, and 90838; and
- ❖ Registered dietitians or nutrition professionals.

TELEHEALTH SERVICES

As a condition of payment, you must use an interactive audio and video telecommunications system that permits real-time communication between you, at the distant site, and the beneficiary, at the originating site. Asynchronous "store and forward" technology is permitted only in Federal telemedicine demonstration programs conducted in Alaska or Hawaii.

The chart on pages 3 and 4 provides the CY 2015 list of Medicare telehealth services.

CY 2015 Medicare Telehealth Services

Service	Healthcare Common Procedure Coding System (HCPCS)/CPT Code
Telehealth consultations, emergency department or initial inpatient	HCPCS codes G0425–G0427
Follow-up inpatient telehealth consultations furnished to beneficiaries in hospitals or SNFs	HCPCS codes G0406–G0408
Office or other outpatient visits	CPT codes 99201–99215
Subsequent hospital care services, with the limitation of 1 telehealth visit every 3 days	CPT codes 99231–99233
Subsequent nursing facility care services, with the limitation of 1 telehealth visit every 30 days	CPT codes 99307–99310
Individual and group kidney disease education services	HCPCS codes G0420 and G0421
Individual and group diabetes self-management training services, with a minimum of 1 hour of in-person instruction to be furnished in the initial year training period to ensure effective injection training	HCPCS codes G0108 and G0109
Individual and group health and behavior assessment and intervention	CPT codes 96150–96154
Individual psychotherapy	CPT codes 90832–90834 and 90836–90838
Telehealth Pharmacologic Management	HCPCS code G0459
Psychiatric diagnostic interview examination	CPT codes 90791 and 90792
End-Stage Renal Disease (ESRD)-related services included in the monthly capitation payment	CPT codes 90951, 90952, 90954, 90955, 90957, 90958, 90960, and 90961
Individual and group medical nutrition therapy	HCPCS code G0270 and CPT codes 97802–97804
Neurobehavioral status examination	CPT code 96116
Smoking cessation services	HCPCS codes G0436 and G0437 and CPT codes 99406 and 99407
Alcohol and/or substance (other than tobacco) abuse structured assessment and intervention services	HCPCS codes G0396 and G0397
Annual alcohol misuse screening, 15 minutes	HCPCS code G0442
Brief face-to-face behavioral counseling for alcohol misuse, 15 minutes	HCPCS code G0443
Annual depression screening, 15 minutes	HCPCS code G0444
High-intensity behavioral counseling to prevent sexually transmitted infection; face-to-face, individual, includes: education, skills training and guidance on how to change sexual behavior; performed semi-annually, 30 minutes	HCPCS code G0445
Annual, face-to-face intensive behavioral therapy for cardiovascular disease, individual, 15 minutes	HCPCS code G0446
Face-to-face behavioral counseling for obesity, 15 minutes	HCPCS code G0447
Transitional care management services with moderate medical decision complexity (face-to-face visit within 14 days of discharge)	CPT code 99495
Transitional care management services with high medical decision complexity (face-to-face visit within 7 days of discharge)	CPT code 99496
Psychoanalysis (effective for services furnished on and after January 1, 2015)	CPT codes 90845
Family psychotherapy (without the patient present) (effective for services furnished on and after January 1, 2015)	CPT code 90846

CY 2015 Medicare Telehealth Services (cont.)

Service	Healthcare Common Procedure Coding System (HCPCS)/CPT Code
Family psychotherapy (conjoint psychotherapy) (with patient present) (effective for services furnished on and after January 1, 2015)	CPT code 90847
Prolonged service in the office or other outpatient setting requiring direct patient contact beyond the usual service; first hour (effective for services furnished on and after January 1, 2015)	CPT code 99354
Prolonged service in the office or other outpatient setting requiring direct patient contact beyond the usual service; each additional 30 minutes (effective for services furnished on and after January 1, 2015)	CPT code 99355
Annual Wellness Visit, includes a personalized prevention plan of service (PPPS) first visit (effective for services furnished on and after January 1, 2015)	HCPCS code G0438
Annual Wellness Visit, includes a personalized prevention plan of service (PPPS) subsequent visit (effective for services furnished on and after January 1, 2015)	HCPCS code G0439

For ESRD-related services, a physician, NP, PA, or CNS must furnish at least one "hands on" visit (not telehealth) each month to examine the vascular access site.

BILLING AND PAYMENT FOR PROFESSIONAL SERVICES FURNISHED VIA TELEHEALTH

You should submit claims for telehealth services using the appropriate CPT or HCPCS code for the professional service along with the telehealth modifier GT, "via interactive audio and video telecommunications systems" (for example, 99201 GT). By coding and billing the GT modifier with a covered telehealth procedure code, you are certifying that the beneficiary was present at an eligible originating site when you furnished the telehealth service. By coding and billing the GT modifier with a covered ESRD-related service telehealth code, you are certifying that you furnished one "hands on" visit per month to examine the vascular access site.

For Federal telemedicine demonstration programs conducted in Alaska or Hawaii, you should submit claims using the appropriate CPT or HCPCS code for the professional service along with the telehealth modifier GQ if you performed telehealth services "via an asynchronous telecommunications system" (for example, 99201 GQ). By using the GQ modifier, you are certifying that the asynchronous medical file was collected and transmitted to you at the distant site from a Federal telemedicine demonstration project conducted in Alaska or Hawaii.

You should bill the Medicare Administrative Contractor (MAC) for covered telehealth services. Medicare pays you the appropriate amount under the Medicare Physician Fee Schedule (PFS) for telehealth services. When you are located in a CAH and have reassigned your billing rights to a CAH that has elected the Optional Payment Method, the CAH bills the MAC for telehealth services and the payment amount is 80 percent of the Medicare PFS for telehealth services.

BILLING AND PAYMENT FOR THE ORIGINATING SITE FACILITY FEE

Originating sites are paid an originating site facility fee for telehealth services as described by HCPCS code Q3014. You should bill the MAC for the originating site facility fee, which is a separately billable Part B payment.

Note: When a CMHC serves as an originating site, the originating site facility fee does not count toward the number of services used to determine payment for partial hospitalization services.

RESOURCES

The chart below provides telehealth services resource information.

Telehealth Services Resources

For More Information About...	Resource
Telehealth Services	http://www.cms.gov/Medicare/Medicare-General-Information/Telehealth on the CMS website Chapter 15 of the "Medicare Benefit Policy Manual" (Publication 100-02) located at http://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals/Downloads/bp102c15.pdf on the CMS website Chapter 12 of the "Medicare Claims Processing Manual" (Publication 100-04) located at http://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals/Downloads/clm104c12.pdf on the CMS website
Health Professional Shortage Areas	Medicare Learning Network® (MLN) publication titled "Health Professional Shortage Area (HPSA) Physician Bonus, HPSA Surgical Incentive Payment, and Primary Care Incentive Payment Programs" located at http://www.cms.gov/Outreach-and-Education/Medicare-Learning-Network-MLN/MLNProducts/Downloads/HPSAfctsht.pdf on the CMS website
All Available MLN Products	"MLN Catalog" located at http://www.cms.gov/Outreach-and-Education/Medicare-Learning-Network-MLN/MLNProducts/Downloads/MLNCatalog.pdf on the CMS website or scan the Quick Response (QR) code on the right
Provider-Specific Medicare Information	MLN publication titled "MLN Guided Pathways: Provider Specific Medicare Resources" located at http://www.cms.gov/Outreach-and-Education/Medicare-Learning-Network-MLN/MLNEdWebGuide/Downloads/Guided_Pathways_Provider_Specific_Booklet.pdf on the CMS website
Medicare Information for Beneficiaries	http://www.medicare.gov on the CMS website

HELPFUL WEBSITES

American Hospital Association Rural Health Care
http://www.aha.org/advocacy-issues/rural

Critical Access Hospitals Center
http://www.cms.gov/Center/Provider-Type/Critical-Access-Hospitals-Center.html

Disproportionate Share Hospital
http://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/AcuteInpatientPPS/dsh.html

Federally Qualified Health Centers Center
http://www.cms.gov/Center/Provider-Type/Federally-Qualified-Health-Centers-FQHC-Center.html

Health Resources and Services Administration
http://www.hrsa.gov

Hospital Center
http://www.cms.gov/Center/Provider-Type/Hospital-Center.html

Medicare Learning Network®
http://go.cms.gov/MLNGenInfo

National Association of Community Health Centers
http://www.nachc.org

National Association of Rural Health Clinics
http://narhc.org

National Rural Health Association
http://www.ruralhealthweb.org

Rural Assistance Center
http://www.raconline.org

Rural Health Clinics Center
http://www.cms.gov/Center/Provider-Type/Rural-Health-Clinics-Center.html

Swing Bed Providers
http://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/SNFPPS/SwingBed.html

Telehealth
http://www.cms.gov/Medicare/Medicare-General-Information/Telehealth

U.S. Census Bureau
http://www.census.gov

REGIONAL OFFICE RURAL HEALTH COORDINATORS

To find contact information for CMS Regional Office Rural Health Coordinators who provide technical, policy, and operational assistance on rural health issues, refer to http://www.cms.gov/Outreach-and-Education/Outreach/OpenDoorForums/Downloads/CMSRuralHealthCoordinators.pdf on the CMS website.

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APPENDIX C

TELEHEALTH SURVEY

Current use and perceived barriers to telehealth use in Montana - final

Q1 What is your role within the organization

- ❍ CEO
- ❍ CNO
- ❍ Medical provider
- ❍ IT
- ❍ Other _____

Q2 Does your organization currently use any form of telehealth?

- ❍ yes
- ❍ no

Q3 Is your organization interested in using telehealth in the future?

- ❍ yes
- ❍ no

Q4 How would you classify your organization?

- ❍ critical access hospital
- ❍ rural community hospital
- ❍ urban community hospital
- ❍ other _____

Q5 How would you categorize the telehealth program within your organization?

- ❍ no telehealth
- ❍ under consideration
- ❍ in development
- ❍ pilot stage
- ❍ implementation
- ❍ optimization phase
- ❍ mature
- ❍ n/a

Q6 What type of telehealth does your facility currently have? (select all that apply)

- ❑ store and forward
- ❑ remote monitoring
- ❑ real time interactive
- ❑ mobile health (patient portal/access)

Q7 What telehealth network(s) is your organization currently affiliated with? (select all that apply)

- ❑ Eastern Montana Telemedicine Network
- ❑ Partners in Telemedicine Network
- ❑ REACH Montana Telehealth Network
- ❑ Western Montana Telehealth Network
- ❑ Montana Telestroke Network
- ❑ Avera
- ❑ Other _____
- ❑ n/a

Q8 What type of system does your hospital employ? (e.g. InTouch, Polycom, etc.)

- ❍ Click to write Choice 1 _____
- ❍ n/a

Q9 What type of internet connection does your hospital utilize to operate telehealth?

- ❍ DSL
- ❍ cable
- ❍ satellite
- ❍ fiber optics
- ❍ other _____
- ❍ n/a

Q10 What type(s) of telehealth applications are your telemedicine programs assisting with? (select all that apply)

- ❑ psychiatry
- ❑ dermatology
- ❑ emergency care
- ❑ in-house education
- ❑ pediatrics
- ❑ cardiology
- ❑ stroke
- ❑ burns
- ❑ radiology
- ❑ intensive care
- ❑ other _____
- ❑ n/a

Q11 What type(s) of telehealth applications is your organization interested in for future development ? (select all that apply)

- ❑ psychiatry
- ❑ dermatology
- ❑ emergency care
- ❑ in-house education
- ❑ pediatrics
- ❑ cardiology
- ❑ stroke
- ❑ burns
- ❑ radiology
- ❑ intensive care
- ❑ other _____
- ❑ n/a

Q12 Are you able to use your telehealth equipment across applications? (e.g. stroke and burns)

- ❍ yes
- ❍ no
- ❍ n/a

Q13 Is your system portable?

- ❍ yes
- ❍ no
- ❍ n/a

Q14 What is your organization's primary reason for implementing telehealth?

- ❍ improved quality of care
- ❍ increased revenue/profitability
- ❍ reaching new patients
- ❍ competition advantage
- ❍ research/academics
- ❍ operational efficiency and oversight
- ❍ other _____
- ❍ n/a

Q15 In your facility, how is the development of telehealth perceived?

- unimportant
- neutral
- important
- very important

Q16 What is the primary obstacle to implementation of telehealth services in your organization?

- decreased reimbursement for telehealth services
- provider buy-in
- billing and reimbursement for telehealth services
- organizational support
- licensing requirements
- cost of equipment
- specialist availability
- other _____
- n/a

Q17 What is the primary obstacle to sustainability of telehealth services in your organization?

- decreased reimbursement for telehealth services
- provider buy-in
- billing and reimbursement for telehealth services
- organizational support
- licensing requirements
- cost of equipment
- specialist availability
- other _____
- n/a

Q18 Does your organization currently have guidelines in place for practicing telehealth?

- yes
- no
- n/a

Q19 What is the primary concern in your facility regarding reimbursement of telehealth services?

- ❍ CMS reimbursement limited to only live video telehealth services
- ❍ lower rate of reimbursement for telehealth versus in person care
- ❍ Medicare covers too few services
- ❍ Medicare reimburses too few provider types
- ❍ other _____
- ❍ n/a

Q20 Which of the following issues is most significant within your organization regarding provider acceptance of telehealth?

- ❍ ensuring providers feel adequately compensated when using telehealth in their practice
- ❍ ensuring providers believe telehealth is a credible and high-quality supplement to their practice
- ❍ ensuring providers devote adequate time training for the telehealth technology
- ❍ ensuring providers feel confident that the telehealth system will be reliable when needed
- ❍ other _____
- ❍ n/a

Q21 What type of cultural barriers to telehealth are most prevalent within your organization? (please rank 1 to 6 with 1 being greatest concern)

_____ patients do not like telehealth
_____ providers do not like telehealth
_____ nurses do not like telehealth
_____ telehealth seen as a threat
_____ telehealth seen as loss of local control
_____ providers lack incentive to use telehealth
_____ other

Q22 Regarding the implementation of telehealth, which technological barriers are most concerning for your organization (please rank 1 to 6 with 1 being greatest concern)

_____ useability
_____ reliability
_____ internet connectivity
_____ remote data access
_____ technical support
_____ documentation and billing

Q23 Regarding the use of telehealth, which technological barriers are most concerning for your organization (please rank 1 to 6 with 1 being greatest concern, if n/a do not answer and proceed to next question)

_____ useability
_____ reliability
_____ internet connectivity
_____ remote data access
_____ technical support
_____ documentation and billing

Q24 Regarding the sustainability of telehealth, which technological barriers are most concerning for your organization (please rank 1 to 6 with 1 being greatest concern, if n/a do not answer and proceed to next question)

_____ useability
_____ reliability
_____ internet connectivity
_____ remote data access
_____ technical support
_____ documentation and billing

Q25 Regarding telehealth, which regulatory barriers are most concerning for your organization (please rank 1 to 6 with being greatest concern)

_____ useability
_____ malpractice liability
_____ credentialing
_____ government reimbursement
_____ non-government reimbursement
_____ DEA licensing

Q26 Telehealth success in my organization is primarily hampered by

- ❍ equipment cost
- ❍ system reliability
- ❍ lack of understanding telehealth capabilities
- ❍ lack of experience using telehealth
- ❍ inability to bill for services rendered
- ❍ medico-legal issues
- ❍ patient quality of care issues
- ❍ lack of effective telehealth leadership
- ❍ other _____

APPENDIX D

COVER LETTER

To: Whom it may concern

From: Kristen Beck, RN, DNP student

Date: 4/15/2016

Subject: Current Use and Perceived Barriers to Telehealth Use in Montana

I am currently in my third year of the Doctorate of Nursing Practice, Nurse Practitioner program at Montana State University. For my capstone project I am exploring the use of emergency telehealth and perceived barriers to its implementation within Montana. Emergency telehealth has proven to improve outcomes and reduce costs from unnecessary transfers in other states. Due to the lack of available current literature examining Montana's use of telehealth, this project was designed to evaluate current use patterns and perceived barriers to utilization of such technology. I have enclosed a survey to assess your hospital's current telehealth use, future telehealth plans, and the perceived barriers within your organization to implementing and sustaining such services. This 26 question survey should take no longer than 15 minutes to complete. Participation is voluntary, you may stop at any time, and you may choose not to answer any questions you do not want to answer. Your participation in this survey is very much appreciated and your responses will remain confidential. Once the survey is completed the responses will automatically be sent to Montana State University's Qualtrics survey system for analysis. Please complete this survey by 5/6/2016. A reminder email will be sent after two weeks.

Findings from this project will be disseminated through a formal report to the Montana Hospital Association and to the Rural Telehealth Research Center, in addition to presenting to the Montana Stroke workgroup in July 2016. If you would like to receive a report of the results or if you have any questions about the survey, please don't hesitate to contact me at kbbeck82@hotmail.com. You may also contact my primary advisor Dr. Charlene Winters at winters@montana.edu or Dr. Mark Quinn, chairperson of the Institutional Review Board at Montana State University, at mquinn@montana.edu.
Thank you for your time!
Kristen Beck, RN, BSN
808-283-2201
kbbeck82@hotmail.com

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