RURAL MONTANA: MOBILE HEALTH CLINICS

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ABSTRACT

Residents of rural areas are faced with many barriers when accessing health care. Fewer health care providers, longer wait times for appointments, availability of employment providing health insurance, weather and road conditions, as well as personality traits including strong wills, independence, and self-sufficiency are some of the barriers rural residents face. This study's purpose was to explore the potential benefits of a mobile health clinic providing primary care to rural residents. The research questions were: (a) how do the people of this rural community meet their health care needs, (b) what health care services are lacking in this community, (c) if a mobile health clinic came to this community, would rural residents utilize the services it will provide, (d) are there any specific health care services rural residents feel should be available through the mobile health clinic, and (e) do rural residents feel a mobile health clinic would be beneficial for them. Penchansky and Thomas' (1981) framework on the five dimensions of access, availability, accessibility, accommodation, affordability, and acceptability, guided the study.

Results revealed that, while the participants have access to health care, that access is approximately twenty miles away for basic health care services and approximately seventy miles away for tertiary care. Several participants states that due to the distance, they only sought health care in emergent situations and if they were sick. Eleven of the twelve participants believed that their community was lacking in access to health care. When asked if a mobile health clinic would be beneficial to their community, all twelve participants said yes. All but one participant stated that they would use the services a mobile health clinic would provide if it was available to them. Characteristics of a mobile health clinic that were reported as appealing included personality of the provider and staff, frequency of visits, and dependability. Unappealing or concerning characteristics included financing, inconsistency, and the health care provider's attitude toward patients. Implications and recommendations for practice include the need for further research on the use of mobile health clinics and how to maximize health care delivery in rural areas.

CHAPTER ONE

INTRODUCTION

Background and Significance

Access to quality health care services is the number one rural health priority among health care leaders and stakeholders in rural areas (Gamm, Castillo, & Pittman, 2003; Nelson & Gingerich, 2010). Many rural residents experience difficulty accessing health care due to unavailability of resources, travel distances, and transportation problems (Brems, Johnson, Warner, & Roberts, 2006). Some rural hospitals and health care facilities have struggled and even closed due to financial difficulties (Agency for Healthcare Research and Quality [AHRQ], 1996). When a rural hospital closes, rural residents are forced to travel long distances over rugged mountain roads to get to the nearest hospital (McGinnis, 2004). Community health resources have disappeared even as rural and frontier population's age, their need for primary care providers increases, and their need for episodic hospitalization increase (McGinnis, 2004). Less than adequate access to health care services is becoming a more significant problem with the downturn in the economy (Nelson & Gingerich, 2010).

The lack of access to and availability of health care services may lead to unmet health care needs and poor health care outcomes (Merwin, Snyder, & Katz, 2006). Galambos (2005) reported that rural counties have more motor vehicle collisions than urban counties, more teens and adults use tobacco products, and a higher percentage of people have little or no health insurance. Injury-related deaths are 40% higher in rural

areas than urban areas (Merwin, Snyder, & Katz, 2006). Residents of rural areas have higher poverty rates, tend to be older and in poorer health, have fewer doctors, hospitals and other health resources, and face more difficulty getting to health services (AHRQ, 1996).

Primary care providers in rural communities are often overworked, trying to see as many patients as possible in a day, and organizations in which they work are understaffed (Gamm, Castillo, & Pittman, 2003). Access to health care in rural areas is limited due to more health care providers per capita residing and practicing in urban areas—rural areas have fewer of all types of health care providers and even fewer in the more rural areas (Merwin, Snyder, & Katz, 2006). Merwin, Snyder, & Katz (2006) stated that nurse practitioners are more readily available in metropolitan areas than in nonmetropolitan areas and the number of physicians per capita in metropolitan areas versus nonmetropolitan areas is almost double. This shortage of providers can lead to increased difficulty getting appointments, longer time spent in the waiting room, and shorter, less personal visits with the provider. These, in turn, can lead to a decreased sense of well-being by the patient.

Undersupply of primary care providers may lead to increased rates of hospitalization (Gamm, Castillo, & Pittman, 2003). Delays in diagnosis and treatment that increase mortality may be attributable to poor access to primary care (Gamm, Castillo, & Pittman, 2003). National death rates of children and young adults are highest in rural counties (Nesbitt, Marcin, Daschbach, & Cole, 2005). Hospitalizations among both children and adult populations may decrease with faster treatment of chronic

conditions and better access to primary care providers. Better access to primary care may improve the overall health of rural populations through increased preventive health care, prenatal care, diabetes monitoring, and earlier diagnosis of cancers (Gamm, Castillo, & Pittman, 2003).

Montana is ranked third lowest in population density in a comparison of frontier states with 54.1% of the state's population considered to be living in frontier areas—only Alaska and Wyoming are more sparsely populated (National Center for Frontier Communities, 2009; Montana Department of Public Health and Human Services [MDPHHS], 2008). The MDPHHS classified counties as urban, rural, and frontier (2008). The 56 counties in Montana were classified as 45 frontier, 10 rural, and 1 urban. A frontier county is defined as one that has six or fewer people per square mile, a rural county as one that has more than six but fewer than fifty people per square mile, and urban as any county containing more than fifty people per square mile (MDPHHS, 2008).

The physical and social environments of rural and frontier communities also play a large part in the citizen's difficulty in accessing health care. The physical environments of these communities are often a barrier in that the geographical isolation requires longer distances to be traveled to reach health care. The weather also plays major a factor in a person's ability to access health care as the state of Montana is known for its harsh, cold winters. Extreme cold, wind, and precipitation can prevent a person from being able to get their vehicle to start, emergency air transport from being able to fly, and emergency personnel being able to reach the victim. Also part of the physical environment is the industry of the community and/or individual. According to Montana's official state

website (n.d.), agriculture is the primary industry. People who work in agriculture are known for enduring long work days and seasons. "We're dealing with farmers and poorer folk who live in the boonies and can't afford to take off a half-day or longer" (Meyer, 1998, para 3). The National Safety Council reports that agriculture is one of the most hazardous industries in the country (Rural Assistance Center [RAC], 2010). Both physical and psychological factors play a role in the health of those who work in agriculture—stress, toxic gases, hard physical labor, operating heavy machinery, and having to travel long distances to obtain health care are just a few of those factors (RAC, 2010).

The social environments of rural communities are unique. "Because rural cultures often place value on traits such as self-sufficiency and independence, rural residents may be less likely to seek professional care for health problems" (Merwin et al., 2006, p. 187). Long & Weinert (2010) reported that little emphasis is placed on the comfort, cosmetic, and life-prolonging aspects of health—one is viewed as healthy when able to function and be productive in one's work role. The ability to carry out normal role functions often affects rural residents' perceptions on the need to access health care services (Mayer, Slifkin, & Skinner, 2005).

Mobile health clinics have been used to provide primary health care to underserved and at risk populations (Alexy & Elnitsky, 1998). They are being used to provide mobile mammography, dentistry, mental health, and even emergency clinics during natural disasters like Hurricane Katrina. One "Rural Nurse Practitioner Mobile Health Unit" provided services at several rural sites and helped to increase the

availability of health care services (Alexy & Elnitsky, 1998). Through the use of mobile clinics, quality health care can be brought into even the most remote communities and comprehensive care can be provided to those who have the greatest difficulty accessing health care. "It could be the wave of the future in rural health care" (Meyer, 1998, para. 11). With much of Montana considered to be rural or frontier, the benefits of rural mobile health clinics may have the potential to reach far across the state. In addition, the number of people using local emergency departments as their source of primary care may decrease with the availability of mobile health clinics (Alexy & Elnitsky, 1998).

Purpose

The purpose of this study was to explore potential benefits of a mobile health clinic providing primary care to rural residents. To meet this purpose, answers to the following research questions were sought from residents of one rural town in Montana:

1. How do the people of this rural community meet their health care needs?
2. What health care services are lacking in this community?
3. If a mobile health clinic came to this community, would rural residents utilize the services it will provide?
4. Are there any specific health care services rural residents feel should be available through the mobile health clinic?
5. Do rural residents feel a mobile health clinic would be beneficial for them?

Definitions

Mobile Health Clinic—a recreational vehicle (RV), or similar type vehicle, that has been outfitted with equipment to serve as a health care office that is able to travel from community to community providing quality health care to the underserved rural and frontier people.

Frontier—a county having 6 or fewer people per square mile (MDPHHS, 2008).

Rural—a county having more than 6 but less than 50 people per square mile (MDPHHS, 2008).

Urban—a county having 50 or more people per square mile (MDPHHS, 2008).

Nurse Practitioner (NP)—"advanced practice nurses who provide high-quality healthcare services similar to those of a doctor. NPs diagnose and treat a wide range of health problems. They have a unique approach and stress both *care and cure*. Besides clinical care, NPs focus on health promotion, disease prevention, health education and counseling. They help patients make wise health and lifestyle choices. They are truly your Partners in Health" (AANP, 2007, para 1).

Access to care —"the timely use of personal health services to achieve the best possible health outcomes" per the Institute of Medicine (Gamm, Castillo, & Pittman, 2003, pg. 17)

Primary Care Providers—"are generalist allopathic and osteopathic physicians in family practice, general internal medicine, general pediatrics; and, for women, obstetrics-gynecology providing primary care services, as well as, physician assistants and nurse practitioners, and certified nurse midwives providing primary care services" (Gamm, Castillo, & Pittman, 2003, pg. 18).

Conceptual Framework

The conceptual framework guiding this study is based on access to care. The definition of access encompasses five dimensions defined by Penchansky and Thomas (1981). These five dimensions are central aspects of health policy and define the fit between a patient and the health care system (Penchansky & Thomas, 1981). Availability, accessibility, accommodation, affordability, and acceptability are interrelated and dependent on each other (Penchansky & Thomas, 1981). Penchansky and Thomas (1981) defined these five dimensions as follows:

> "Availability, the relationship of the volume and type of existing services (and resources) to the clients' volume and types of needs. It refers to the adequacy of the supply of physicians, dentists, and other providers; of facilities such as clinics and hospitals; and of specialized programs and services such as mental health and emergency care.
>
> Accessibility, the relationship between the location of supply and the location of clients, taking account of client transportation resources and travel time, distance and cost.
>
> Accommodation, the relationship between the manner in which the supply resources are organized to accept clients (including appointment systems, hours of operation, walk-in facilities, telephone services) and the clients' ability to accommodate to these factors and the clients' perception of their appropriateness.
>
> Affordability, the relationship of process of services and providers' insurance or deposit requirements to the clients' income, ability to pay, and existing health insurance. Client perception of worth relative to total cost is a concern here, as is clients knowledge of prices, total cost and possible credit arrangements.
>
> Acceptability, the relationship of client's attitudes about personal and practice characteristics of providers to the actual characteristics of existing providers, as well as to provider attitudes about acceptable personal characteristics of clients. In the literature, the term appears to be used most often to refer to specific consumer reaction to provider attributes as age, sex, ethnicity, type of facility, neighborhood of facility, or religious affiliation of facility or provider. In turn, providers have attitudes about the preferred attributes of clients or their financing mechanisms. Providers either may be

> unwilling to serve certain types of clients (e.g. welfare patients) or, through accommodation, makes themselves more or less available (p. 128-129).

Assumptions

Several assumptions were made prior to conducting this study. First, residents of rural counties in Montana perceive difficulty in obtaining primary health care due to problems accessing that care. Second, the distance these residents must travel to obtain such care is a perceived barrier to access. And third, the assumption is made that there is not adequate health care available in the community where the research was conducted as perceived by residents of the community.

CHAPTER TWO

REVIEW OF LITERATURE

A summary of literature on access to care in rural and frontier areas is presented in this chapter. Literature on primary health care and rural primary health care is also summarized. Additionally, literature on mobile health clinics and their effects of access to care is reviewed.

Primary Care

The World Health Organization (WHO) in 1978 defined primary care as "essential health care; based on practical, scientifically sound, and socially acceptable method and technology; universally accessible to all in the community through their full participation; at an affordable cost; and geared toward self-reliance and self-determination" (University of Saskatchewan, College of Medicine Primary Health Care Research Group, n.d., para. 1). By relying on eight essential components, primary health care can be delivered to the community through services that are accessible, acceptable, affordable, and appropriate. The eight essential components are:

1. Education for the identification and prevention/control of prevailing health challenges
2. Proper food supplies and nutrition; adequate supply of safe water and basic sanitation
3. Maternal and child care, including family planning
4. Immunization against the major infectious diseases
5. Prevention and control of locally endemic diseases
6. Appropriate treatment of common diseases using appropriate technology
7. Promotion of mental, emotional and spiritual health
8. Provision of essential drugs (para. 2).

Focusing on both the individual/community assets and opportunities for change, maximizing community involvement, and including all relevant health care professionals, primary care can be based on the overlap of mutuality, social justice, and equality (University of Saskatchewan, College of Medicine Primary Health Care Research Group, n.d.).

Povar (1996) stated that primary care is based on several key components. The components are: primary care is characterized by integration, integration in the implementation of care, accessibility as empowerment of communities and individuals, primary care is accountable, primary care manages a majority of patient needs, and primary care takes place in the context of families and communities. Comprehensiveness, coordination, and continuity are three aspects of the integration of primary care. Povar (1996) stated that these three aspects are necessary in the practice of primary care since the focus of care is based on the dynamic interplay of clinical problems over time as modified by the individual's psychosocial context. Implementation of care is integrated both by the provider and the patient—the provider may address an issue overlooked or ignored by the patient while the patient presents another issue they feel should be addressed. Empowerment of communities and individuals defines access to primary care not on the availability of a health care provider but the community or individuals ability to define their needs and an appropriate way to address these needs. Implementation and success of interventions in primary care are based on the interactions between provider and patient. The Institute of Medicine's describes of primary care as "the provision of integrated, accessible health care services by clinicians who are

accountable for addressing a large majority of personal health care needs, developing a sustained partnership with patients, and practicing in the context of family and community" (Povar, 1996., p. 1). In order to have integration of primary care, comprehensiveness, coordination, and continuity must also be essential aspects (Povar, 1996).

The ability to improve and maintain the health status of rural communities is based on the availability of primary care (Tham et al., 2010). Tham et al. (2010) utilized a framework that is based on evidence from successful primary health care services and a quality of care paradigm linking structure, process, and outcomes. Three structural components were used in the study:

1. "Service performance characteristics determine its ability to deliver quality health actions….Central to a health service's ability to provide effective health care are the extent to which the service is accessible, appropriate, and responsive to needs of patients, and provides continuity of care efficiently.
2. Sustainability. A sustainable health service is one that is not so dependent on any one key element that the entire health service is placed at risk or significant health needs remain unmet in an environment characterized by ongoing change
3. Service activities and quality of care that the health service provides across the health promotion, treatment, and rehabilitation spectrum" (p. 167).

Tham et al. (2010) focused on an ongoing study in central Victoria, Australia using the Elmore Primary Health Service (EPHS). Formed from a private medical practice and the Bendigo Community Health Services, the EPHS is a comprehensive primary health service model. Specific objectives of the study incorporated the assessment of health service performance and quality of care, assessment of organization and function in terms of service sustainability, measuring the effect on patterns of health

service utilization and health behavior, investigating the impact on health outcomes of residents, community viability, and satisfaction. Results of the study demonstrated that in order to meet the diverse health care needs of rural communities, there is no one model that will create a solution. Instead, health service models need flexibility, sustainability, and quality in order to provide evidence to guide rural health service policies (Tham et al., 2010).

The United States is the only remaining industrialized Western nation that maintains three specialties in primary care—internal medicine, family medicine, and pediatrics—and the future of these face a threatened future (Halvorsen, 2008). Current threats to primary care in its present state include falling reimbursements, eroding scope of practice, dissatisfaction with practice, a less favorable lifestyle, and diminished student interest in primary care careers. In countries where there is only one primary care discipline, a correlation was found between lower costs of health care, more appropriate use of health care services, better continuity of care, and increased patient satisfaction rates. The U.S., in contrast, "spends more money on health care than any other nation" and "patients receive only 55% of recommended care for prevention, acute illness, and chronic disease" (Halvorsen, 2008, p. 2). In 1995, the Veterans Administration restructured its health care program through emphasizing primary care to enhance continuity of care and preventative care, have fewer hospitalizations, and lower death rates. Halvorsen (2008) identified advantages of a unified primary care including a broader scope of practice, a common professional identity, and common practice settings with universal policies, procedures, and electronic systems. "Ensuring access to high-

quality, vibrant, state-of-the-art, affordable primary care for all Americans is a critical public good that is a necessary requirement for a transformed U.S. health care system" (Halvorsen, 2008, p. 10).

Access to Care

The United States has one of the most advanced economies in the world yet there are many who lack access to quality health care (Thomas, 2006). Access has been and remains a widely discussed topic among health care administrators, health policy makers, government officials, and health care providers. Most commonly, when discussing access, health insurance is at the center of the discussion. Said to be one of the most serious problems facing the United States, access to health care due to lack of health insurance is a persistent disparity (Blewett, 2009 & U.S. General Accounting Office, Report to Congressional Requesters [GAO], 1992). Health insurance and primary care providers facilitate access to care. Access to quality health care, even with the promise of universal health insurance, is not a given. Richardson and Norris (2010) stated that race and ethnicity play a role in access to care. Three essential steps are required even for insured individuals in order to achieve quality health care: gaining entry into the health care system, getting access to sites of care at which patients can receive needed services, and finding providers who meet the needs of individual patients and with whom patients will develop a relationship based on mutual communication and trust. When compared to the insured, uninsured individuals are 3.9 times more likely to not obtain needed care, 3.25 times more likely not to fill a needed prescription due to cost, 4.7 times more likely

to have no regular source of care, and 3.1 times more likely to postpone care due to cost. Also noted by Richardson and Norris (2010), the uninsured are more likely to have poorer health status, have later diagnosis of disease, and are more likely to die younger. Access to health insurance is not the only predictor of health status—access to health information, health promotion, prevention activities, safe housing, nutritious foods, convenient exercise spaces, freedom from ambient violence, adequate social support, and communities with social capital are also important factors (Richardson & Norris, 2010).

Penchansky and Thomas (1981) discussed the concept of access to care and defined it as the degree of fit between clients and the system. Access can be divided into five dimensions: availability, accessibility, accommodation, affordability, and acceptability (Penchansky & Thomas, 1981). Availability is the supply of providers and services in relationship to the client's needs. Accessibility is the location of services in relationship to the location of the client. Accommodation is the organization of services for accepting clients. Affordability is the costs of services in relation to the resources of the clients. Finally, acceptability is the clients' attitudes and opinions of the providers and services (Shreffler-Grant, 2006, p. 238). While these five dimensions are closely related, they are also important individually. "In some settings accessibility may be closely related to availability. Yet, various service areas having equivalent availability may have different accessibility" (Penchansky & Thomas, 1981, p. 129). For example, the acceptability of health care services may be more important than the accessibility of those services. The five dimensions can be used to measure the fit between health care

services and providers and the expectations of their clients (Penchansky & Thomas, 1981).

Aday and Anderson (1975) also applied five concepts to their framework of access to medical care—health policy, characteristics of health delivery system, characteristics of population-at-risk, utilization of health services, and consumer satisfaction. Health policy is the effect of altering access to medical care often evaluated by health planners and policy makers. Resources and organization are characteristics of a health delivery system specific to rendering care to consumers. The labor and capital devoted to health care including health personnel, structures in which health care and education are provided, and the equipment/materials used in providing health services are the resource component. The organization characteristic determines what the system does with its resources. Access was defined as potential and realized, where potential access is the probability that services would be obtained and realized access is the actual utilization of services (Reyes-Gibby & Aday, 2005; Anderson, McCutcheon, Aday, Chiu, & Bell, 1983). Characteristics of the population at risk are predisposing, enabling, and need. Included in the predisposing characteristics are demographic factors, social structure, and health beliefs. Enabling characteristics consist of personal, family, and community resources that an individual uses to obtain health services. Personal views on health, functional state, and perception of symptoms, pain, diagnosis, and illness are the need characteristics (Reyes-Gibby & Aday, 2005). Utilization of health care services provides measurements of duration of service, type of service, location of service, and purpose of service involved. Attitudes of the consumer and anyone who has experienced

a contact with the health care system determine the customer satisfaction (Aday & Anderson, 1975).

Access to Care in Rural Areas and Rural Health Disparities

In order to take a broad measurement of access, Reschovsky and Staiti (2005) studied a patient's care-seeking decisions and the health care systems' response once the patient has initiated contact. These investigators analyzed three sets of potential barriers: convenience of use, provider supply, and patient resource constraints. Convenience of use measures rural areas' lower population density, fewer providers, longer wait times for appointments, longer travel times to reach providers, and longer wait in the provider's office. Factors influencing provider supply include having fewer providers making it more difficult to obtain health services and the providers who are available have difficulty obtaining further services that their patients may require. Financial barriers, such as little or no health insurance, that discourage health seeking behaviors and the providers ability to obtain services for their patients compromise the patient resource constraints. These barriers all indicate lower access in rural areas; however, an actual comparison of access in rural and urban areas showed that rural areas, even those not adjacent to urban areas, were either equivalent or superior to urban areas in regards to access to health care. In general, their comparison of both physician and patient perspectives on access to health care, indicate that across many dimensions, quality and access to care in rural areas is at least on par with urban areas (Reschovsky & Staiti, 2005).

The U.S. Department of Agriculture concluded that "rural and urban people do not have equal access to health services. Rural areas are deficient in professional medical personnel, physical health care facilities, and the ability to afford the financial costs of illness" (as cited in Aday & Anderson, 1975). Agriculture, the primary industry in rural and frontier areas, is ranked as one of "the most hazardous industries with one of the highest mortality rates due to occupational injuries" (Peters, Gupta, Stoller, & Mueller, 2008, p. 114). Many rural communities already exist on a fragile and unstable economic base. The economical downturn across the nation puts rural populations at an even greater risk and the ability to remain financially viable is becoming increasingly difficult for health care providers in rural areas. However, Heady (2002) stated "rural health care delivery systems, embodied in the spirit of the men and women who still farm and work the rural landscape, are often described by their tenacity and ability to deliver quality in the face of economic uncertainty" (p. 110).

Nelson and Gingerich (2010) reported that The National Association for Home Care is campaigning to restore diminishing Medicare reimbursements to ensure access to rural home care; however, many home care agencies are still unable to afford the expenses required to provide care to outlying areas. Delays in service and longer inpatient stays are often necessary due to inadequate home care staffing. According to Nelson and Gingerich (2010) health care delivery opportunities such as "health care clinics on wheels" and "tele-health home monitoring systems" can provide preventative health care services to rural residents. These delivery options may also help diminish or eliminate the expense and inconvenience of travel by both rural residents and health care

professionals. "Lack of access to home care in rural America will only serve to increase health care expenses and diminish quality of life and patient outcomes" (Nelson & Gingerich, 2010, p. 342). Quality of life and self-worth among many rural Americans is defined by their ability to remain self-reliant. Chopping wood, feeding cattle, shoveling snow, and yard work are common among rural elderly and the ability to complete these tasks is often seen as a vital part of their self-worth.

Mohatt (2000) categorized access to rural healthcare into 3 spheres, physical, financial, and psychological. Physical access in rural areas includes difficulty accessing needed services due to geographic distances, widely dispersed health care services, or the absence of needed services within the community (Johnson, Brems, Warner, & Roberts, 2006). Rural residents face many diverse obstacles when obtaining quality health care--appropriate, timely, and cost-effective health care in areas where there is less access to such care are a few of the challenges (Brems, Johnson, Warner, & Roberts, 2006; Johnson et al., 2006). Additional challenges in accessing health care in rural areas identified by Brems et al. (2006) include geographic isolation, economic instability, provider shortages, discontinuity or fragmentation of care, funding disadvantages, stigma, lack of education about prevention, resource limitations, and ethical challenges. Shreffler (1996) reported that many rural Americans have experienced even greater difficulty accessing health care services due to rural hospital closures. Serving large geographical regions and often with no other alternatives, the closures of these hospitals result in rural residents' loss of reasonable access to emergency and acute care. Also, Shreffler (1996) indicated that the closure of a rural hospital may spur other health care providers to leave.

Dentists, mental health, primary care, and physical therapy within that community may not have the means to function with hospital closures and recruitment of new providers is difficult without the availability of hospital services.

Issues of poverty and community wide funding contribute to financial access (Johnson et al., 2006). Transportation difficulties, travel costs, and health care costs are noted by rural residents to be a hindrance in accessing care (Brems et al., 2006). Poor financial access relates to the higher percentage of rural and frontier residents with little to no health insurance (Galambos, 2005). Stricter Medicaid guidelines, more low-income families, and self-employment are key characteristics of rural communities as compared to urban areas (Heady, 2002). "Rural health care delivery systems, embodied in the spirit of the men and women who still farm and work the rural landscape, are often described by their tenacity and ability to deliver quality in the face of economic uncertainty" (Heady, 2002, p. 110).

Consumer behaviors that either promote or hinder health care service utilization determine psychological access (Johnson et al.,2006). Traits such as self-sufficiency and independence, common in rural cultures, often make residents less likely to seek health care (Lee & McDonagh, 2010). Other traits contributing to psychological access common among rural dwellers include a greater acceptance of poor health and a stigma associated with illness—these also lead to a lesser likelihood to seek preventative care, screening, and/or treatment (Brems et al., 2006). Farmers and ranchers are at an increased risk for lung disease, noise induced hearing loss, skin diseases, and certain cancers, and yet are "often unwilling to recognize or accept their physical limitations and

the subsequent dangers to life and limb" (Peters, Gupta, Stoller, & Mueller, 2008, p. 114).

A study by Merwin, Snyder, and Katz (2006) evaluated the effects of available community resources in rural and non-rural areas, with characteristics of rurality, poverty, age of the community, and availability of Medicare approved providers of health care services. Improving the quality of healthcare in rural areas is a formidable task due to barriers such as lower financial resources, lack of public transportation, and long distances to providers. These barriers interfere with access to rural health care and threaten the health status of rural people. The correlational design study used datasets from the Health Resources and Services Administration to determine the differences in "community characteristics, provider availability, and presence of publicly funded community health and mental health centers between counties located in metropolitan and nonmetropolitan areas" (Merwin, Snyder, & Katz, 2006, p. 188). They also evaluated the impact of community characteristics such as location, classification of rurality, availability of health care practitioners, and the presence of one or more community health centers (CHC) and/or community mental health centers (CMHC) within one county. Classification of rural, non-rural, metropolitan, nonmetropolitan, and rurality was determined through the use of the U.S. Department of Agriculture's *2003 Rural/Urban Continuum Codes.* The study found that metropolitan areas consistently had almost twice as many physicians than nonmetropolitan areas, and an even greater disparity exists among physician specialty groups (Merwin, Snyder, & Katz, 2006).

Merwin, Snyder, & Katz (2006) also studied access to health care in rural areas of southwest Virginia and provided an example of the unmet health care need. The researchers reported that nearly twenty percent of those surveyed only sought health care as a last resort. Through the use of a Remote Area Medical (RAM) Clinic and volunteers, over $1,382,914 worth of health care services was provided free of charge to over 6,000 patients during a three day weekend in a town in southwest Virginia. The RAM clinic, now an annual event, confirmed this areas need for increased access to health care services through "the volume of participants willing to stand in long lines to receive needed health services and the presence of individuals who are using the RAM clinic as their only source of health care" (Merwin, Snyder, & Katz, 2006, p. 193).

Mobile Health Clinics

Devastating events such as tornados, earthquakes, tsunamis, and floods create unique challenges in accessing health care providers. In August 2005, Hurricane Katrina overwhelmed New Orleans, Louisiana and surrounding areas. In an effort to increase health care access to this area in a time of need, Southern University and A & M College in Baton Rouge was called into action (Rami, Singleton, Spurlock, & Eaglin, 2008). Jag Mobile, a fully equipped mobile health clinic, staffed with volunteers and Southern University School of Nursing provided health care to evacuees in shelters and churches (Rami et al., 2008). With approval from the Federal Emergency Management Agency, support from both public and private health care organizations, and federal and state agencies, Jag Mobile provided access to primary health care to 1,500 evacuees. "The

mobile clinic eliminated barriers to primary health services for evacuees" (Rami et al., 2008, p. 103). Eighteen months after Katrina, Jag Mobile continued to visit one transitional community twice a week to provide access to health care (Rami et al., 2008).

Alexy and Elnitsky (1998) identified availability, accessibility, affordability, and appropriateness of health care as characteristics sometimes lacking in rural communities. In an effort to overcome these issues, the researchers implemented a Mobile Health Unit Special Projects Grant. The purpose of this project was to "provide health care services for rural elderly who are experiencing difficulty obtaining health care due to illness, transportation problems, or financial factors" (Alexy & Elnitsky, 1998, p. 4). Specific objectives of the project included the following:

1. "To increase access to nursing services and other health care services for elderly clients in a rural community through use of a mobile health unit.
2. To improve and/or maintain the functional status and health status of elderly residents in the community and to increase health promotion behaviors.
3. To evaluate the project in terms of client outcomes, including hospitalizations, nursing home admissions, and the factors that enhanced or inhibited project implementation.
4. To utilize the project as a practice site for graduate family nurse practitioner students" (p. 4).

In collaboration with a local public health department, the mobile health unit provided health promotion and screening, primary care, and case management at twice-monthly visits to three senior centers and four community sites within the designated region (Alexy & Elnitsky, 1996; Alexy & Elnitsky, 1998). Services provided through the mobile health unit include complete physical exams, pap smears, blood sugar and

cholesterol screening, blood pressure monitoring, immunizations, health education, and referrals (Alexy & Elnitsky, 1998).

This alternative method of delivering primary health care in rural areas provided several benefits to the members of the community it serviced. Increased breast and cervical cancer screening, increased immunization rates, decreased utilization of the emergency room, increased participant knowledge of the primary care services available were a few of the benefits, and increased independence for the elderly members of the community (Alexy & Elnitsky, 1998). A mobile health unit, such as the one described by Alexy & Elnitsky (1996) can qualify as a rural health clinic enabling them to receive special Medicare and Medicaid reimbursement (Rural Assistance Center [RAC], 2010).

Guruge, Hunter, Barker, McNally, and Magalhaes (2009) reported the experiences of immigrant women who utilized a mobile health clinic for reproductive health care. The mobile health clinic helped maintain the health of new immigrants through improved accessibility. Guruge et al., (2009) stated that mobile health clinics can be used for a variety of health-related services such as: to increase access to elderly in rural areas, to screen 'at risk' populations, to provide maternal health services, to screen for sexually transmitted diseases, to provide crisis intervention for mental health, to provide preventative care (such as screening for diabetes and hypertension), and to provide screening for women's health. By providing culturally appropriate, holistic, and accessible care, the mobile health clinic helped establish trust, respect, and a sense of acceptance among post-migration women. The mobile health clinic proved to be an innovative, appropriate, and viable model for health care (Guruge et al., 2009).

A mobile health clinic, called Vehicle Assisted Nutrition (VAN), implemented by Rodriguez, Burg, and Brown (2006), was used to educate members of the Bronx, New York community about obesity and its consequences. Weekly visits of the VAN to a community health center enabled the staff to teach lifestyle modification processes and provide ongoing support. The impact of the VAN on the community was not yet quantified, but the education provided spurred further research into the continued use of this mobile health clinic (Rodriguez, Burg, & Brown, 2006).

Summary

As evidenced by the literature review, access to quality health care in rural and frontier areas is difficult at times and can result in significant health disparities. While steps are being taken by several rural and health care agencies to lessen these disparities, research shows that they still exist. Rural health experts and providers continue to believe that access is a top priority. Rural cultures themselves add to the health disparities in that they have such strong beliefs in independence and autonomy.

Further research on the use of mobile health clinics to provide primary care in rural and frontier areas can contribute to an increased awareness of potential solutions to problems with access to health care. Information gained through research could help identify additional options in the pursuit for better availability, accessibility, accommodation, affordability, and acceptability in primary health care. Additional research on the use of mobile health clinics is needed to determine the effectiveness of such a delivery method.

CHAPTER THREE

METHODOLOGY

In this chapter, the methods used to address the research questions related to determining the potential benefits of a mobile health clinic providing primary care to the rural residents described. This includes a description of the study design, population and sample, procedures for data collection, instrumentation, and analysis. A discussion of the consent process and the rights of human subjects is also included.

Design

A descriptive qualitative research design was used in this study in order to satisfy the purpose of the study. This approach to research enables the researcher to become the research instrument and illustrate the subjects' experiences while maintaining the objectivity of the data collected (Polit & Beck, 2008; Sandelowski, 2000). Taking a qualitative approach and acting as the instrument, allowed the researcher to become intimately and intensely involved with the population (Polit & Beck, 2008). Description of this type allowed the researcher to use techniques that enables the "target phenomenon to present itself as it would if it were not under study" (Sandelowski, 2000, p. 337). Gathering comprehensive information without objectively quantifying the data allows the end result to be the participant's natural description and not a re-produced version manipulated by the researcher (Sandelowski, 2000).

Population and Sample

The population of interest for this research included residents of a rural town in Montana. On the northeastern edge of a rural county in west central Montana, the chosen town has a population of about 185 people (U.S. Census Bureau, n.d.). The 2000 Census estimated that the population of the county was 51.1% male, 48.9% female, and the average age was 50.1 years. For residents over the age of 25 years, 85.2% had at least a high school education, 13% had a bachelor's degree, and 1.9% had a graduate or professional degree (City-data.com. 2010). The median household income in this rural town is $30,776, in the state of Montana is $42,322, and in the United States is $52,029, (U.S. Census Bureau, 2008). Weather extremes in this town, such as wind and snow, are above the national averages (City-data.com. 2010). The town lies at the base of the rugged eastern Rocky Mountain front on the northern edge of Gold West Country and is a gateway wilderness areas that offer hikers and backpackers access to the unspoiled, rugged beauty of the high country (Gold West Country, n.d.). The town is approximately twenty-five miles from the nearest critical access hospital and fifty miles from a designated trauma center (Montana Atlas & Gazetteer, 2007; Benefis Health System, 2007). Agriculture is the primary industry of this rural community. Prairie grass and timber made this a prime area for the cattle industry in the late 1800's and its heritage remains embedded in the "cowtown" lifestyle today (Montana's Russell Country, 2010, para. 2).

A sample of twelve residents was recruited through a process of snowball sampling. By utilizing the snowball sampling method, the researcher selected 2 or 3

residents of this town who then identified and recommended other residents who were willing to participate in the study (Atkinson & Flint, 2001). The initial residents were chosen based on the recommendations of the town's public health nurse. The initial contacts of the researcher were identified by the public health nurse. They were then approached at various locations throughout the town—the post office, restaurants/bars, stores, etc. From there, referrals from participants to other community members provided the necessary sample size. This type of sampling aided the researcher due to the potential unease and distrust of an outsider in their community (Polit & Beck, 2008). Criteria for inclusion in the study were: twenty-one years of age or older, primary residence of the chosen town, and willingness to participate. A small sample of participants was considered adequate for qualitative research and was chosen due to time and resource limitations of the investigator (Atkinson & Flint, 2001; Smith, 2008).

Rights of Human Subjects and Consent Process

Prior to data collection, the study was approved by the Montana State University Human Subjects Review Committee for approval of this study. Consent from participants was obtained by the researcher before the interview process began. The consent included information on the interview process, content of the interview, the research methods, and the purpose of the research. Potential participants were informed that involvement was completely voluntary. The results of the research maintain the subjects confidentiality; however, they were able to terminate the interview process at any time if they so desired. Questions could be excluded if the participant wished and

they were informed that the interview process took no more than one hour of their time. A written consent form was given to and verbally reviewed with each participant prior to the interview. The consent form is included in Appendix A. The researcher ensured that all questions were answered to the participant's satisfaction prior to the interview.

Data Collection

Face-to-face interviews were conducted in the participant's home, or the setting of their choosing. The researcher asked a series of semi-structured, open-ended questions. Detailed notes of the participants' responses were taken by the researcher during the interviews. Less-structured, open-ended question allowed the participant more originality and freedom in their answers (Atkinson & Flint, 2001). The questions on the interview guide were intended to elicit the participants' thoughts on their current access to health care, satisfaction with current health care availability, and potential factors that would influence their use of a mobile health clinic.

Instrumentation

A set of open-ended interview questions developed by Smith (2008) was revised to address the purpose of this research. By allowing the participants to respond in their own words, the researcher hoped to obtain a richer and more in depth perspective on the research (Atkinson & Flint, 2001). Spontaneity and elaboration by the participants through open-ended questions allowed the researcher to take exact quotes from the

responses and show the richness and fullness of the participants' answers (Sandelowski, 2000).

The interview questions were based on a tool previously developed by R. J. Smith (2008) from his work focused on the perceptions of frontier residents about their access to health care. This tool was revised by this researcher to incorporate the use of mobile health clinics and the potential benefits they may offer to frontier residents. The research questions are included in Appendix B.

Analysis

Interpretation of the data first involved classifying the responses into themes. These themes, generated from the data itself, were determined after data collection had occurred in order to enable the researcher to establish preliminary patterns. Simultaneous collection and partial analysis of the data helped the researcher to adapt the interview questions and prompts to expand on and clarify emerging themes. After the themes were formed and the information was placed appropriately, the data were sorted accordingly. Organization of the data was maintained through a paper clip and Post-It Note coding system.

CHAPTER FOUR

RESULTS

The purpose of this study was to explore the potential benefits of a mobile health clinic providing primary care to rural residents. The results are discussed according to the research questions and the predominate themes identified in the results. A discussion of (a) demographics, (b) current access to health care, (c) health care services, (d) and mobile health clinic services are presented in this chapter.

Twelve residents of one rural Montana town were interviewed over a period of two weeks by the graduate student researcher. A convenience sample was used. Four participants were based on referrals from the local public health nurse and eight were identified through snowball technique. One interview took place at the participant's place of work, three were conducted in the participants' homes, and eight were at a local eatery. The interviews took 20-40 minutes each. Hand written notes were taken by the researcher during the interviews and expanded upon immediately after completion of the interviews. Identifying information was removed and the data was reviewed for recurring themes. Time constraints of the researcher and the distance to the rural town were limiting factors in the total number of interviews. Nevertheless, some degree of saturation was obtained, the purpose of the study was met, and the research questions were addressed.

Demographics

The participants ranged in age from 57-96 years of age with a median age of 63 years. Of the twelve people who participated, 8 were female and 4 were male. All participants were Caucasian. Years of residence in this town ranged from 15 years to 96 years. Three of the participants were born in the town and remain there today—two of them having left briefly to fulfill military obligations. Seven of the twelve participants were Montana natives. Six of the participants were married, four widowed, and two were divorced. One of the participants, now divorced, had been married three times. Eight of the participants were covered by Medicare, three had private insurance, and one had no health insurance. Ranching was the primary occupation of the participants—three stated ranching as their sole occupation, while four participants reported work off the ranch as well. Other occupations included one retired teacher/rancher, two food service workers, one retired registered nurse/rancher, two retired government employees, and three who reported various occupations. Three of the participants were veterans. The nearest rural town provided a small clinic in the local community center twice a month. The public health nurse, emergency medical service volunteers, and volunteer fire fighters were the only health care services available within the rural community.

Current Access to Health Care
(Research Question #1)

Nearly all of the participants reported driving to the nearest rural town, 20 miles, for their primary care. This town, with a population of nearly 1,800 people, has a critical access hospital with 24 hour emergency care and several primary care providers. Ten participants reported using this for their primary care as long as they didn't require specialty care. The care available in the nearest rural town include the "eye doctor, therapy, lab, etc.", "I also use a nurse practitioner in town and the drug store", "there is a nurse practitioner about 20 miles away that we trust" and "I go there for my prescriptions, general care, and if I have a cough or cold". Without an exam room, however, the clinic was unable to provide more than the bare minimum. For specialty care, these ten participants reported driving approximately 60 miles to a larger hospital with a level II trauma center and a "full complement of health care facilities" within the community. One participant reported driving 70 miles to the larger community all the time for his health care needs. Another participant stated he drives to the closest Veterans Affairs (VA) hospital, over 80 miles, for all of his health care needs. Only one of the twelve participants reported using a small traveling clinic that operates out of the local senior center. She stated that this clinic "comes twice a month if we are lucky and they don't cancel or leave early". After having open heart surgery almost 5 years ago, one participant reported driving 70 miles to see her cardiologist twice a year.

When asked if the distance to a health care provider affected the care that was sought, one participant stated "…sure, you don't want to go unless it is an emergency.

With gas prices and the mileage, it is hard on my family to take me to the doctor very often. I would go more often if it was closer but it is expensive to travel there now". Another said that she doesn't drive as well as she used to—"I'll drive to the doctor 20 miles away but I don't drive in the cities anymore. I have a good family that will take me into the doctor if it is further than that to drive so I don't feel like I have a problem getting health care". Two participants reported feeling scared at times due to the lack of emergency care—"It's 25 minutes to emergency care. Once, I had a reaction to a bee sting and 25 minutes can be bad". Weather and poor road conditions were also reported by several participants as being a hindrance when trying to access health care. Four people interviewed stated they did not feel that the distance was a problem for them—one stated that her family always took her to see her health care provider but that she couldn't do it without them. One of these four stated "not at the present time. But escalating costs and travel distance coupled with 'Obama-care' could devastate my existing coverage".

In terms of usage of health care, one participant stated they sought care "not very often—only when I'm sick and need advice". One participant stated she only saw her health care provider once every 1-2 years—"I'm pretty lucky to be healthy as far as I know". Three people stated they see their primary care provider (PCP) only once a year and four reported going about every 6 months. Another participant reported going to her oncologist every 2 months but said that she doesn't really have a PCP because the oncologist has taken care of everything she has needed for a couple years. One man said he has weekly appointments with his PCP, and another man said "it just depends on how things are going". In addition to these PCP visits, 2 people reported seeing their

cardiologists about every 6 months. One man stated he has to call in once a month to have his pacemaker checked through the telephone line and he has to have blood work done monthly as well.

Needed Health Care Services
(Research Questions # 2)

Eleven of the twelve participants stated that they felt the community was lacking in available health care services. One man said "[*Local rural town*] has a population of about 500-700 in the 20 mile radius in and around town. Not very conducive to someone opening a medical practice….If just one person gets sick, there is a need. It just isn't economically feasible". Another said that either the community needed someone locally or the neighboring town's clinic needed to come to town more frequently. "Having someone easier to get to" was one participant's response when asked about health care services needed within the community.

Home care services, personal care attendants, and general medical care were noted by one participant as needed services. Another said that any health care services would be better than what the community currently has. Specifically the price of gas was noted as a reason, by several participants, that the community needs more health care services. Although one participant said that she would still go to the larger cities for specialty care, she thought a family practice provider would be very well received within the community.

Several participants stated that having someone trained in advanced life support would be the most beneficial to the community—paramedics, registered nurses, and

emergency medical technicians were specifically noted as health care personnel who would have this training. One participant stated that his son and daughter-in-law were both members of the volunteer emergency medical services team but they only have basic training. "Having to travel over 60 miles for critical care" was a concern for one participant.

Even with the lack of health care within the community, nine of the twelve participants reported having a primary care provider. Two participants stated that they have no primary care provider since they only seek care when they are sick or something is wrong. One of these two stated that he normally just goes to the closest emergency department for whatever is wrong with him. One man stated that he did not have a primary care provider specifically but since he receives all of his health care from the VA, he feels that the VA itself is his primary care provider.

Mobile Health Clinic Services
(Research Questions # 3 and 4)

Participants listed several services they would like to see a mobile health clinic provide. The clinic that currently comes to town 1-2 times a month provides lab draws and physical exams but no other services according to one participant. Regular, scheduled visits that are not canceled due to lack of appointments are what the community needs as reported by one participant. She went on to state that just because people make appointments in advance, doesn't mean that they won't have people just show up. "A walk-in type of setting would be more beneficial for this community I think."

Blood work, x-rays, first aid, nursing services, blood pressure checks, hearing aid cleaning, ear wax removal, flu shots, and general medical services were the services a mobile health clinic should provide as reported by the participants. Someone who can fill weekly pill boxes and manage medications was reported by several participants as a need. General check-ups and treatment for a sore throat were reasons one participant said she would use a mobile health clinic. A participant stated that just having the access to a health care provider would be good for her and her family,

> Someone who can give us antibiotics for a sinus infection or blood pressure medications is what we really need. We can't always drive into town to see a doctor and then have to wait around for antibiotics at the pharmacy. Plus on the weekends, when the pharmacy is closed, we have to either wait till Monday or drive 60 miles to a pharmacy just to get a little bottle of pills. If a clinic could just keep a little supply of basic medications, the community would be a whole lot better off.

One respondent stated that he would definitely use a mobile health clinic but thought that it would not replace his primary care provider. "As a dispensary/clinic it works, but it doesn't replace following the care of a nurse practitioner or doctor with continuing care." Another said "sure, why wouldn't you use it is if was right here" but that she would still have to see her cardiologist. One woman said that she would definitely use a mobile health clinic because of the convenience but that she might change her mind if she didn't trust the health care provider in the clinic. Only one of the participants stated that he would not use a mobile health clinic. He stated that while the convenience would be nice, he wasn't sure if his VA benefits would cover it so he would probably still go to the VA for all of his health care needs.

All twelve participants thought a mobile health clinic would be beneficial to the community. However, several factors that could influence the community's perception of such a clinic were noted. Community involvement was the main influencing factor noted. One woman said,

> If a clinic like that came to town, parked on a corner, saw a couple people a day, and then went home, I don't think people would keep using it as much. They need to become a member of the community. Being actively involved with the people would help build trust and respect within the community and you know how these old ranchers are, they have to like you before they will trust you with their health problems.

Several participants stated that they would only use the clinic if it had a provider that they trusted. One woman, when asked if she would use a mobile health clinic said, "It depends on the provider—I would use it if it had a good provider." Another said "yes, we are very remote so I would use it for emergency care."

Affordability was one factor that several participants thought would be influential. "The cost of gas is hurting us" and "a lot of the elderly people who live here cannot afford to drive to a clinic" were two responses. One participant said that with the high poverty rate in the community, a mobile health clinic that had a sliding fee scale would be beneficial.

A participant said that in order to keep the town alive, a good school and some kind of health care delivery system was needed. "Health care is being shuffled to [*closest larger town*] and it is going to kill these small towns if we lose all medical services." One participant said that the hospital in the neighboring town had a similar type of clinic that sets up in the senior center 1-2 times a month. She was unsure of the benefits of a mobile health clinic to the community because so few people utilize visiting this clinic—"not

enough people in town to make it successful, everyone is already established with a health care provider." When other participants were asked about the visiting clinic, four stated that they didn't even know it was available.

Appealing Characteristics of a Mobile Health Clinic (Research Question # 5)

The appealing characteristics of a mobile health clinic were similar to the benefits of a mobile health clinic as noted by the participants. Frequency and dependability were noted by several participants to be important characteristics—"it doesn't do us any good to have a clinic that is supposed to come to town a couple times a week and then either calls and cancels or just doesn't show up because of the weather or because they don't have enough appointments to make it worth their time." The clinic providers would need to become a part of the community—coming to town meetings, school functions, senior center functions, and just getting your face known around town were noted as important because "you have to win these people over and once you do that, people would use the clinic more. Once you win them over and they know you will do anything you can to help keep these people in their own homes and out of the nursing home, you will become a part of the community."

The characteristics of a health care provider associated with the mobile health clinic were mentioned several times as determining the appeal of the clinic. Specifically the personality of that provider—"they need to treat us like a person and not a number". A sense of humor and the ability to make a person feel important even if it is the first time you have met were stated by one participant as the most important characteristics of

any health care provider. The ability to speak clearly and in a way that can be understood, especially to the elderly, was noted by two participants. "Being kind to elderly and having patience with everyone—to make sure everyone is happy when they leave and that they are satisfied" was one woman's response. Another woman said that anything provided by a mobile health clinic would be appealing since they have so little right now—"anything we can get locally would be great." Also of note, timeliness, cleanliness of the clinic and privacy were important to several participants.

One woman said she would like to have a doctor in the mobile health clinic. When asked to expand on this, she said that she didn't always trust nurse practitioners and other mid-level providers due to a bad experience she had many years ago. She went on to state, however, that "doctors don't take the time to listen but a nurse practitioner or physicians assistant will sit down and listen to you for an hour if needed." She said that when you see a doctor, sometimes you feel like the eight minute office visit was not worth the drive to town to see him or her plus the cost of the visit itself. Another participant said that the clinic would be appealing to him if they "give you what you pay for."

Unappealing/Concerning Characteristics of a Mobile Health Clinic

The participants noted several concerning characteristics of a mobile health clinic; although, all said they did not find the clinic itself unappealing. The ability to fund such a clinic was the most frequently reported concern. One woman stated that she has seen many health care programs come and go from the community over the years and "with

the current economy and government, I don't see how it would ever get enough money to operate. Even though it could create several jobs within the community and even be beneficial financially to the community and county, I just don't see our government giving anyone the money to get it going."

One woman said that the most unappealing characteristic would be if the clinics hours of operation were too early in the morning. She said that if the hours were from 11 AM to 4 PM she would be more likely to use it. Also, having to wait too long for an appointment or to get in to be seen by the provider once you got to the clinic would be unappealing to her. Inconsistency with providers, having to give detailed medical history every time you visited, and being given "the rush job" were unappealing characteristics reported by several participants. "Their attitude toward the patient, being harsh toward them, would not be appealing" according to one participant. Dishonesty, rudeness, lack of privacy, and impatience were other unappealing characteristics noted.

CHAPTER FIVE

DISCUSSION

The purpose of this research was to explore potential benefits of a mobile health clinic providing primary care to rural residents. The research questions were: (a) how do the people of this rural community meet their health care needs, (b) what health care services are lacking in this community, (c) if a mobile health clinic came to this community, would rural residents utilize the services it will provide, (d) are there any specific health care services rural residents feel should be available through the mobile health clinic, and (e) do rural residents feel a mobile health clinic would be beneficial for them. This chapter includes a summary and discussion of the results of the study based on Penchansky and Thomas' (1981) five dimensions of healthcare. Also included in this chapter are the limitations to the study, implications for practice, recommendations for future research, and a conclusion. These five dimensions—availability, accessibility, accommodation, affordability, and acceptability—are closely related. To show the relation between all five dimensions, Penchansky and Thomas (1981) provided the following example:

> …travel time is a strong predictor of satisfaction with accessibility; time to get an appointment is predictive of satisfaction with accommodation; and a longer relationship with the physician implies greater satisfaction with availability and acceptability. Having to wait longer in the physician's office negatively influences satisfaction with availability and accommodation, while travel time and waiting time in the physician's office, together representing opportunity cost of a visit, were shown to influence satisfaction with affordability (p. 138).

Availability

Availability involves the health care providers and facilities from which a patient can choose to pursue care (Beedasy, 2010). Another aspect of availability is the degree to which the provider has the means to provide appropriate care to the patient. Satisfaction with availability can be determined through the participants' confidence in their ability to obtain quality health care, knowledge of where to obtain health care, and ability to obtain emergency health care (Thomas & Penchansky, 1984).

The majority of participants in this study reported having two locations from which they pursued health care. The nearest was twenty miles away and has basic services—emergency, acute, and long-term care, 2-3 primary care providers, and a pharmacy. To obtain specialty care, which many participants noted as being of particular importance to them, they must travel approximately one hour over potentially rugged mountain roads in inclement weather. While none of the participants expressed concern over the inability to obtain quality health care, several did express concern about the ease of obtaining this care—distance, fuel prices, weather, and road conditions were mentioned as barriers to obtaining care.

All participants were knowledgeable about where they could travel to obtain care. Some, however, some were unaware of local services that were currently available. Four of the twelve participants specifically stated that they did not know that there was a traveling clinic that currently came to town twice a month. Several others stated that they knew about the clinic but did not utilize its services because the services were so

minimal. They stated that they may as well go to town and get everything taken care of at once instead of making multiple trips.

All of the participants also knew that in order to obtain specialty care or advanced life support care, they had to travel at least seventy miles or more. Their community currently has basic emergency medical care, through the volunteer ambulance service which can provide transportation to the critical access hospital twenty miles away. Once they got to that hospital and were stabilized, however, oftentimes a patient would need to be transferred again to the larger city with tertiary care.

The study showed that participants felt that the availability of health care providers and services was lacking within this community. While the participants knew where to go to obtain care and how to go about obtaining that care, the 'goodness of fit' is poor. "Not only is the mere presence of facilities not an adequate measure of availability, it misses the more important issue of goodness of fit, that is, the interaction between the characteristics of the providers and the expectations of the clients that determine the acceptability of the resources" (Wyszewianski, 2002, para 4).

Acceptability

Acceptability is the relationship of clients' attitudes about personal and practice characteristics of providers to the actual characteristics of existing providers. Acceptability also includes provider attitudes about acceptable personal characteristics of clients. Providers may be unwilling to serve certain types of clients or make themselves more or less available (Thomas & Penchansky, 1984).

One aspect of acceptability is a phenomenon known as “bypass”. Bypass occurs when residents of a rural town obtain health care services from a provider farther away than the one closest to their home (Liu, Bellamy, Barnet, & Weng, 2008). If the residents of a rural community do not find the available health care acceptable, bypass occurs. Deterioration of access to health care in rural areas is due in part to the rural residents bypassing local health care, which leads to underutilization of local health care services (Shreffler-Grant, 2006).

The participants of this study showed evidence of bypass. Those who knew of the bi-monthly visiting clinic rarely used it due to its lack of consistency and lack of community involvement. Several participants stated that this clinic was unreliable—canceling appointments at the last minute or closing down early due to lack of utilization. Other participants stated that they willingly drive over sixty miles to the larger health care center because they liked the facilities and providers better. They also stated that they have to make the sixty mile trip every once in a while anyway in order to obtain supplies so they might as well see the ‘big-city doctor’ while they are there. One participant stated he receives all of his health care from the VA. This is a form of acceptable bypass, according to Liu et al (2008). Referrals by a primary care provider to providers outside of the community and health care services obtained from specialists not available within the community are other examples of acceptable bypass (Liu et al., 2008).

With no health care providers practicing regularly in this community, it is impossible to know what effect they would have on acceptability within this community. Several participants mentioned a physician’s assistant who had been providing care in the

community but was forced to leave. They stated he had to leave because the larger clinic he worked out of cut the funding for services in their community. Acceptability, or lack thereof, could be part of their inability or unwillingness to serve this rural community and its elderly population.

Accommodation

Accommodation is the relationship between the manner in which the supply resources are organized to accept clients and the clients' ability to accommodate to these factors and the clients' perception of their appropriateness (Thomas & Penchansky, 1984). These factors include appointment systems, hours of operation, telephone services, and the health care facilities. The organization of resources is one aspect of accommodation. Utilizing staff in order to improve service delivery and physical/psychological environments of the health care setting are examples of accommodation as reported by Ansari (2007). Incorporating the culture of the community into the clinic is one way to improve accommodation.

Participants of this study mentioned aspects of accommodation several times. A mobile clinic's hours of operation were mentioned by several participants as an important factor. Hours too early in the morning interrupt chores such as feeding cattle, baling hay, and changing irrigation. With a largely elderly population, services that accommodate them are necessary. Home health care services and devices to assist with those who are hard of hearing were two participants' responses. The ability to supply medications was also mentioned—"what good is a mobile clinic that can tell you what is wrong but cannot give you the medications needed to fix it". With the nearest pharmacy approximately

twenty miles away, one participant stated that he might as well just drive there for his health care if a mobile clinic wasn't able to give him the antibiotics or blood pressure medications he needs.

Factors influencing privacy are of extreme importance in rural communities. The ability of a health care provider and clinic to accommodate patients in their need for privacy is vital. Nearly all participants of this study mentioned privacy as a characteristic they desire in a health care setting. It is virtually impossible for rural residents to not see their neighbors, friends, and family entering a local health care facility. Maintaining the confidentiality of the patient's interaction within the health care setting is problematic. "The close-knit nature of small rural communities in which everyone knows everyone else places significant challenges on confidentiality and privacy for consumers" (Brems, Johnson, Warner, & Roberts, 2006, p. 113). However, steps can be taken to ensure health care facilities accommodate confidentiality.

Affordability

Affordability is the relationship of process of services and providers' insurance or deposit requirements to the clients' income, ability to pay, and existing health insurance (Penchansky & Thomas, 1981). Affordability is further defined as the "price of services relative to ability to pay and perceived value of service" (as cited in Ansari, 2007, p. 88). The clients' perceptions of worth relative to total cost, the client's knowledge of prices, and the total cost and possible credit arrangements are factors included within affordability (Penchansky & Thomas, 1981). Including both the direct costs of health

care and indirect costs that may be associated with consumption—transportation and accommodation—affordability is said to be one of the most important factors affecting access to health care (Ansari, 2007).

Many aspects of affordability were mentioned by participants of this research. The wear and tear on a vehicle along with the escalating costs of fuel was specifically brought up by nearly all of the participants. Driving twenty miles to the nearest hospital and pharmacy is difficult at times, especially for those who have to make one or more trips a week. The cost of ambulance transportation to the nearest hospital or even to the tertiary care center over sixty miles away can be devastating to the uninsured. Even if a mobile health clinic was available within the community, several participants stated that, while they would use that clinic for primary care, they would still have to drive sixty miles to see their specialists.

All of the participants reported having some form of insurance—private, Medicare, Medicaid, or VA. One participant stated that even though a mobile health clinic would be beneficial to the community, the costs of operation would not be financially feasible. She thought that in order to make the clinic break even, the costs of services would have to be higher than in other facilities. Another participant stated that the community could benefit from a mobile health clinic, but the small population would not be very conducive to opening a clinic—"it just isn't economically feasible".

Accessibility

Accessibility is the relationship between the location of supply and the location of clients, taking into account the clients' transportation resources and travel time, distance and cost (Thomas & Penchansky, 1984). In the United States, distance to health care provider has been recognized as a significant barrier to health care access (Guagliardo, 2004). However, studies have shown that the utilization of health care resources is not always related to accessibility (Thomas & Penchansky, 1984).

Accessibility was a common theme among the responses by participants of this study. Difficulty accessing the current health care services was mentioned by nearly all participants. Distance, costs of travel, road conditions, and adverse weather conditions are factors influencing accessibility according to the respondents. As previously mentioned, the twenty mile drive to receive basic health care services and sixty miles to receive specialty care, affects the community members' utilization of health care. One woman stated that if there was a clinic closer, she would probably use it to obtain preventative care on a regular basis. Currently, she visits a health care provider about every two years and that is only if she has an acute illness. She stated "thankfully, I am pretty healthy".

Limitations to the Study

The limitations of this study were due primarily to distance to the rural town, time constraints, and limited funding. These factors limited the researcher in the number of interviews conducted and therefore resulted in a small sample size. The ability to

generalize the results of the study to the other residents of the selected rural town is limited due to the small sample size. The ability to generalize the results of the study to other rural towns across the U.S. is also limited because of the small sample size and involvement of only one rural town in the northwestern U.S. Views on access to health care, the use of mobile health clinics, and primary care may vary greatly from one rural town to another. While the interviews were completed by both men and women, the median age of the participants was 65 years. This represents a limitation in that a younger group in the same community may have differing views on health care access and mobile health clinics.

An additional limitation was the setting of several of the interviews. The interview that took place in the participant's place of employment were more rushed and resulted in shorter answers. The same was the case with the participants' responses during the interviews that took place at the local eatery. More thorough responses and discussions were gleaned from the interviews that took place in a more private, secluded location, such as the participants' place of residence.

Selection bias that may limit the validity of research is common with snowball sampling techniques due to the inclusion of participants based on the recommendation of other participants (Atkinson & Flint, 2001). Members of vulnerable populations, such as the residents of a rural town, can be challenging to locate and hesitant to allow an outsider in to gather information. This can bias the research in that the participants are not trustful of the researcher and therefore not as honest and forthcoming as they may be

if the researcher was from within the community (Atkinson & Flint, 2001; Sandelowski, 2000).

Implications and Recommendations for Practice

Implications for health care practice generated by this study are many. The diverse health care needs of rural communities and their sparse populations can make traditional health care models unsustainable. In order to improve access to care, methods to best deliver and maximize health care must be developed. These methods include ways to overcome the challenges of recruitment and retention of health care providers in rural areas. In areas where nurse practitioners have limited prescriptive authority, they must rely on a physician. Since studies (Gamm, Castillo, & Pittman, 2003) have shown that nurse practitioners prefer rural areas, comprehensive prescriptive authority is needed in all states for nurse practitioners. Montana is one of thirty-six states that allows comprehensive prescriptive authority to nurse practitioners (Byrne, 2010).

The potential uses and benefits of mobile health clinics are endless. A mobile health clinic in rural areas can qualify as a rural health clinic. Rural health clinics benefit from enhanced reimbursement rates for providing Medicare and Medicaid services (RAC, 2010). Since a rural health clinic must utilize at least one nurse practitioner or physician assistant, this increases the job market for mid-level providers.

Additional implications include sharing the data obtained from this research with the local public health nurse in an effort to further evaluate the existing health care services in the community and the community's knowledge of these services. Sharing

the data with the nearest rural town's hospital, which provides the services of the visiting clinic, may be beneficial to both the hospital and the rural communities it serves.

If a mobile health clinic was established in this community, methods to enhance community involvement would be necessary. Participants of the study mentioned several times that integration into the community would be important for the success of the clinic. As a mobile clinic, the ability to integrate may be particularly difficult. The providers and staff of the clinic may be able to participate in local celebrations—4th of July parades, rodeos and fairs, and school functions. They may also be able to provide educational seminars at the senior center. Integration may be important to the success in the form of advertisement of the clinic as well. As rural residents see the clinic around town and in conjunction with town functions, perceptions of the clinic may improve. Improved perceptions may then increase utilization.

Recommendations for Future Research

The use of a mobile health clinic can increase access to care, improve the general health status, and reduce hospitalizations among rural residents. Mobile health clinics may provide many different types of services. From dental health services to mental health services and from mammography to radiography, mobile health clinics are not limited to providing primary care. Additional research is needed on the availability of a mobile health clinic that has the capacity to provide primary care to residents of rural communities. Larger studies and studies in different geographical regions are needed to determine the potential beneficial roles of mobile health clinics in rural communities.

Further research is also needed on the use of mobile health clinics in rural communities to determine financial feasibility. With the downturn in the economy and escalating fuel prices, the cost of obtaining a mobile health clinic or outfitting a suitable recreational vehicle may be prohibitive. The economics of staffing a mobile health clinic would also need to be taken into the financial big picture.

The utilization of a mobile health clinic among rural communities is an area of need for further research. The assumption was made that the rural community in this study would express difficulty in obtaining primary health care due to problems accessing that care. Other assumptions including the distance these residents must travel to obtain such care is a perceived barrier to access and that there is not adequate health care available in the community turned out not to be accurate. This research did not focus on these areas. It is evident after completion of the research, that further research is needed on the perceptions of rural residents access to care and the potential utilization of a mobile health clinic should it become available to them.

Conclusion

The health care needs of a rural community are unique. As with any community, variations will be found in the individual needs and desires of community members. The findings of this study show that the residents of this rural town have access to health care. It also shows that increased access through the use of a mobile health clinic may be beneficial. The use of mobile health clinics in rural areas may help make health care more affordable, accessible, available, acceptable, and accommodating.

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APPENDICES

APPENDIX A

SUBJECT CONSENT FORM

SUBJECT CONSENT FORM

PARTICIAPTION IN HUMAN RESEARCH
MONTANA STATE UNIVERSITY

Project title: Rural Montana: Mobile Health Clinics

You are being asked to participate in a research study about mobile health clinics in rural areas. The purpose of the study is to determine the potential benefits of a mobile health clinic providing primary care in rural Montana. You are being asked to participate because you are a resident of a rural area. In order to participate, you must be able to understand and speak English, be 21 years of age or older, and be willing to answer questions about the use of mobile health clinics.

If you agree to participate, you will be interviewed once in the location of your choice. The interview should take no longer than one hour to complete but may take longer upon your request. The interview will consist of face-to-face open-ended questions with the researcher taking notes during the interview. After the interview, no additional contact from the researcher will be required. You may elect to decline the interview at any point in time and at any point during the interview process. Declining participation will have no future impact on your health care access nor will any other adverse effects be seen. There will be no benefit to you during the study and the only risk is the use of some of your valuable time. During the interview, you are encouraged to ask questions if you do not understand a question or if additional clarification is needed. You may also ask additional questions regarding the research study.

Your identity will only be known by the researcher and will otherwise be confidential. The information gathered will be used for completion of a Master's Thesis and may be published in a health related publication. No identifying information will be used in either of the above. The interviews will be coded to remove any identifying information.

In the event your participation in this research directly results in injury to you, medical treatment consisting of mental health services will be made available. No compensation is available from Montana State University for injury, accidents, or expenses that may occur as a result of your participation in this project. Further information about this treatment may be obtained by calling Denise Mensch at (541) 219-2623. Montana State University will not be responsible for injuries or costs incurred during your participation in this study. Additional concerns or questions can be directed to Mark Quinn, Chairman of the Institutional Review Board at Montana State University. You may contact him by phone at (406)-994-5721.

AUTHORIZATION: I have read the above and understand the risks and benefits of this study.
I, _____ , agree to participate in this research. I understand that I may later refuse to participate, and that I may withdraw from the study at any time. I have received a copy of this consent form for my own records.

Signed: _____
Witness: _____
Investigator: _____
Date: _____

APPENDIX B

INTERVIEW QUESTIONS

Interview Questions

1. When you have a health problem, where can you go to have it addressed?
2. Does the distance to your health care provider affect the care you seek?
    a. Please explain.
3. How often do you see a health care provider?
4. What do you feel are the health care needs of the community?
5. Do you currently have a primary care provider (family physician or internist)?
6. If a mobile health clinic came to your community, what services would you like it to provide?
7. If a mobile health clinic came to your community, would you seek health care there?
    a. Why or why not?
8. Do you think a mobile health clinic could be beneficial to the community?
    a. Why or why not?
9. What characteristics of a mobile health clinic, and its health care providers, would be appealing to you?
10. What characteristics of a mobile health clinic, and its health care providers, would not be appealing or even concerning to you?