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# Health Disparities on American Indian Reservations: Can Mid-level Practitioners Make a Difference?

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# HEALTH DISPARITIES ON AMERICAN INDIAN RESERVATIONS: CAN MID-LEVELPRACTITIONERS MAKE A DIFFERENCE?

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HEALTH DISPARITIES ON AMERICAN INDIAN RESERVATIONS:
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# ABSTRACT

**Introduction:** American Indians/Alaskan Natives (AI/AN) suffer from a number of health issues and at higher rates than other United States populations. Efforts have been made through the Indian Health Service (IHS) to improve the AI/AN state of health, but healthcare disparities remain.

**Purpose:** The purpose of this study was to assist in identifying options in reducing healthcare disparities on American Indian reservations in South Dakota. The need for recruitment of additional physicians and mid-level practitioners (also known as mid-level providers or advanced practice providers) was assessed, as well as the potential for mid-level practitioners to meet that need.

**Methods:** A survey was sent to IHS physicians, physician assistants, and nurse practitioners within South Dakota. SurveyMonkey® was utilized to collect data. The survey was sent to nine reservation health facilities, with 54 potential participants.

**Results:** Research questions revealed marginal satisfaction with access to supplies, neither satisfaction nor dissatisfaction with access to treatments, dissatisfaction with funding, a high frequency of rationing, healthcare factors needing improvement, satisfaction with workload, dissatisfaction with staffing, and a need for additional providers. Results also revealed physician assistants and nurse practitioners as unanimously valuable and having made a noteworthy impact, and mid-level providers act as viable and valuable additions to reservation healthcare facilities.

**Conclusions:** This study revealed areas in need of improvement within the reservation healthcare system, and revealed ways to improve upon the reservation healthcare system. In addition, mid-level providers were found to be valuable and viable additions to reservation health facilities, and their presence has improved healthcare delivery within reservation communities.

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# CHAPTER 1: INTRODUCTION

## Background

Since the very first cohort graduated in 1967 from Duke University, physician assistants (PAs) have played a vital role in filling gaps in healthcare. The profession began as a means to assist physicians with an overwhelming workload, and to extend the radius of a physician's service. PAs established themselves as an effective means of satisfying the healthcare demands of United States citizens (American Academy of Physician Assistants, 2013).

Likewise, nurse practitioners (NPs) have impacted healthcare in a positive and significant manner ever since the first NP educational program was established in 1965. Their invaluable presence is felt especially in the field of primary care, with 87.2% of the nation's 189,000 practicing NPs prepared to serve in the career track so desperately vital to the health and wellness of our nation's rural communities (American Academy of Nurse Practitioners, 2014).

Physician assistants and nurse practitioners (also referred to as mid-level practitioners, mid-level providers, or advanced practice providers) have worked towards relief in the overwhelmed aspects of healthcare. Though their efforts have been largely successful and their presence found essential by the medical community, the work of physician assistants and nurse practitioners is never truly finished--there are numerous healthcare disparities that have yet to be resolved. One such disparity is the state of health of American Indian/Alaskan Native (AI/AN) peoples (Indian Health Service, 2013).

**Problem Statement**

A vast amount of research is available that serves as evidence of the health disparities of AI/AN communities. Disparities in the rate of type II diabetes, alcoholism, heart disease, depression, suicide/suicide attempts, substance abuse, accidental deaths, domestic violence, tobacco use, inactivity and poor diet, hypertension, and more are overtly found within AI/AN populations (Indian Health Service, 2013). Research indicates that these disparities have resulted in the AI/AN population having a shorter life expectancy when compared to the US average. According to the Indian Health Service website, " American Indians and Alaska Natives born today have a life expectancy that is 4.2 years less than the U.S. all races population (73.7 years to 78.17 years, respectively) (Indian Health Service, 2013). In South Dakota, (this study's region of focus), the state-wide life expectancy is estimated at 79.5 years, while the life expectancy for South Dakotan AI individuals is estimated at 68.2 years (Measure of America, 2014).

A significant lack of funding often prevents patients from obtaining a great level of health and wellness (Dial, et all, 2005). AI/AN populations have the lowest per capita income of any people group in the country (Lillie-Blanton, Roubideaux, 2005). South Dakota has the highest proportion of AI families living in poverty-- an estimated 43-47% (Indian Affairs, US Department of the Interior, 2013). The US Government, through the Indian Health Service (IHS), has responded in making healthcare more affordable, oftentimes covering medical expenses for Tribal individuals (Valandra and Colleague, personal communication, 2013).

However, IHS too suffers from a profound lack of funding. In personal communication, J. Valandra and colleague (an IHS employee who wished to remain anonymous), members of the Rosebud Sioux Tribe (Sicangu Lakota Oyate) who have utilized IHS their entire lives, reported significant budget-cuts and layoffs that have led to difficulty in providing necessary treatments for the AI/AN people. The lack of IHS funding has created difficulties in providing medical care of the highest quality, difficulty in recruiting medical specialists to serve Tribal communities, and difficulty in transporting patients in need of emergency care to better-equipped providers (Valandra and Colleague, personal communication, 2013).

Underfunding, beyond causing the above issues, has led to treatment rationing. Dr. Craig Vanderwagen, former chief medical officer of the IHS, expressed his discontent for the way healthcare rationing often prevails:

> We don't feel good about the number of patients who need care who are rejected because their problem is not life-threatening. . . . It's rationing. We hold them off until they're sick enough to meet our criteria. That's not a good way to practice medicine. It's not the way providers like to practice. And if I were an Indian tribal leader, I'd be frustrated. (Office of the General Counsel, U.S. Commission on Civil Rights, 2004, p. 21)

To illustrate just how underfunded IHS has been, one particular study revealed that an additional $1.8 billion per year in funding would be needed for the IHS to match the quality of care provided to patients who are part of more mainstream healthcare plans (Lillie-Blanton, Roubideaux, 2005).

Yvette Roubideaux, M.D. M.P.H, a prominent writer on AI healthcare, a member of the Rosebud Sioux Tribe, and the current Director of IHS, effectively summarizes the AI healthcare state of affairs in her testimony for her article, "Perspectives On American Indian Health".

> I have experienced the health challenges faced by American Indians and Alaska Natives from a number of perspectives over time. As an American Indian child, I received healthcare in an Indian Health Service facility, and I was aware at an early age that the burden of health problems was significant. Every visit to the clinic meant a 4-hour wait in a crowded waiting room. I heard the complaints of relatives about the poor care they received, and there was always a sense that better care was available in the non-Indian health clinics nearby. I also noticed that I had never seen an American Indian or Alaska Native doctor in the clinic. Perhaps if there were more AI/AN doctors, I thought, health care would be more culturally appropriate and of higher quality.
>
> From my perspective years later, as an American Indian physician working in the IHS, I noted that the problems and challenges in Indian healthcare were still there, and now I was the doctor people waited 4 hours to see. The burden of chronic diseases was so significant that I was often surprised to see a patient without diabetes.
>
> ...The growth in the prevalence of chronic diseases in this population is a crisis for the IHS, which was originally designed as a hospital-based, acute care system and is currently severely underfunded. (Roubideaux, 2002, p. 1401)

**Purpose**

The purpose of this study was to assist in identifying viable options in reducing healthcare disparities on American Indian reservations. This purpose was done by identifying areas for improvement within American Indian reservation healthcare facilities as described by physician, physician assistants, and nurse practitioners who serve those healthcare facilities. In addition, the need for recruitment of additional healthcare providers (physicians and mid-level practitioners) was assessed, as well as the potential for mid-level practitioners to meet that need.

As extensions of physicians and as proven effective in serving rural populations and reaching the unreached, physician assistants and nurse practitioners can aptly meet the demands of underserved populations, such as is found on American Indian reservations. With a strong emphasis on patient education and preventive medicine, and the largely preventable nature of some of the leading disease processes affecting AI/AN populations, the increased presence of mid-level practitioners at IHS facilities may serve to reduce healthcare disparity rates in AI/AN communities, and to bridge gaps in the IHS healthcare network.

**Significance of Research Project**

Many studies call for action against substantial healthcare disparities, and most focus on education and spreading awareness. The intent of this study, however, was to discover potential solutions to these substantial healthcare disparities by surveying physicians, physician assistants, and nurse practitioners who serve American Indian reservation healthcare facilities. This study also intended to discover whether or not

mid-level practitioners could serve as viable and valuable means of providing quality treatment and preventive services to reservation communities.

In addition, the need for recruitment of additional healthcare providers (physicians and mid-level practitioners) was assessed, as well as the potential for mid-level practitioners to meet that need.

This approach was significant because it has the potential to achieve the following:

1. Gaining a first-hand assessment of which factors regarding the healthcare system on American Indian reservations need improvement could initiate an effort for further reducing healthcare disparities.
2. Assessing the need to recruit the service of additional medical practitioners may initiate an effort to further support reservation communities.
3. Assessing whether or not mid-level practitioners could serve as viable and valuable additions to reservation healthcare facilities could uncover an additional opportunity to serve.
4. Assessing what factors hinder or encourage healthcare providers from seeking employment on reservation healthcare facilities may assist Tribal leadership and/or Indian Health Service administration in recruiting additional support.

South Dakota, this study's region of focus, is a very significant epicenter for this study. Home to an estimated 69, 476 American Indians (Measure of America, 2014), South Dakota ranks among the top-five states in terms of percentage of American Indian residents, with AI residents contributing approximately 8.5% of the state's total population (CDC, 2014). In addition, South Dakota has the highest proportion of AI

families living in poverty-- an estimated 43-47% (Indian Affairs, US Department of the Interior, 2013).

**Research Questions**

The intent of this research project was to explore the following questions:

1. According to physicians, physician assistants, and nurse practitioners currently serving South Dakota American Indian reservations, what factors regarding the healthcare system on American Indian reservations need to improve in order to further reduce healthcare disparities?
2. How great is the need to recruit the service of additional medical practitioners?
3. Can mid-level practitioners be a viable and valuable addition to American Indian reservation healthcare facilities?
4. What factors hinder or encourage healthcare providers from seeking employment on American Indian reservation healthcare facilities?

The intent of this research project was to present the findings associated with these questions in hopes of increasing awareness and advocacy for the state of health on American Indian reservations.

# CHAPTER 2: LITERATURE REVIEW

## Introduction

The health disparities of the American Indian nation are complex and multi-faceted. To begin to understand these disparities, one must look back through history, to their origins. Chapter Two is written in the effort of relaying, in brief, "The Origin of Health Disparities" in the American Indian nation, "The Advent of Reservations" and pertinent relations between the U.S. Government and Native peoples, "Major Health Disparities of Modern American Indian Peoples", the "Cause & Effect" of past events on the American Indian nation , the U.S. Government's "Broken Promises", and the potential for "Mid-level Practitioners" to assist in the restoration of health on reservations.

## The Origin of Health Disparities

A common misconception is that all early American Indian (AI) tribes lived long, healthy, and peaceful lives before the arrival of Europeans. While some tribes did indeed live healthy and peaceful lives, others were victim to malnutrition, diseases such as pneumonia and tuberculosis, and violence from competing tribes (Jones, 2006). In the major tribal centers of Mexico and Peru, life expectancy is estimated to have been less than twenty-five years of age (Jones, 2006). These factors are suspected to have played a substantial part in weakening tribes just prior to the introduction of European peoples to the Americas (Jones, 2006).

Before Christopher Columbus arrived, estimates ranged between 8 and 112 million tribal people who existed in the Americas, with 2 to 12 million found in North America alone (Jones, 2006). Though this range seems too imprecise to be fully believed, one must consider this: the estimated mortality post-Columbus ranges from 7 to 100

million, a loss of nearly 90% of the pre-Columbian tribal population regardless of which figure is most accurate (Jones, 2006). The very first region of European settlement, called Hispaniola, witnessed a tribal population decrease from 400,000 in 1496 to 125 in 1570--a loss of over 99% of the area's population (Jones, 2006).

Upon colonization, European settlers introduced new strains of smallpox, measles, influenza, malaria, and possible others (hepatitis, plague, chickenpox, diphtheria) to the Native population, causing near extinction of many tribes (Jones, 2006). One might be quick to attribute this disastrous spread of disease to an early lack of pathogenic understanding. However, this sort of transmission continued into the 1940s and 1960s with expansion into isolated regions of Alaska and Amazonia by highway construction efforts and missionary groups (Jones, 2006).

Early settlers and Natives alike eventually realized a pattern of disease transmission, as noted here by a New York missionary in 1705: "The English here are a very thriving growing people, and ye Indians quite otherwise, they wast [sic] away & have done ever since our first arrival among them (as they themselves say) like Snow agt. [against] ye Sun" (Duffy, 1951, p. 326). This early realization of health disparity likely escalated the tension between European settlers and Native peoples, perhaps influencing future interactions that would lead to the advent of modern-day health disparities in American Indian peoples.

Colonists speculated as to why the Native peoples were so afflicted by disease, producing a wide variety of possible explanations. The prevalent explanation was one of divine intervention and pre-destination. Some believed that the rampant disease was a result of God wanting the European colonists to rule and inhabit the Americas, and thusly

the Native race was cleared from the "promised land" (Jones, 2006). Others believed that Satan was responsible for the epidemic and was preventing the spread of the Gospel by killing those who had yet to hear it (Gookin, 1792).

During the settlement of the American West, speculations remained in divine providence, though to a lesser extent. Settlers began to attribute health disparities to behavioral differences--some of which stemmed from a lack of understanding of Native tradition and spirituality. "Indifference to cleanliness, foreign diets, reckless use of sweat baths, and the 'vicious and dissolute life' caused by alcohol" illustrate some of the behavioral differences American settlers upheld as the sources of disease and mortality (Jones, 2006, p. 2126).

George Catlin, famed American West painter and author of his accounts during his travels with various tribes of the Americas, was bold to contradict the general opinion. He warned that the "unrequited account of sin and injustice" brought upon Native peoples by Whites would one day be seen as a great and unforgiveable folly (Jones, 2006, p. 2126).

The American Indian people shared Catlin's sentiment. David S. Jones, in his article *The Persistence of American Indian Health Disparities*, tells the following tale:

> When an Ioway delegation visited London during the 1840s, an English minister demanded that the Ioway acknowledge smallpox as divine punishment. Their war chief had a quick reply: "If the Great Spirit sent the small pox into our country to destroy us, we believe it was to punish us for listening to the false promises of white men. It is a white man's disease, and no doubt it was sent among White people to punish them for their sins." (Jones, 2006, p. 2126)

Unfortunately, few adopted Catlin's beliefs--the general public was quicker to blame the ways of the American Indian people than to assume appropriate responsibility (Jones, 2006).

**The Advent of Reservations**

Under the Appropriation Bill for Indian Affairs, passed in 1851, reservations were introduced, and with them the creation of further health disparities for the American Indian community. Years of broken treaties and deplorable acts between the United States Government and American Indian tribes occurred--of which will not be the focus of this text, but are vital and harrowing aspects of United States history that all are encouraged to study (Independence Hall Association, 2013). As a result of the conflicts between the United States Government and American Indian tribes, reservations were created as a means of containment and isolation. Tribes were relocated to strategic areas to avoid interactions with settlers and railroad companies developing the American West (Independence Hall Association, 2013).

The terrain found on reservations was often infertile and barren, making farming difficult and food scarce; these created a harsh existence during the brutal winter cold. Additionally, due to confined living arrangements and poor sanitation methods, disease flourished amongst those living on the reservation (Independence Hall Association, 2013).

According to *The Persistence of American Indian Health Disparities*, smallpox, measles, cholera, malaria, venereal diseases, and alcoholism were abundant on reservations, but none so much as tuberculosis, and particularly on Dakota reservations

(Jones, 2006). In fact, tuberculosis mortality amongst the Sioux at that time exceeded mortality from all causes in most major cities (Crow Creek Agency, 1895).

As before, speculations as to why such disparities existed were divided. Some held on to the belief that behavioral differences were to blame, now adding unhygienic cooking, religious dances, pipe smoking, and cigarette usage to the list of "reasons why" (Jones, 2006). Later, this sort of reasoning was put into application when Native culture and traditions were progressively erased in reservation boarding schools for the sake of assimilation into "modern society".

Others were wise to recognize confinement, poor living conditions, and inadequate government-provided rations as major causes of illness and mortality. Reverend S.R. Riggs, who worked to translate the Bible into the Dakota language, conveyed his discontent with the state of American Indian health: "We have no right to assume that they are a race given over to God for destruction, and we have less right to doom them ourselves (Jones, 2006)."

The Dawes Severalty Act of 1887 sought to give American Indians more choice and space in which to live, as well as reduce many of the disparities affecting American Indian communities at that time. Under the Dawes Act, American Indian families were offered 160 acres of tribal land to own and use as they pleased (Independence Hall Association, 2013). Unfortunately, many Natives did not understand or trust the Act well enough to participate, and much of the offered land was not claimed. In 1900, Native lands were reduced to half of the expanse noted in 1880 (Independence Hall Association, 2013).

The US Government later seized the unclaimed lands and sold them to railroad companies and other developers of the American West, the proceeds then used to fund reservation boarding schools. These schools' focus was one of assimilation, and played a large part in tribal demoralization and the loss of American Indian culture. Native children were forced to attend these schools, where English reading and writing was taught and Native languages discouraged, oftentimes outlawed (Independence Hall Association, 2013). Students were forced to dress in the style of civilized Eastern Americans, and often had their long, traditional hair cut short. Native religions were damned, and Christianity was taught (Independence Hall Association, 2013).

As time progressed, advocacy for reform of reservation life and equality for American Indians increased. As a gratitude for the service of American Indians during World War I, the United States government enacted the Meriam Survey. This survey sought to evaluate the quality of life on reservations and identify areas for improvement (Encyclopaedia Britannica, 2014). It was found that disparities had remained despite the original "intentions" of the Dawes Act: "alcoholism, poverty, illiteracy, and suicide rates were higher for Native Americans than any other ethnic group in the United States (Independence Hall Association, 2013, p. 40d)."

The Dawes Act had failed, and was repealed in 1934. In response to the revelations of the Meriam Survey, the Indian Reorganization Act (Wheeler-Howard Act) was passed with the intent to carry out reform on the reservation. The Indian Reorganization Act (IRA) was monumental in that it allowed for decreased government involvement in tribal affairs, increased funding for the purchase of millions of acres of tribal land, and increased funding for health and education (Encyclopaedia Britannica,

2014). The development of the modern American Indian nation and the restoration of its culture and traditions are in large part due to the changes brought about by the IRA and the subsequent Indian Self-Determination and Education Assistance Act.

Increased awareness of living conditions on reservations led to increased funding towards the effort of reducing disparities. In 1912, President Taft appropriated $12,000 to the Bureau of Indian Affairs in the effort of reducing American Indian health disparities. In 1917, appropriations reached $350,000, and for the first time in more than 50 years, AI birth rate surpassed death rate. The Snyder Act of 1921 began an era of increasing appropriations to the AI effort, with $596,000 in 1925, $2,980,000 in 1935, $5,730,000 in 1945, and $17,800,000 in 1955 (Jones, 2006).

After World War II, with great confidence in new medical technologies such as penicillin and isoniazid (a medication used still today in the treatment of tuberculosis), researchers set out to prove that AI disparities, and especially tuberculosis, could be reduced through the use of newly developed medications alone. Though a decline in tribal health had been previously documented during times of economic recession, the study entitled *Health Care Experiment at Many Farms* set out to show that economic intervention was not entirely vital for health improvement to occur (Jones, 2006).

*Health Care Experiment at Many Farms* successfully controlled tuberculosis in its areas of study, but revealed that many disparities on reservations could not be resolved by the advancements in medical technology (Jones, 2002) tested. This discovery urged further healthcare reform on American Indian reservations, and led to the creation of the Indian Health Service (IHS) in 1955. (Jones, 2006)

**Major Health Disparities of Modern-Day American Indian Peoples**

The IHS quickly set out to thoroughly survey the state of health on AI reservations. Compared to the general population at that time, the initial survey revealed a total mortality difference 20% greater, an infant mortality three times as high, a life expectancy ten years less, and a greater prevalence of infectious disease and accidents amongst the AI communities studied (Jones, 2006).

An IHS survey in the 1970s revealed further disparities, as conveyed in *The Persistence of American Indian Health Disparities*:

> ...life expectancy was two thirds the national average, and the incidence of infant mortality (1.5 times), diabetes (2 times), suicide (3 times), accidents (4 times), tuberculosis (14 times), gastrointestinal infections (27 times), dysentery (40 times), and rheumatic fever (60 times) also were above the national average." (Jones, 2006, p. 2130)

In 1989, IHS announced that since its introduction in 1955, tuberculosis had been decreased by 96%, infant mortality by 92%, pulmonary infections by 92%, and gastrointestinal infections by 93% (U.S. Public Health Service, 1989). Rates still exceeded the national average, but demonstrated a remarkable achievement in reducing health disparities.

In the late 1990s, IHS data revealed a new set of health disparities, with some familiar adversaries: "...heart disease (1.2 times), accidents (2.8 times), diabetes (4.2 times), alcohol (7.7 times), suicide (1.9 times), and tuberculosis (7.5 times) [that of the national average]" (Jones, 2006). More recently, research indicates that the AI/AN life expectancy has improved, but remains low in comparison to the national average

all-cause age of death. According to the IHS website, " American Indians and Alaska Natives born today have a life expectancy that is 4.2 years less than the U.S. all races population (73.7 years to 78.17 years, respectively) (Indian Health Service, 2013). In South Dakota, (this study's region of focus), the state-wide life expectancy is estimated at 79.5 years, while the life expectancy for South Dakotan AI individuals is estimated at 68.2 years (Measure of America, 2014).

**Cause & Effect**

According to Michael Bird, executive director of the National Native American AIDS Prevention Center and former president of the American Public Health Association, "when you dispossess people of their land or labor, their culture, their language, their tradition, and their religion you set into force powerful forces that impact in a very negative and adverse way (Office of the General Counsel, U.S. Commission on Civil Rights, 2004a, p. 14)."

American Indians were dispossessed of their land during the development of the American West and advent of the reservation system. For some tribes, the forced inhabitance on reservations required a change from nomadic hunting to agriculture in an infertile environment--a dispossession of their labor. The isolated nature of reservation areas led to further dispossession of labor in the infrequency of available or accessible jobs. On the reservation, they were taught the English language and Christianity, while their own languages, practices, and religions were obscured. They were dispossessed of their traditions when whites attributed sweat lodges, traditional dancing, pipe smoking, and other sacred rites as the cause of the rampant disease that claimed so many of their people. To summarize, the health disparities plaguing the American Indian people may

very well be the powerful forces that impact in a very negative and adverse way, as Mr. Bird had described.

**Broken Promises**

In a report presented by the United States Commission on Civil Rights entitled *Broken Promises: Evaluating the Native American Health Care System*, the responsibility of the US Government to American Indian peoples is described:

> The federal government has a special relationship with Native Americans, commonly referred to as a "trust" relationship, requiring the government to protect tribal lands, assets, resources, treaty rights, and health care, among other obligations. The legal source of this trust obligation, however, is imprecise as the boundaries and duties of the trust relationship have evolved over the past two centuries.
>
> The Articles of Confederation contained a general power over Indian affairs, but the Constitution enumerates only one power specific to these affairs: the power "[t]o regulate Commerce . . . with the Indian tribes."In fact, the entire course of dealings between the government and Indian tribes, including various treaties, laws, and hundreds of cases, have all been cited as the source of the trust relationship. (Office of the General Counsel, U.S. Commission on Civil Rights, 2004b, p. 21).

As indicated in large by the remaining health disparities, promises to the American Indian people have gone unfulfilled, and reform is needed. Perhaps a movement carried by the people--an increase in awareness, economic support, and advocacy for legislative action--could make a difference in reducing disparities.

Perhaps if individuals shift their efforts and devotions--be that in education, finance, business, or health care--towards the betterment of the quality of life on reservations, a lasting and beneficial change could be made.

**Mid-level Practitioners**

Indian Health Service facilities are doing a great service in American Indian communities--many medical services are provided at low or no cost. This is a great asset for the communities served, but the IHS is limited by the nature of their annual budget. Unfortunately, this results in the rationing of treatment. If the annual budget of the IHS was expanded, perhaps the rationing of treatments could be reduced.

This study intends to explore if mid-level practitioners (also known as mid-level providers or advanced practice providers) can be a viable and valuable addition to American Indian reservation healthcare facilities. Mid-level providers may be able to reduce some the burden on the budget of the IHS. Physician assistants (PAs) and nurse practitioners (NPs) are trained in and perform many of the same disciplines that physicians are trained in. In fact, NPs are able to manage their own practice autonomously in some states, and the education that PAs undergo is modeled from the curriculum of medical school (American Academy of Physician Assistants, 2011, and American Association of Nurse Practitioners, 2014b). As PAs and NPs have the potential to serve in most of the same roles as physicians (and at a lower cost to their employer), they could be viewed as a cost-efficient option for IHS facilities.

Mid-level providers, on average, earn an annual salary considerably lower than that of a physician. In 2012, it was estimated that family-practice (generalist) physicians earn, on average, $189,000 each year (Arvantes, 2012). The average annual salary of NPs

was found in 2011 to be $91,310 (American Academy of Nurse Practitioners, 2014a). The average annual salary of PAs was found in 2010 to be $90,000 (American Academy of Physician Assistants, 2014a). The averages presented for PAs and NPs may take into account higher-paying salaries of specialist PAs/NPs, so the average salary of family practice PAs/NPs could potentially be less than reported above. Regardless, the salaries of PAs/NPs are considerably less than that of family practice physicians, and may serve as a more affordable alternative to staff IHS health facilities.

In addition, the remote locales typical to AI reservations make it difficult to provide all necessary services to every small and remote community in need. To address this, the IHS has purchased the services of outside organizations--a necessary but very significant expense (Office of the General Counsel, U.S. Commission on Civil Rights, 2004a). Rather than requiring that specialists be contracted by the IHS, or that they travel long distances to meet the needs of remote communities, perhaps "physician-extenders" like PAs or NPs could act as supplementation to efficiently meet the needs of the community and to bridge distance and financial gaps. PAs and NPs, although initially trained as generalists, are numerous in specialty areas of medicine.

The caveat must be made, however, that mid-level providers typically must work under the "jurisdiction" of a physician. As the worth of physician assistants and nurse practitioners becomes more renowned, the legislative reins on their scope of practice will continue to loosen. As of 2014, NPs can now establish their own practice, completely free of physician "supervision", in nineteen U.S. states (Westgate, 2014). "Supervision" is the term used in legal documentation, but it should not be assumed that mid-level

practitioners require direct supervision. They must simply be associated with a physician, under their "jurisdiction".

For physician assistants, the American Academy of Physician Assistants encourages that the scope of practice is established at their level of practice--that is, that the "supervising" physician should work with the PA in determining which scope of practice is appropriate for their own personal patient-base and per individual state law (Westgate, 2014).

The fact that mid-level practitioners, in most states, must be associated with a "supervising physician" is a double-edged sword--though they cannot practice with full autonomy (with the exception of NPs in some states), mid-level practitioners have the unique ability to act as "physician extenders" in that multiple mid-levels can work as an extension of one physician--and at a reduced cost. This is one of the advantages that this research project hopes to illuminate for the sake of IHS utilization-- the value and viability of mid-level practitioners to serve reservations and the surrounding communities.

**Conclusion**

Reservations are in need of increased medical service. Physician assistants and nurse practitioners could be a valuable asset in meeting such a need. Since the mid-1960s, PAs have worked "to increase the public's access to healthcare" and have "provided such [primary care] services in rural and urban areas that often lacked sufficient access to healthcare (Cawley & Hooker, 2013, e333, e336)." NPs work in the same fashion--to directly address the shortage of physicians in rural communities and provide quality, holistic patient care.

An increase of mid-level practitioners could provide a great service for residents of American Indian reservations, who, due to the remote nature of many reservations, lack sufficient access to various means of healthcare. Additionally, mid-level practitioners may offer relief to the financial burden of the IHS. Mid-level practitioners could help to increase access to quality healthcare, and in a cost-efficient way.

# CHAPTER 3: METHODOLOGY

## Introduction

The purpose of this study was to assist in identifying viable options in reducing healthcare disparities on American Indian reservations. This purpose was done by identifying areas for improvement within American Indian reservation healthcare facilities as described by physician, physician assistants, and nurse practitioners who serve those healthcare facilities. The study also intended to discover whether or not mid-level practitioners could serve as viable and valuable means of providing quality treatment and preventive services to reservation communities. The need for recruitment of additional healthcare providers (physicians and mid-level practitioners) was assessed, as well as the potential for mid-level practitioners to meet that need.

This study intended to fulfill its purposes by answering the following research questions:

1. According to physicians, physician assistants, and nurse practitioners currently serving South Dakota American Indian reservations, what factors regarding the healthcare system on American Indian reservations need to improve in order to further reduce healthcare disparities?
2. How great is the need to recruit the service of additional medical practitioners?
3. Can mid-level practitioners be a viable and valuable addition to American Indian reservation healthcare facilities?
4. What factors hinder or encourage healthcare providers from seeking employment on American Indian reservation healthcare facilities?

This chapter includes the following information: Participants, Methods of Data Collection, Study Design, Specific Procedures, Statistical Methods, Validity/Reliability, and Limitations.

**Participants**

The survey associated with this study was administered to current IHS-employed physicians, physician assistants, and nurse practitioners as its population of study. The targeted population worked within an IHS facility found specifically on an American Indian reservation. For this study, only South Dakota American Indian reservations were involved. This study attempted to gain participation approval from eleven reservation healthcare facilities, but only eight of these facilities submitted their approval prior to deadlines set by the Great Plains Area IRB. Eight facilities participated in the study, with a potential 54 participants in total at these facilities.

Only current IHS-employed physicians, physician assistants, and nurse practitioners, who work within an IHS facility found specifically on an American Indian reservation, were eligible for consideration. Data received from ineligible participants was not included into data synthesis.

**Methods of Data Collection**

This study utilized a survey consisting of originally-developed Likert scale (scale of 1 through 5, with 1 indicating the lowest level and 5 indicating the highest level and 2, 3, and 4 indicating increments in between lowest and highest levels) questions, as well as originally-developed, open-ended/short-answer questions (see Appendix A).

SurveyMonkey®, an online source for the generation and distribution of surveys, was utilized in order to collect the following:

1. Demographic data
2. Data regarding factors that encourage or discourage healthcare providers from seeking employment at American Indian reservation healthcare facilities
3. Data regarding areas of improvement for the healthcare system found on reservations
4. Data conveying whether or not physician assistants/nurse practitioners would be viable and valuable additions to American Indian reservation healthcare facilities
5. Likert scale assessment of criteria such as overall satisfaction with personal workload, with the appropriateness of staffing at their facility, with accessibility to necessary supplies, with accessibility to necessary medications, with patient compliance of treatment regimens, with government funding provided to their facility, overall understanding of the roles of physician assistants as healthcare providers, and overall understanding of the roles of nurse practitioners as healthcare providers.

A link to the survey was sent to non-participant, administrative employees of the intended IHS facility to be further distributed to the intended audience of physicians, physician assistants, and nurse practitioners. Administrative employees who received the survey did not participate in the study and functioned only as distributors.

**Study Design**

This study can be defined as a descriptive, survey-based research study targeting current IHS-employed physicians, physician assistants, and nurse practitioners, who work within an IHS facility found specifically on an American Indian reservation.

**Specific Procedures**

Research studies utilizing a survey carry the inherent risk that all who receive an invitation for the survey might not participate. To compensate for this possibility and increase the likelihood of acquiring an adequate sample size from a potentially small available population, the survey was sent to eight healthcare facilities found on South Dakotan American Indian reservations in which permission for survey administration was gained, with 54 potential participants in total. This strategy intended to increase the useful sample size, and thus better represent the entire possible population.

To increase the likelihood of acquiring an optimum response rate, one reminder e-mail was sent to the IHS administrative contacts to remind those participants who have not yet submitted their survey to do so. This reminder e-mail was sent two weeks after the survey was initially distributed (Week 2 of 4).

Access to the survey expired after a four-week period. Following survey expiration, collected data was analyzed and reported.

Participants of the study were not offered, nor received any form of compensation for completing the survey. Communications with IHS representatives revealed that compensation/incentives are not allowed. This is likely in order to reduce the possibility of coercion and bribery.

This survey protected its participants by limiting the amount of personal information collected. Personal questions such as name, facility of employment, personal addresses, or phone numbers were not collected. Submitted data was not shared with the participants' employers. During analysis, all information collected was kept secure by the provisions established by SurveyMonkey® under "Privacy Policy". After analysis, the raw data submitted by survey participants is stored within a secured cabinet within the physician assistant program facility at Bethel University. Only the researcher and research advisor associated with this study had access to research documents, and all parties did abide by a strict agreement to maintain confidentiality.

The intentions of the survey were clearly conveyed to its recipients (see Appendix B). On top of every survey distributed was a description of the study's intents which was thoroughly written out in the effort of ensuring informed and consenting participants, as well as assurance of participant confidentiality.

Participants were clearly informed that submission of their survey signifies informed consent for the use and release of their submitted data in a professional setting, as well as the understanding that confidentiality will be upheld.

This study was submitted to the Institutional Review Board (IRB) at Bethel University and approved at a Level 3 study (see Appendix C). The study was also approved by the IRB of the Indian Health Service (see Appendix D), administrative authorities of the individual IHS service units, and tribal leadership as required (see Appendix E). These measures ensured that participants were protected under the high standards of IRB mandates.

**Statistical Methods**

Demographic results were compared and analyzed by reporting percentages of occurrence of answers. Though this data does not directly pertain to this study's research questions, patterns emerging from this demographic data may be useful for future research opportunities, and was gathered for this purpose.

The section of Likert scale questions was pre-quantified (1-5, with 1 indicating the lowest level and 5 indicating the highest level), making for a simple means of analyzing data in terms of percentage of occurrence of answers as well as reporting median and mean. Topics of research were determined majority or minority based on the reported percentages.

The section of short-answer questions was kept as raw data, but the overall sentiment of participant input was categorized and tallied to demonstrate the general consensus of this study's intended audience.

**Validity/Reliability**

Validity was based upon the questions asked as compared to the original research questions. The questions chosen for this survey directly reflect the study's original research questions, or are asked with the intent of inspiring future studies or pattern recognition. Reliability was measured by comparing similar questions for similar responses by each participant. Reliability was maintained by distributing an identical survey to each and every participant.

**Limitations**

The results of this study were based on the views of only those who chose to participate in the study. Some recipients of the survey did not participate and thus the study was not fully representative of the entire voice of the region of study.

In addition, the survey utilized was not validated by an expert panel nor a survey study prior to utilization, but rather was created based on findings in literature. Survey validation by an expert panel was requested, but no response was given to this request.

Chapter 5 will review more limitations of this study.

# CHAPTER 4: DATA ANALYSIS

## Introduction

In this chapter, the following topics will be discussed: Techniques of Data Analysis, Response, Population Demographics, Reservation Community-centric Data, Provider Satisfaction, Mid-level Providers, Provider Recruitment, Suggestions for Improvement, and Mid-level Viability & Value.

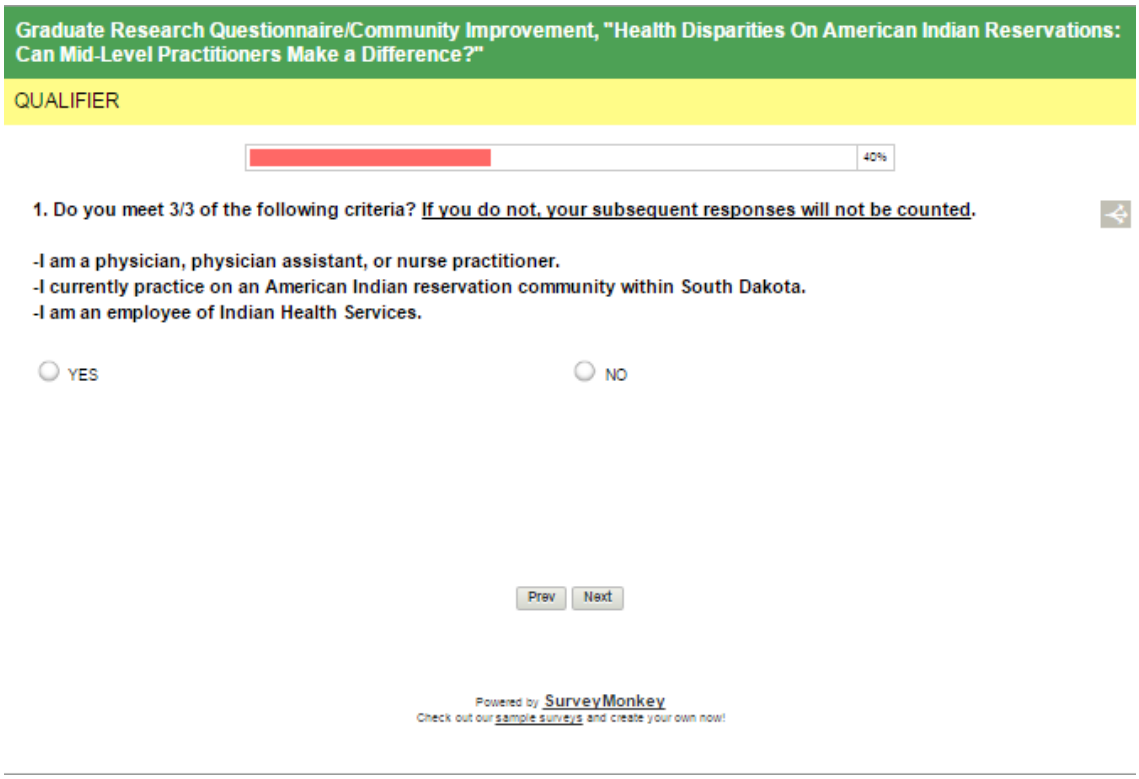
## Techniques of Data Analysis

A link to the survey was sent electronically to non-participant, administrative employees to be further distributed to the intended audience of physicians, physician assistants, and nurse practitioners. Administrative employees who received the survey did not participate in the study and functioned only as distributors. The survey was distributed to eight reservation community healthcare facilities in South Dakota, with a potential of 54 provider participants (physicians, physician assistants, and nurse practitioners).

## Response

Nine survey submissions were received from those who had been sent the link to the survey (n=54). One of survey submissions did not qualify for consideration, as determined by the survey's qualifying question (see Figure 1). Eight of the nine survey submissions collected did qualify, and data reported from this point is based on the eight qualifying submissions.

**Figure 1: Qualifier**




## Population Demographics

Survey results included that 5 out of 8 respondents were female (62.5*%),* and that the average age of respondents was 49.75 years, with seven out of eight respondents being over 40 years old (87.5%). Respondents reported "White/Caucasian" (87.5%) and American Indian or Alaskan Native" (12.5%) as their ethnicity. Respondents reported their relationship status as "Married" (62.5%), "Single, never married" (12.5%), and "In a domestic partnership or civil union" (25%). Respondents described their current practice as "Family Practice" (75%), "Pediatrics" (12.5%), "OB/GYN" (12.5%), and "Other" (12.5%, which field "Other" referred to was not gathered". Note: participants were given the option to select more than one option to best describe their current field of practice. These data points are displayed in Table 1.

**Table 1: Demographic Data**

| **Gender:** | |
|---|---|
| Female | 5/8 (62.5%) |
| Male | 3/8(37.5) |
| **Age:** | |
| 40 years old or greater | 7/8 (87.5%) |
| Less than 40 years old | 1/8 (12.5%) |
| **Ethnicity:** | |
| White/Caucasian | 7/8 (87.50%) |
| American Indian or Alaskan Native | 1/8 (12.5%) |
| Black or African American | 0/8 (0%) |
| Hispanic or Latino | 0/8 (0%) |
| Asian or Pacific Islander | 0/8 (0%) |
| **Relationship Status:** | |
| Married | 5/8 (62.5%) |
| In a domestic partnership or civil union | 2/8 (25%) |
| Single, never married | 1/8 (12.5%) |
| Divorced | 0/8 (0%) |
| Widowed | 0/8 (0%) |
| Separated | 0/8 (0%) |
| **Current Field of Practice:** | |
| General/Family Practice | 6/8 (75%) |
| OB/GYN | 1/8 (12.5) |
| Pediatrics | 1/8 (12.5%) |
| Other | 1/8 (12.5) |
| Surgery | 0/8 (0%) |
| Behavioral Health | 0/8 (0%) |
| Emergency Medicine | 0/8 (0%) |
| Internal Medicine | 0/8 (0%) |

**Reservation Community-centric Data**

Survey results included that 2 out of 8 respondents answered that they did grow up within a reservation community (25%). As for length of practice within a reservation community, 4 out of 8 respondents answered that they have practiced for less than five years (50%), and 4 out of 8 respondents answered that they have practiced for five years or more (50%). Three out of eight respondents answered that they have practiced for ten years or more (37.5%). The mean reported length of practice within a reservation community was 9.75 years, the median 5 years. Additionally, 8 out of 8 respondents answered that their health facility utilizes the services of contracted/externally-hired (non-local, distant, or non-IHS) healthcare providers to meet the needs of their community (100%). These data points are displayed in Table 2.

**Table 2: Reservation Community-centric Data**

| **Did you grow up within a reservation community?:** | |
|---|---|
| No | 6/8 (75%) |
| Yes | 2/8 (25%) |
| **How long have you practiced within a reservation community?:** | |
| Less than 5 years | 4/8 (50%) |
| 5 years or more | 4/8 (50%) |
| 10 years or more | 3/8 (37.5%) |
| **Does your health facility utilize the services of contracted/externally-hired (non-local, or non-IHS) healthcare providers to meet the needs of your community?:** | |
| Yes | 8/8 (100%) |
| No | 0/8 (0%) |

**Provider Satisfaction**

Participants were asked "On a scale of 1 through 5 (with 1 indicating the lowest satisfaction and 5 indicating the highest satisfaction), please rank your overall satisfaction with personal workload". Four of eight selected a "5" (50%). Three of eight selected a "4" (37.5%). One of eight selected a "2" (12.5%). No respondents selected "1" or "3" to describe their satisfaction with personal workload. These data points are displayed in Table 3. The mean selection was 4.25, the median was 4.5.

Participants were asked "On a scale of 1 through 5 (with 1 indicating the lowest satisfaction and 5 indicating the highest satisfaction), please rank your overall satisfaction with the appropriateness of staffing at your health facility". Two of eight respondents selected a "1" (25%). Three of eight respondents selected a "2" (37.5%). One of eight respondents selected a "3" (12.5%). Two of eight respondents selected a "4" (25%). No respondents selected a "5" to best describe their satisfaction with the appropriateness of staffing at their health facility. These data points are displayed in Table 3. The mean selection was 2.375, the median was 2.

Participants were asked "On a scale of 1 through 5 (with 1 indicating the lowest satisfaction and 5 indicating the highest satisfaction), please rank your overall satisfaction with accessibility to necessary supplies". Three of eight respondents selected a "4" (37.5%). Two of eight respondents selected a "2" (25%). One of eight respondents selected a "5" (12.5%). One of eight respondents selected a "3" (12.5%). One of eight respondents selected a "1" (12.5%). These data points are displayed in Table 3. The mean selection was 3.125, the median was 3.5.

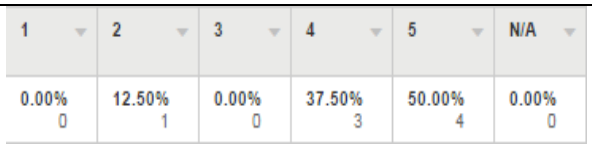
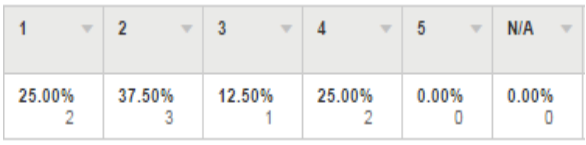
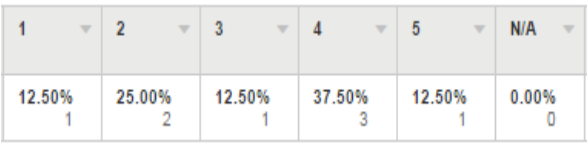
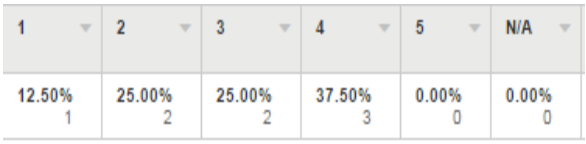
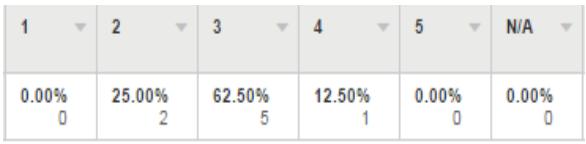
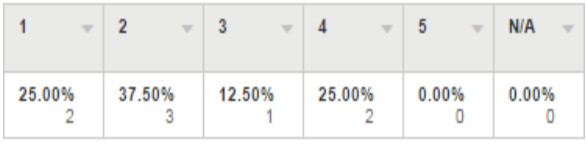
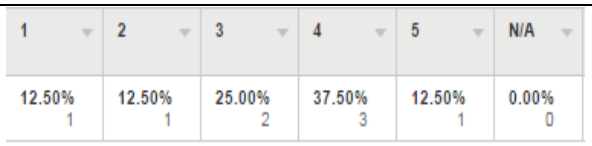
Participants were asked "On a scale of 1 through 5 (with 1 indicating the lowest satisfaction and 5 indicating the highest satisfaction), please rank your overall satisfaction with accessibility to necessary treatments". Three of eight respondents selected a "4" (37.5%). Two of eight respondents selected a "3" (25%). Two of eight respondents selected a "2" (25%). One of eight respondents selected a "1" (12.5%). No respondents selected a "5" to describe their overall satisfaction with accessibility to necessary treatments. These data points are displayed in Table 3. The mean selection was 2.875, the median was 3.

Participants were asked "On a scale of 1 through 5 (with 1 indicating the lowest satisfaction and 5 indicating the highest satisfaction), please rank your overall satisfaction with patient compliance with treatment regimens". Five of eight respondents selected a "3" (62.5%). Two of eight respondents selected a "2" (25%). One of eight respondents selected a "4" (12.5%). No respondents selected a "5" or a "1" to describe their overall satisfaction with patient compliance with treatment regimens. These data points are displayed in Table 3. The mean selection was 2.5, the median was 3.

Participants were asked "On a scale of 1 through 5 (with 1 indicating the lowest satisfaction and 5 indicating the highest satisfaction), please rank your overall satisfaction with the government funding provided to your health facility". Three of eight respondents selected a "2" (37.5%). Two of eight respondents selected a "1" (25%). Two of eight respondents selected a "4" (25%). One of eight respondents selected a "3" (12.5%). No respondents selected a "5" to describe their overall satisfaction with the government funding provided to their health facility. These data points are displayed in Table 3. The mean selection was 2.375, the median was 2.

Participants were asked "On a scale of 1 through 5 (with 1 indicating the lowest frequency and 5 indicating the highest frequency), please rank how often rationing of supplies, medications, treatments, and services occurs at your health facility". Three of eight respondents selected a "4" (37.5%). Two of eight respondents selected a "3" (25%). One of eight respondents selected a "2" (25%). One of eight respondents selected a "1" (25%). One of eight respondents selected a "5" (25%). These data points are displayed in Table 3. The mean selection was 3.25, the median was 3.5.

**Table 3: Provider Satisfaction**

| | |
|---|---|
| Q10: "On a scale of 1 through 5 (with 1 indicating the lowest satisfaction and 5 indicating the highest satisfaction), please rank your overall satisfaction with personal workload". |  |
| Q11: "On a scale of 1 through 5 (with 1 indicating the lowest satisfaction and 5 indicating the highest satisfaction), please rank your overall satisfaction with the appropriateness of staffing at your health facility". |  |
| Q13: "On a scale of 1 through 5 (with 1 indicating the lowest satisfaction and 5 indicating the highest satisfaction), please rank your overall satisfaction with accessibility to necessary supplies". |  |
| Q14: "On a scale of 1 through 5 (with 1 indicating the lowest satisfaction and 5 indicating the highest satisfaction), please rank your overall satisfaction with accessibility to necessary treatments". |  |
| Q15: "On a scale of 1 through 5 (with 1 indicating the lowest satisfaction and 5 indicating the highest satisfaction), please rank your overall satisfaction with patient compliance with treatment regimens". |  |
| Q16: "On a scale of 1 through 5 (with 1 indicating the lowest satisfaction and 5 indicating the highest satisfaction), please rank your overall satisfaction with the government funding provided to your health facility". |  |
| Q17: "On a scale of 1 through 5 (with 1 indicating the lowest frequency and 5 indicating the highest frequency), please rank how often rationing of supplies, medications, treatments, and services occurs at your health facility". |  |

**Mid-level Providers**

Participants were asked "On a scale of 1 through 5 (with 1 indicating the lowest need and 5 indicating the highest need), please rank how much your facility is in need of additional healthcare providers (physicians, physician assistants, and nurse practitioners". Six of eight respondents selected a "5" (75%). One of eight respondents selected a "4" (12.5%). One of eight respondents selected a "1" (12.5%). No respondents selected a "3" or a "2" to best describe how much their facility is in need of additional healthcare providers. These data points are displayed in Table 4. The mean selection was 4.375, the median was 5.

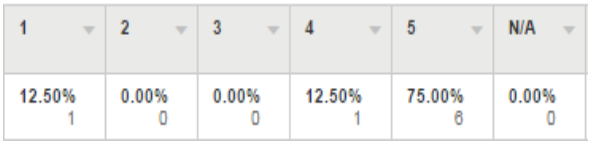
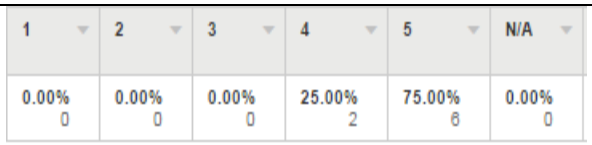
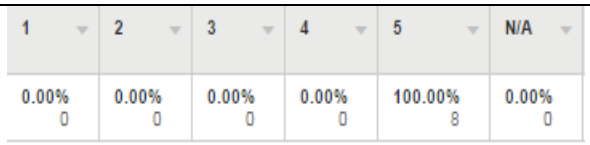
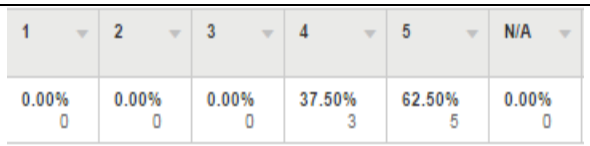
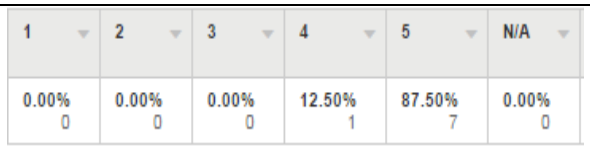
Participants were asked "On a scale of 1 through 5 (with 1 indicating the lowest understanding and 5 indicating the highest understanding), please rank your overall understanding of the roles of physician assistants as healthcare providers". Six of eight respondents selected a "5" (75%). Two of eight respondents selected a "4" (25%). No respondents selected a "3", "2", or "1" to describe their understanding of the roles of physician assistants as healthcare providers. These data points are displayed in Table 4. The mean selection was 4.75, the median was 4.

Participants were asked "On a scale of 1 through 5 (with 1 indicating the lowest understanding and 5 indicating the highest understanding), please rank your overall understanding of the roles of nurse practitioners as healthcare providers". Eight of eight respondents selected a "5" (100%). No respondents selected a "4", "3", "2", or "1" to describe their understanding of the roles of nurse practitioner as healthcare providers. These data points are displayed in Table 4. The mean selection was 5, the median was 5.

Participants were asked "On a scale of 1 through 5 (with 1 indicating the lowest value and 5 indicating the highest value), please rank how valuable physician assistants are or could be for your health facility". Five of eight respondents selected a "5" (62.5%). Three of eight respondents selected a "4" (37.5%). No respondents selected a "3", "2", or "1" to describe how valuable physician assistants are or could be for their health facility. These data points are displayed in Table 4. The mean selection was 4.625, the median was 5.

Participants were asked "On a scale of 1 through 5 (with 1 indicating the lowest value and 5 indicating the highest value), please rank how valuable nurse practitioners are or could be for your health facility". Seven of eight respondents selected a "5" (87.5%). One of eight respondents selected a "4" (12.5%). No respondents selected a "3", "2", or "1" to describe how valuable nurse practitioners are or could be for their health facility. These data points are displayed in Table 4. The mean selection was 4.875, the median was 5.

**Table 4: Mid-level Providers**

| | |
|---|---|
| Q12: "On a scale of 1 through 5 (with 1 indicating the lowest need and 5 indicating the highest need), please rank how much your facility is in need of additional healthcare providers (physicians, physician assistants, and nurse practitioners)". |  |
| Q18: "On a scale of 1 through 5 (with 1 indicating the lowest understanding and 5 indicating the highest understanding), please rank your overall understanding of the roles of physician assistants as healthcare providers". |  |
| Q19: "On a scale of 1 through 5 (with 1 indicating the lowest understanding and 5 indicating the highest understanding), please rank your overall understanding of the roles of nurse practitioners as healthcare providers". |  |
| Q20: "On a scale of 1 through 5 (with 1 indicating the lowest value and 5 indicating the highest value), please rank how valuable physician assistants are or could be for your health facility". |  |
| Q21: "On a scale of 1 through 5 (with 1 indicating the lowest value and 5 indicating the highest value), please rank how valuable nurse practitioners are or could be for your health facility". |  |

**Provider Recruitment**

Question 22 revealed a variety of perceived factors that hinder healthcare providers from seeking employment on reservation healthcare facilities, including:

- "Wages, isolation, inadequate funding"
- "Distance from bigger communities, lack of housing"
- "Salary, remote location, availability of adequate treatments/equipment"
- "Salaries, tribal politics, HR, inappropriate hiring of unskilled and untrained hospital administrators"
- "Tribal prejudice, lower pay, limited housing"
- "Low pay, lack of housing, huge lag in HR time at area level (sometimes more than 90 days from application to starting date)"
- "Location"
- "Available housing"

To summarize, recurring factors that hinder employment at reservation healthcare facilities include low-paying salaries, isolation from larger communities, lack of housing, and frustrations with the efficiency and efficacy of their facility's human resources department/administration (see Table 5).

Question 23 revealed a variety of perceived factors that encourage healthcare providers to seek employment on reservation healthcare facilities, including:

- "Loan repayment"
- "For me it was loan reimbursement from the federal government"
- "Loan repayment, commissioned corps positions, MD's don't need state license"

- "Most want to provide health care, others are unable to maintain jobs in private sector; rural life"
- "Ability to serve an underserved area"
- "Loan repayment program, federal employment and benefits"
- "Previous exposure [to life in a reservation community]"
- "Incentives, salary"

To summarize, recurring factors that encourage employment at reservation healthcare facilities include loan repayment and other benefits. Interestingly, one participant listed "salary" as a factor that encourages employment at reservation healthcare facilities, while in Q22 "salary" was a commonly-recurring hindrance to employment (see Table 5).

**Table 5: Provider Recruitment**

| **Q22: "What factors hinder healthcare providers from seeking employment on reservation healthcare facilities?"** | |
|---|---|
| "Wages, isolation, inadequate funding" | "Distance from bigger communities, lack of housing" |
| "Salary, remote location, availability of adequate treatments/equipment" | "Salaries, tribal politics, HR, inappropriate hiring of unskilled and untrained hospital administrators" |
| "Tribal prejudice, lower pay, limited housing" | "Low pay, lack of housing; huge lag in HR time at area level (sometimes more than 90 days from application to starting date), by then provider may be hired at another facility" |
| "Location" | "Available housing" |
| **Q23:"What factors encourage healthcare providers to seek employment on reservation healthcare facilities?"** | |
| "Loan repayment" | "For me it was loan reimbursement from the federal government" |
| "Loan repayment, commissioned corps positions, MD's don't need state license" | "Most want to provide health care, others are unable to maintain jobs in private sector; rural life" |
| "Ability to serve an underserved area" | "Loan repayment program, federal employment and benefits" |
| "Previous exposure" | "Incentives, salary" |

**Suggestions for Improvement**

Question 24 revealed a variety of factors which might increase healthcare provision at reservation healthcare facilities, including:

- "Competitive reimbursement, modern facilities, sufficient equipment"
- "Competitive salaries, better funding, updated equipment"
- "Increase salaries, jobs for spouses, removal of tribal politics, trained and educated hospital administrators, responsive HR"
- "Better tribal relations, increased salary"
- "Newer hospital facility, telemedicine ability and support, access to CME"
- "Better awareness of [what] it is like [on reservations]"
- "Retention policy"

To summarize, recurring factors which might increase healthcare provision at reservation healthcare facilities include competitive salaries/reimbursement, updated equipment/technology, and better relations with the Tribal government (see Table 6).

Question 25 revealed a variety of factors regarding the healthcare system on reservations which need to improve in order to further reduce healthcare disparities, including:

- "Competitive reimbursement, modern facilities, sufficient equipment"
- "Access to specialties, money!"
- "Availability to preventive care"
- "Increase salaries, jobs for spouses, removal of tribal politics, trained and educated hospital administrators, responsive HR"

- "More time and money spent on patient education and prevention"
- "More access to inpatient substance abuse treatment on reservation; more coordination between behavioral health and tribal chemical dependency such as referrals for evaluations"
- "Better diagnostics [i.e] radiology ct"
- "Don't overwork, overstress the provider. Look at the burn out rate, do exit interviews"

To summarize, recurring factors regarding the healthcare system on reservations which need to improve in order to further reduce healthcare disparities include increased modern facilities, specialties, and technology, a stronger focus on funding preventive care (see Table 6).

**Table 6: Suggestions for Improvement**

| **Q24: "What factors might increase healthcare provision at reservation healthcare facilities?** | |
|---|---|
| "Competitive reimbursement, modern facilities, sufficient equipment" | "I am not sure" |
| "Competitive salaries, better funding, updated equipment" | "Increase salaries, jobs for spouses, removal of tribal politics, trained and educated hospital administrators, responsive HR" |
| "Better Tribal relations, increased salary" | "Newer hospital facility, telemedicine ability and support; access to CME" |
| "Better awareness of [what] it is like" | "Retention policy" |
| **Q25: "What factors regarding the healthcare system on reservation need to improve in order to further reduce healthcare disparities?"** | |
| "Competitive reimbursement, modern facilities, sufficient equipment" | "Access to specialties, money!" |
| "Availability of preventive care" | "Federal funding, responsive HR, increase salaries, jobs for spouses, removal of tribal politics, trained and educated hospital administrators" |
| "More time and money spent on patient education and prevention" | "More access to inpatient substance abuse treatment on reservation; more coordination between behavioral health and tribal chemical dependency such as referrals for evaluations" |
| "Better diagnostics ie radiology ct" | "Don't overwork, over stress the provider. look at the burn out rate, do exit interviews" |

**Mid-level Viability & Value**

Question 26 revealed that 100% of respondents thought that mid-level providers would be or are already a helpful addition to their facility. Responses as to why mid-levels are helpful include:

- "PA's and NP's can provide most of the healthcare needs that an MD would be able to provide at a lower cost"

- "[PAs and NPs are a] great adjunct to physicians and tend to stay longer than physicians"
- "[PAs and NPs are helpful] to increase patient education and access to care"
- "[PAs and NPs are helpful because] at this point we need more FP providers, at least one for each clinic or hospital"
- "Mid level clinicians can provide good care at a reasonable cost"

To summarize, recurring factors regarding as to why physician assistants would be or already are helpful additions to reservation healthcare facilities include increased access to care, and providing good care at a reasonable cost to the healthcare facility (see Table 7).

Question 27 revealed that 100% of respondents thought that mid-level providers have made an impact in the efficiency of their facility. Responses as to why mid-levels have impacted efficiency include:

- "They carry a significant portion of the patient load"
- "It is important to address the needs of our patients"
- "[PAs and NPs] has reduced the patient load on the other providers and allowed us to offer more timely and beneficial services"
- "[PA and NPs] increase access to care; [and it is] hard to find physicians"
- "This clinic would not exist without PAs and NPs"
- "[PAs and NPs] have improved [our] ability [to] see [a] higher volume of patients; ability to see more women's health, provide more reproductive health, and see more walk in patients; improve diabetic care and CV care"

- "[PAs and NPs] keeps the [patient] flow and eases burden on me"
- "Mid levels are dependable"

To summarize, recurring factors regarding how mid-level providers have impacted efficiency at reservation healthcare facilities include reduced patient load on physicians and the ability to see more patients and increased access to care (see Table 7).

**Table 7: Mid-level Viability & Value**

| **Q26: "Would a physician assistant or nurse practitioner be a helpful addition to your facility? Why or why not?"** | |
|---|---|
| "Yes, we already utilized NPs and PAs" | "Yes, we are always needing PA or NPs" |
| "Yes, PA's and NP's can provide most of the healthcare needs that an MD would be able to provide at a lower cost" | "Yes, great adjunct to physicians and tend to stay longer than physicians" |
| "Yes, to increase patient education and access to care" | "Yes; at this point we need more FP providers, at least one for each clinic or hospital" |
| "Yes" | "Mid-level clinicians can provide good care at a reasonable cost" |
| **Q27: "If your facility already utilizes physician assistants and/or nurse practitioners, have they made an impact in the efficiency of your facility? Why or why not?"** | |
| "Yes. They carry a significant portion of the patient load" | "We do use them and I think as a NP, it is important to address the needs of our patients" |
| "Yes. 3 PA's are employed one for primary care and 2 for urgent care, which has reduced the patient load on the other providers and allowed us to offer more timely and beneficial services" | "Yes, increase access to care; hard to find physicians" |
| "Yes, we have 2 nurse practitioners that provide 100% of the care at our facility. We have tried to recruit a physician and have never had a single inquiry. This clinic would not exist without PAs and NPs." | "Have improved ability to see higher volume of patients; ability to see more women's health, provide more reproductive health, and see more walk in patients; improve diabetic and CV care" |
| "Yes keeps the pt [patient] flow and eases burden on me" | "Mid levels are dependable" |

In summary, a wide range of data was gathered by the survey, some of which was expected and some of which was surprising. This data may prove useful in the ongoing effort of reducing health disparities on American Indian reservation communities. In Chapter 5, the relevance of collected data will be discussed in relation to its usefulness for reservation communities as well as compared with the literature review.

# CHAPTER 5: DISCUSSION & CONCLUSION

## Introduction

In this chapter, the following topics will be discussed: Discussion of Results, Research Question #1, Research Question #2, Research Question #3, Research Question #4, Areas for Future Research, Limitations, A Note for Future Researchers, and a Conclusion.

## Discussion of Results

This study intended to fulfill its purpose of discovering viable options in reducing health disparities on American Indian reservations by answering the following research questions.

## Research Question #1

Participants answered Research Question #1 ("According to physicians, physician assistants, and nurse practitioners currently serving South Dakota American Indian reservations, what factors regarding the healthcare system on American Indian reservations need to improve in order to further reduce healthcare disparities?") utilizing the following survey questions: Q13, Q14, Q15, Q16, Q17, Q24, and Q25 (see Appendix A).

- Q13 revealed that 50% of respondents selected "1" through "3", while 62.5% selected "3" through "5", indicating a marginal prevalence of satisfaction with the accessibility to necessary supplies. The mean selection was 3.125, the median was 3.5. This finding is surprising given the prevalence of rationing that has been described in the literature review (Office of the General Counsel, U.S. Commission on Civil Rights, 2004).

- Q14 revealed that 62.5% of respondents selected "1" through "3", while 62.5% selected "3" through "5", indicating no prevalence of satisfaction or dissatisfaction with accessibility to necessary treatments. The mean selection was 2.875, the median was 3. This finding is neither in support of or contradictory to what has been described in the literature review (Office of the General Counsel, U.S. Commission on Civil Rights, 2004).
- Q15 revealed that 87.5% of respondents selected "1" through "3", while 75% selected "3" through "5", indicating marginally more dissatisfaction than satisfaction with patient compliance. The mean selection was 2.5, the median was 3. This finding is not related to what was described in the literature review, but is useful because it could shed light upon another causative factor of prevalent health disparities.
- Q16 revealed that 75% of respondents selected "1" through "3", while 37.5% selected "3" through "5", indicating that there was dissatisfaction with government funding provided to their facility. The mean selection was 2.375, the median was 2. This finding is in support of the significant lack of funding described in the literature review (Lillie-Blanton, Roubideaux, 2005).
- Q17 revealed that 50% of respondents selected "1" through "3", while 75% selected "3" through "5". The mean selection was 3.25, the median was 3.5. This indicates a high frequency of rationing of supplies, medications, treatments, and services amongst the reservation community healthcare facilities which were represented by the respondents. This finding is in support of the prevalence of

rationing described in the literature review (Office of the General Counsel, U.S. Commission on Civil Rights, 2004).

- Q24, a short-answer question, revealed recurring factors which might increase healthcare provision at reservation healthcare facilities: competitive salaries/reimbursement, updated equipment/technology, and better relations with the Tribal government. Since most of the suggested factors for increasing healthcare provision could be made possible with a larger IHS budget, these findings are in support of the significant lack of funding described in the literature review (Lillie-Blanton, Roubideaux, 2005).
- Q25, a short-answer question, revealed recurring factors regarding the healthcare system on reservations which need to improve in order to further reduce healthcare disparities: increased modern facilities, increased specialties, increased technology, and a stronger focus on funding preventive care. As most of the suggested factors for increasing healthcare provision could be made possible with a larger IHS budget, these findings are in support of the significant lack of funding described in the literature review (Lillie-Blanton, Roubideaux, 2005).

In summary, Research Question #1 revealed that respondents were marginally more satisfied than dissatisfied with access to necessary supplies, were neither satisfied or dissatisfied with access to necessary treatments, were dissatisfied with government funding of their facilities, reported a high frequency of rationing, as well as the factors needing improvement that were identified in Q24 and Q25.

**Research Question #2**

Respondents answered Research Question #2 ("How great is the need to recruit the service of additional medical practitioners?") utilizing the following survey questions: Q10, Q11, and Q12 (see Appendix A).

- Q10 revealed that 87.5% of respondents selected "3" through "5", while 12.5% selected "1" through "3". This indicates a high level of satisfaction with their personal workload. The mean selection was 4.25, the median was 4.5. This finding is surprising given the shortage of providers described in the literature review as well as the inappropriateness of staffing reported by respondents in Q22.
- Q11 revealed that 75% of respondents selected "1" through "3", while 37.5% selected "3" through "5". The mean selection was 2.375, the median was 2. This indicates a low level of satisfaction with the appropriateness of staffing at their facility. This finding is in support of the lack of providers described in the literature review (Roubideaux, 2002, & Valandra and Colleague, personal communication, 2013).
- Q12 revealed that 12.5% of respondents selected "1" through "3", while 87.5% selected "3" through "5". The mean selection was 4.375, the median was 5. This indicates a high level of need for additional providers at reservation healthcare facilities. This finding is in support of the lack of providers described in the literature review (Roubideaux, 2002, & Valandra and Colleague, personal communication, 2013).

In summary, Research Question #2 revealed that respondents were highly satisfied with their personal workload, were dissatisfied with the appropriateness of staffing at their facility, and reported a high level of need for additional providers at their facility. It is speculated that providers are satisfied with their workload perhaps due to personal satisfaction with their efforts regardless of patient load, or due to a manageable amount of patients seen daily. It is surmised that providers are dissatisfied with staffing at their facility due perhaps to the inappropriate hiring of staff that was referenced in other responses. In addition, it could be assumed that providers report a high level of need for additional providers perhaps due to the expensive utilization of contracted/non-local providers, who 100% of respondents reported that their facility utilizes.

**Research Question #3**

Respondents answered Research Question #3 ("Can mid-level practitioners be a viable and valuable addition to American Indian reservation healthcare facilities?") in Q20, Q21, Q26 and Q27 (see Appendix A).

- Q20 revealed that 0% of respondents selected "1" through "3", while 100% selected "3" through "5". The mean selection was 4.625, the median was 5. This indicates that physician assistants are perceived as unanimously valuable amongst respondents. This finding is in support of what was found in the literature review regarding physician assistants and their value in serving rural (and even isolated) communities (Cawley & Hooker, 2013).
- Q21 revealed that 0% of respondents selected "1" through "3", while 100% selected "3" through "5". The mean selection was 4.875, the median was 5. This indicates that nurse practitioners are perceived as unanimously valuable amongst

respondents. This finding is in support of what was found in the literature review regarding nurse practitioners and their value in serving rural (and even isolated) communities (Cawley & Hooker, 2013).

- Q26, a short-answer question, revealed recurring factors regarding as to why physician assistants and nurse practitioners would be or already are helpful additions to reservation healthcare facilities: increased access to care, and providing good care at a reasonable cost to the healthcare facility. These findings are in support of what was found in the literature review regarding physician assistants and nurse practitioners and their value in serving rural (and even isolated) communities (Cawley & Hooker).
- Q27, a short-answer question, revealed recurring factors regarding how mid-level providers have impacted efficiency at reservation healthcare facilities: reduced patient load on physicians and the ability to see more patients and increased access to care. These findings are in support of what was found in the literature review regarding physician assistants and nurse practitioners and their value in serving rural (and even isolated) locations (Cawley & Hooker, 2013).

Question 18 and Question 19 (see Appendix A) were utilized to evaluate the respondents' understanding of the roles of physician assistants and nurse practitioners prior to asking their perceived value of physician assistants and nurse practitioners in Q10 and Q11. If a respondent's understanding of the roles of mid-level providers was low in Q8 and Q9, then the respondent's answers in Q10 and Q11 are more likely to be inaccurate or biased. In Q18, 0% selected 1 through 3, while 100% selected 3 through 5,

indicating a very high understanding of the roles of physician assistants. In Q19, 0% selected 1 through 3, while 100% selected 3 through 5, indicating a unanimously high understanding of the roles of nurse practitioners.

In summary, Research Question #3 revealed that respondents viewed physician assistants and nurse practitioners as unanimously valuable. This is further supported by the entirely positive responses found with Q26 and Q27. The presence of mid-level providers as IHS employees is substantial, with reports of mid-level providers serving as the only providers at certain IHS health facilities. Mid-level providers can and do act as a viable and valuable additions to American Indian reservation healthcare facilities.

**Research Question #4**

Respondents answered Research Question #4 ("What factors hinder or encourage healthcare providers from seeking employment on American Indian reservation healthcare facilities?") in Q22 and Q23 (see Appendix A).

- Q22, a short-answer question, revealed recurring factors that hinder employment at reservation healthcare facilities: low-paying salaries, isolation from larger communities, lack of housing, and frustrations with the efficiency and efficacy of their facility's human resources department/administration. These findings are not related to areas discussed in the literature review, but instead pinpoint specific factors which limit the number of providers to an underserved area the literature review suggests is underserved (Roubideaux, 2002, & Valandra and Colleague, personal communication, 2013).

- Q23, a short-answer question, revealed recurring factors that encourage employment at reservation healthcare facilities: loan repayment and other benefits. Interestingly, one participant listed "salary" as a factor that encourages employment at reservation healthcare facilities, while in Q22 "salary" was a commonly-recurring hindrance to employment. These findings are not related to areas discussed in the literature review, but instead pinpoint specific factors which limit the number of providers to an underserved area the literature review suggests is underserved (Roubideaux, 2002, & Valandra and Colleague, personal communication, 2013).

In summary, Research Question #4 revealed a number of factors that either hinder or encourage providers from seeking employment on American Indian reservation healthcare facilities. Most of these factors are related to financial benefits or the lack thereof, as well as standards of living. Most of these factors are long-standing and cannot be easily altered due to lack of funding or the physical location of reservation communities, but the goal of Research Question #4 was in identifying areas for improvement.

**Areas for Future Research**

One of the goals of this research project was to discover areas for future research, with the goal of improving health and well-being on reservation communities. This research project proposes that the following areas may prove useful for future research:

- A future study to investigate which specific reservation community healthcare facilities are dissatisfied with access to necessary supplies

- A future study to investigate which specific reservation community healthcare facilities are dissatisfied with access to necessary treatments
- A future study to investigate which specific reservation community healthcare facilities are dissatisfied with patient compliance of treatment regimens
- A future study to investigate which specific reservation community healthcare facilities are dissatisfied with government funding
- A future study to investigate which specific reservation community healthcare facilities are affected by rationing of supplies, medications, treatments, and services
- A future study to investigate which factors contribute to high level of personal workload satisfaction amongst providers on reservation communities. A study that identifies contributive factors may serve to further encourage providers to serve and continue serving on reservation communities.
- A future study to investigate which specific reservation community healthcare facilities are affected by inappropriate staffing, and why they consider the staffing inappropriate
- A future study to investigate which specific reservation community healthcare facilities are in need of additional providers, and which providers in particular are needed

Additionally, the perceived value of nurse practitioners received a 4.875 out of 5 on a Likert scale, while the perceived value of physician assistants received a 4.625 out of 5 on a Likert scale. This indicates that there is a marginal disparity in perceived values

of physician assistants. This disparity may be proportionate to the participants' understanding of the roles of nurse practitioners versus that of physician assistants, or it may indicate a marginal preference for nurse practitioners as IHS providers. This may be an area for future study.

**Limitations**

A small response rate was the major limitation of this study. While substantial efforts were taken in order to gather the largest number of responses possible, only eight viable submissions were gathered. The inherent risk of a small response rate is that the data gathered will not accurately represent the sentiments of the entire available population.

Factors that may have contributed to a small response rate could possibly be attributed to inherent risks in electronic communication, including the possibility that an important contact may have forgotten to distribute the link to the survey, or the possibility that participants did not check their e-mails to see that the survey had been sent, or that the survey was delivered to their "spam" folder (though this possibility was reduced by having an IHS employee e-mail distribute the surveys). More direct means of communication (meeting in person, paper copies of the survey distributed) may have improved response rate by avoiding the above-mentioned inherent risks of electronic communication. However, with the distant nature of the target communities and the limited resources of the researcher, electronic communication was the most feasible option of communication.

Participant disinterest is another reality this research project may have faced, leading to a small response rate .Compensation or incentive to complete the survey could

have been offered to increase the chance of a greater response rate, but according to communications with IHS representatives, compensation/incentives are not allowed. This is likely in order to reduce the possibility of coercion and bribery.

In addition, the survey utilized was not validated by an expert panel nor a survey study prior to utilization, but rather was created based on findings in literature. Survey validation by an expert (an IHS provider who had served a reservation community for many years) was requested, but no response was given to this request.

**A Note for Future Researchers**

For future researchers who are interested in doing research to benefit South Dakota American Indian reservations, the author of this research study would like to advise that a great deal of time is allotted for the purpose of gathering IRB approvals, IHS service unit approvals, and Tribal IRB approvals. An impressive amount of time was spent awaiting for returned e-mails and phone calls from those who could grant the necessary approvals to proceed with the research involved with this study. Future researchers should plan accordingly.

## Conclusion

The purpose of this study was to assist in identifying viable options in reducing healthcare disparities on American Indian reservations in South Dakota. This study revealed a number of suggested areas within the reservation healthcare system in need of improvement, and also revealed a number of suggested ways to improve upon the reservation healthcare system. Indian Health Service administrative authorities could utilize the data gathered by this study to improve facets of reservation healthcare and further decrease health disparities. In addition, mid-level providers were found to be

valuable and viable additions to reservation health facilities, and their presence has improved healthcare delivery within South Dakota reservation communities. With these results, the IHS could implement an increased focus on recruiting mid-level providers to fill the need for additional providers on reservation communities.

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# Appendix A

## Survey

## Graduate Research Questionnaire/Community Improvement, "Health Disparities On American Indian Reservations: Can Mid-Level Practitioners Make a Difference?"

INFORMED CONSENT FOR RESEARCH PARTICIPANTS- WELCOME!


INFORMED CONSENT FOR RESEARCH PARTICIPANTS

Welcome!

As an IHS-employed physician, physician assistant, or nurse practitioner, you have been invited to participate in a graduate research study entitled "Health Disparities On American Indian Reservations: Can Mid-Level Practitioners Make a Difference?" This study hopes to explore the following research questions with the intent of improving the health and well-being of American Indian reservation communities:

1) According to IHS-employed physicians, physician assistants, and nurse practitioners currently serving South Dakota American Indian reservations, what factors regarding the healthcare system on American Indian reservations need to improve in order to further reduce health disparities?

2) How great is the need to recruit the service of additional medical practitioners?

3) Can mid-level practitioners be a viable and valuable addition to American Indian reservation healthcare facilities?

4) What factors hinder or encourage healthcare providers from seeking employment on American Indian reservation healthcare facilities?

If you qualify and decide to participate in this effort to further reduce health disparities, you will be given access to a questionnaire containing a brief demographics section, twelve Likert-scale (scale of 1 through 5) questions, and six short-answer questions--all related to the current state of IHS healthcare provision and how it could be improved. Completion of the questionnaire should take approximately 10 minutes. Submitted data will be recorded and secured by SurveyMonkey®, a web-based survey generator and distributor.

Any information obtained in association with this study that can be identified with you will remain confidential. Only David Johnston (researcher) and Wallace Boeve (research advisor) will have access to raw data. Raw data containing personal information will not be shared with any employing agency. Neither the researcher nor research advisor are affiliated with IHS. In any written reports or publications, no one will be identifiable and only aggregate data will be presented.

This research project has been approved by my research advisor in accordance with Bethel's Levels of Review for Research with Humans, as well as by the Bethel University Institutional Review Board. This research project has been approved by the Great Plains Area Institutional Review Board. If you have any questions about the research and/or research participants' rights, please contact Wallace Boeve at w-boeve@bethel.edu. If you have general questions or suggestions for this study, please contact David Johnston at daj25282@bethel.edu. Mr. Dewey Ertz, EdD, of the Great Plains Institutional Review Board, can be contacted at (605) 341-8647 and toll-free at (866) 331-5794.

By submitting the following questionnaire, you are granting consent to participate in this research as well as the associated use of your submitted data.

I, David Johnston, under the approval of Bethel University and the Bethel University Physician Assistant Program, **wholeheartedly thank you for your participation in the ongoing effort of improving the health and well-being of reservation communities.**

**Graduate Research Questionnaire/Community Improvement, "Health Disparities On American Indian Reservations: Can Mid-Level Practitioners Make a Difference?"**

QUALIFIER

40%

1. Do you meet 3/3 of the following criteria? If you do not, your subsequent responses will not be counted.

-I am a physician, physician assistant, or nurse practitioner.
-I currently practice on an American Indian reservation community within South Dakota.
-I am an employee of Indian Health Services.

- YES
- NO

Prev Next

**Graduate Research Questionnaire/Community Improvement, "Health Disparities On American Indian Reservations: Can Mid-Level Practitioners Make a Difference?"**

DEMOGRAPHICS

60%

**1. What is your gender?**

SurveyMonkey Certified

- Female
- Male

**2. What is your age?**

**3. What is your ethnicity? You may choose more than one answer.**

- American Indian or Alaskan Native
- Asian or Pacific Islander
- Black or African American
- Hispanic or Latino
- White / Caucasian

**4. Which of the following best describes your current relationship status?**

- Single, never married
- Married
- Widowed
- Divorced
- Separated
- In a domestic partnership or civil union

5. Did you grow up within a reservation community?

- ○ YES
- ○ NO

6. How long have you practiced within a reservation community? Please record your answer with units of months or years.

7. Of the following, how would you best define your field of practice? If you serve in multiple fields of practice, please indicate this. You may choose more than one answer.

- ☐ General/Family Practice
- ☐ OB/GYN
- ☐ Emergency Medicine
- ☐ Behavioral Health
- ☐ Internal Medicine
- ☐ Pediatrics
- ☐ Surgery
- ☐ Other

8. Does your health facility utilize the services of contracted/externally-hired (non-local, distant, or non-IHS) healthcare providers to meet the needs of your community?

- ○ YES
- ○ NO

Prev Next

1. On a scale of 1 through 5 (with 1 indicating the lowest satisfaction and 5 indicating the highest satisfaction), please rank your overall satisfaction with personal workload.

| 1 | 2 | 3 | 4 | 5 | N/A |
|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ |

2. On a scale of 1 through 5 (with 1 indicating the lowest satisfaction and 5 indicating the highest satisfaction), please rank your overall satisfaction with the appropriateness of staffing at your health facility.

| 1 | 2 | 3 | 4 | 5 | N/A |
|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ |

3. On a scale of 1 through 5 (with 1 indicating the lowest need and 5 indicating the highest need), please rank how much your facility is in need of additional healthcare providers (physicians, physician assistants, and nurse practitioners).

| 1 | 2 | 3 | 4 | 5 | N/A |
|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ |

4. On a scale of 1 through 5 (with 1 indicating the lowest satisfaction and 5 indicating the highest satisfaction), please rank your overall satisfaction with accessibility to necessary supplies.

| 1 | 2 | 3 | 4 | 5 | N/A |
|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ |

5. On a scale of 1 through 5 (with 1 indicating the lowest satisfaction and 5 indicating the highest satisfaction),please rank your overall satisfaction with accessibility to necessary treatments.

| 1 | 2 | 3 | 4 | 5 | N/A |
|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ |

6. On a scale of 1 through 5 (with 1 indicating the lowest satisfaction and 5 indicating the highest satisfaction), please rank your overall satisfaction with patient compliance of treatment regimens.

| 1 | 2 | 3 | 4 | 5 | N/A |
|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ |

7. On a scale of 1 through 5 (with 1 indicating the lowest satisfaction and 5 indicating the highest satisfaction), please rank your overall satisfaction with the government funding provided to your health facility.

| 1 | 2 | 3 | 4 | 5 | N/A |
|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ |

8. On a scale of 1 through 5 (with 1 indicating the lowest frequency and 5 indicating the highest frequency), please rank how often rationing of supplies, medications, treatments, and services occurs at your health facility.

| 1 | 2 | 3 | 4 | 5 | N/A |
|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ |

9. On a scale of 1 through 5 (with 1 indicating the lowest understanding and 5 indicating the highest understanding), please rank your overall understanding of the roles of *physician assistants* as healthcare providers.

| 1 | 2 | 3 | 4 | 5 | N/A |
|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ |

10. On a scale of 1 through 5 (with 1 indicating the lowest understanding and 5 indicating the highest understanding), please rank your overall understanding of the roles of *nurse practitioners* as healthcare providers.

| 1 | 2 | 3 | 4 | 5 | N/A |
|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ |

11. On a scale of 1 through 5 (with 1 indicating the lowest value and 5 indicating the highest value), please rank how valuable *physician assistants* are or could be for your health facility.

| 1 | 2 | 3 | 4 | 5 | N/A |
|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ |

12. On a scale of 1 through 5 (with 1 indicating the lowest value and 5 indicating the highest value), please rank how valuable *nurse practitioners* are or could be for your health facility.

| 1 | 2 | 3 | 4 | 5 | N/A |
|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ |

SHORT ANSWER

100%

Please write your response in the box provided.

**1. What factors hinder healthcare providers from seeking employment on reservation healthcare facilities? Write your response in the box provided.**

**2. What factors encourage healthcare providers to seek employment on reservation healthcare facilities? Write your response in the box provided.**

**3. What factors might increase healthcare provision at reservation healthcare facilities? Write your response in the box provided.**

**4. What factors regarding the healthcare system on reservations need to improve in order to further reduce healthcare disparities? Write your response in the box provided.**

**5. Would a physician assistant or nurse practitioner be a helpful addition to your facility? Why or why not? Write your response in the box provided.**

**6. If your facility already utilizes physician assistants and/or nurse practitioners, have they made an impact in the efficiency of your facility? Why or why not? Write your response in the box provided.**

Prev Done

# Appendix B

## Description of the Study & Informed Consent

## DESCRIPTION OF THE STUDY

The purpose of this study was to assist in identifying viable options in reducing healthcare disparities on American Indian reservations. This was done by identifying areas for improvement within American Indian reservation healthcare facilities as described by physician, physician assistants, and nurse practitioners serving those healthcare facilities. In addition, the need for recruitment of additional healthcare providers (physicians and mid-level practitioners) was assessed, as well as the potential for mid-level practitioners to meet that need.

As extensions of physicians that have proven effective in serving rural populations and reaching the unreached, physician assistants and nurse practitioners can aptly meet the demands of underserved populations, such as is found on American Indian reservations. With a strong emphasis on patient education and preventive medicine, and the largely preventable nature of some the leading disease processes affecting AI/AN populations, the increased presence of mid-level practitioners at IHS facilities may serve to reduce healthcare disparity rates in AI/AN communities, and to bridge gaps in the IHS healthcare network.

## INFORMED CONSENT FOR RESEARCH PARTICIPANTS

Welcome! As an IHS-employed physician, physician assistant, or nurse practitioner, you have been invited to participate in a study entitled "Health Disparities On American Indian Reservations: Can Mid-Level Practitioners Make a Difference?" This study hopes to explore the following research questions **with the intent of improving the health and well-being of American Indian reservation communities**:

1) According to IHS-employed physicians, physician assistants, and nurse practitioners currently serving South Dakota American Indian reservations, what factors regarding the healthcare system on American Indian reservations need to improve in order to further reduce health disparities?
2) How great is the need to recruit the service of additional medical practitioners?
3) Can mid-level practitioners be a viable and valuable addition to American Indian reservation healthcare facilities?
4) What factors hinder or encourage healthcare providers from seeking employment on American Indian reservation healthcare facilities?

If you qualify and decide to participate in this **effort to further reduce health disparities**, you will be given access to a questionnaire containing a brief demographics section, twelve Likert-scale (scale of 1 through 5) questions, and six short-answer questions--all related to the current state of IHS healthcare provision and how it could be improved. Completion of the questionnaire should take approximately 10 minutes. Submitted data will be recorded and secured by SurveyMonkey®, a web-based survey generator and distributor.

Any information obtained in association with this study that can be identified with you will remain confidential. Only David Johnston (researcher) and Wallace Boeve (research advisor) will have access to raw data. Raw data containing personal information will not be shared with any employing agency. **Neither the researcher nor research advisor are affiliated with IHS.** In any written reports or publications, no one will be identifiable and only aggregate data will be presented.

This research project has been approved by my research advisor in accordance with Bethel's Levels of Review for Research with Humans. If you have any questions about the research and/or research participants' rights, please contact Wallace Boeve at w-boeve@bethel.edu. If you have general questions or suggestions for this study, please contact David Johnston at daj25282@bethel.edu. Mr. Dewey Ertz, EdD, of the Great Plains Institutional Review Board, can be contacted at (605) 341-8647 and toll-free at (866) 331-5794.

By submitting the following questionnaire, you are granting consent to participate in this research as well as the associated use of your submitted data.

I, David Johnston, under the approval of Bethel University and the Bethel University Physician Assistant Program, **wholeheartedly thank you for your participation in the ongoing effort of improving the health and well-being of reservation communities.**

# Appendix C

## Bethel University IRB Approval

BETHEL
UNIVERSITY

December 3, 2014

David Johnston
Physician Assistant Student (Class of 2015)
Bethel University

Mr. Johnston:

I write this letter to you in approval of Level 3 Bethel IRB of your project entitled: "Health Disparities on American Indian Reservations: Can Mid-Level Practitioners Make a Difference?" This approval is good for one year from today's date. Additionally, prior to data collection, a letter of approval from IHS must be submitted to me for your file. Please let me know if you have any questions.

Sincerely,

Wallace Boeve

Wallace Boeve, EdD, PA-C
Program Director
Physician Assistant Program
Bethel University
w-boeve@bethel.edu
651 308-1398 cell
651 635-1013 office
651 635-8039 fax"

# Appendix D

## Great Plains Area IHS IRB Approval

## GREAT PLAINS IRB/RESEARCH and PUBLICATION COMMITTEE

Great Plains IRB
Indian Health Service
Federal Building, Room 309
115 – 4th Ave. SE
Aberdeen, SD 57401
Toll Free #: (866) 331-5794

May 8, 2015

David Johnston
Bethel University Physician Assistant Program
2 Pine Tree Drive
Arden Hills, MN 55112

GPIRB #: 15-R-01GP

Dear Mr. Johnston,

The Great Plains Institutional Review Board (GPIRB) reviewed the information you submitted for protocol 15-R-01GP "Health Disparities On American Indian Reservations: Can Mid-Level Practitioners Make a Difference?"

This is to confirm that your protocol is approved to begin at the following IHS locations: Lower Brule Health Center, Pine Ridge Hospital, Kyle Health Center, Wanblee Health Center, Rosebud Hospital, Woodrow Wilson Keeble Memorial Health Care Center, Standing Rock Service Unit, and Wagner Healthcare Facility. Please be aware that according to the publication approval process, *the GPIRB has final approval of ALL publications related to this project*. You are granted permission to conduct your study, as described, effective immediately. The study is subject to continuing review on or before **February 13, 2016**, unless closed before that date.

Please note that any changes to the study as approved must be promptly reported and approved. Some changes may be approved by expedited review; others require full board review. This approval does *not* cover any fliers or presentations (oral, poster, or handouts) that may be made regarding this study. Presentations will need a separate GPIRB approval and Service Unit/Tribal approvals if necessary. Contact Marsha Stevens, GPIRB Coordinator, at (605) 226-7493 if you have any questions or require further information.

Sincerely,

Marsha Stevens

Dewey J. Ertz, EdD
Chairman, GPIRB

Remember to include the **GPIRB #** in *ALL* correspondence

Dewey Ertz, EdD
Chairman, GPIRB
Psychological Evaluation, Therapy and Research, Ltd.
403 National Street #1
Rapid City, SD 57702
Phone #: (605) 341-8647
FAX #: (605) 341-0489
Email: dertz.chrysalis@pridenetwork.com

Marsha Stevens
GPIRB Coordinator
Office of Planning & Legislation
Indian Health Service
Federal Building, Room 309
115 – 4th Ave. SE
Aberdeen, SD 57401
Phone #: (605) 226-7493
FAX #: (605) 226-7214
Email: marsha.stevens@ihs.gov

# Appendix E

## Tribal/IHS Service Unit Approvals

DEPARTMENT OF HEALTH & HUMAN SERVICES

Indian Health Service

Lower Brule Health Center
PO Box 248
Lower Brule, SD 57548

March 23, 2015

To: Marsha Stevens, GPIRB

From: Percetta Red Willow, Acting CEO

Re: Request for Research Participation

This email is to ensure that per your email of March 17, 2015 with instructions as to the process to participate in the research. Mr. David Johnson, PA did contact me via telephone and email for his research project re: "Health Disparities on American Indian Reservations: Can Mid-Level Practitioners Make a Difference?" He did send a copy of his questionnaire.

I spoke with our providers and we are willing to participate in this research by responding to the research questionnaire.

Thank you for your assistance in this matter.

Percetta Red Willow

Percetta Red Willow, Acting CEO
Lower Brule Health Center
Lower Brule, SD 57548
(605) 478-8248
percetta.redwillow@ihs.gov

CC: David Johnson

**ROSEBUD SIOUX TRIBE**
**RESOLUTION NO. 2015-92**

**WHEREAS,** the Rosebud Sioux Tribe is a federally recognized Indian Tribe organized pursuant to the Indian Reorganization Act of 1934 and all pertinent amendments thereof; and

**WHEREAS,** the Rosebud Sioux Tribe is governed by a Tribal Council made up of elected Representatives who act in accordance with powers granted to them by the Constitution and By-Laws; and

**WHEREAS,** David Johnston, a physician assistant student at Bethel University, wishes to survey all IHS providers as part of his research project "...Can Mid-level Practitioners Make a Difference;" and

**WHEREAS,** this project has been reviewed and approved by the IHS IRB; and

**WHEREAS,** the approval from the CEO at our local facility is pending the tribes approval; and

**WHEREAS,** any and all data gathered will be shared with the Rosebud Sioux Tribe Health Administration Office; and

**WHEREAS,** the Rosebud Sioux Tribe Health Board reviewed the research application and recommends approval; now

**THEREFORE BE IT RESOLVED;** the Rosebud Sioux Tribe Council approves the recommendation of the Rosebud Sioux Tribe Health Board to allow David Johnston to conduct his research project entitled Health Disparities on American Indian Reservations: Can Mid-level Practitioners Make a Difference?"

**CERTIFICATION**

This is to certify that the above Resolution No. 2015-92 was duly passed by the Rosebud Sioux Tribal Council in session on March 16, 2015 by a vote of eleven (11) in favor, zero (0) opposed and zero (0) not voting. The said resolution was adopted pursuant to authority vested in the Council. A quorum was present.

ATTEST:

Julia M. Peneaux, Secretary
Rosebud Sioux Tribe

Cyril Scott, President
Rosebud Sioux Tribe

**DEPARTMENT OF HEALTH AND HUMAN SERVICE**
**Rosebud Comprehensive Health Care Facility**

Rosebud IHS Hospital
PO Box 400
Rosebud, SD 57570
Phone (605)-747-2231
Fax (605)-747-2216

04/28/2015

Mr. Johnston,

In response with your request, I will as the Acting CEO of the Rosebud Hospital IHS Service Unit give approval to your request for survey participation from members of our medical staff.

Please do not hesitate to contact me at this e-mail address or by telephone if you require any further statements of support for this project, and thank you for considering our facility and medical providers for participation in this project.

Sincerely,

Allen L. Davis, Acting CEO
Rosebud Hospital IHS Facility

# Sisseton Wahpeton Oyate

Tribal Research Office

LAKE TRAVERSE RESERVATION

BOX 509 | AGENCY VILLAGE, SOUTH DAKOTA 57262-0509

PHONE: (605) 698-8400


Date: March 17, 2015

To: David Johnston, Principal Investigator

Re: Health Disparities on American Indian Reservations: Can Mid-Level Practitioners Make a Difference?

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On March 16, 2015, the Sisseton-Wahpeton Oyate Local Research Review Board (LRRB) reviewed the research proposal entitled, "*Health Disparities on American Indian Reservations: Can Mid-Level Practitioners Make a Difference?*" The contingencies have been addressed and the LRRB **approves** the protocol, and you may begin working in collaboration with your chosen institutions/schools. This approval is for a period of one year from the date of this letter and will require continuation approval if the research project extends beyond **March 17, 2016**.

If you make any changes to the protocol during the period of this approval, you must submit a revised protocol to Sisseton-Wahpeton Oyate LRRB for approval before implementing the changes. Furthermore, if the results of the research are used to prepare papers for publication or oral presentations at professional conferences, manuscripts or abstracts must be submitted to the Sisseton-Wahpeton Oyate LRRB for pre-publication approval. Results are **required** to be submitted to the Sisseton-Wahpeton Oyate Research Office.

We appreciate your interest in providing the benefits of research to the Sisseton-Wahpeton Oyate. If you have any questions regarding the LRRB's decision, please contact me at DawnE@SWO-NSN.GOV or (605) 698-8400.

Sincerely,

Dawn A. Eagle, BS, MA
Sisseton-Wahpeton Oyate Research Specialist

# Sisseton Wahpeton Oyate

## Tribal Research Office

LAKE TRAVERSE RESERVATION
BOX 509 | AGENCY VILLAGE, SOUTH DAKOTA 57262-0509
PHONE: (605) 698-8400

The Research Office has received the following documents for the "Health Disparities on American Indian Reservations: Can Mid-Level Practitioners Make a Difference?":

1. Completed Sisseton-Wahpeton Oyate LRRB Application
2. David Johnston IRB Application
3. David Johnston Research Project Content
4. Letter from Marsha Stevens
5. David Johnson Research Project Questionnaire
6. David Johnston Research Project Abstract
7. Bethel University IRB Approval

The Sisseton-Wahpeton Oyate Local Research Review Board (LRRB) has reviewed the documents as stated and data pertinent to the research that will be conducted on the Lake Traverse Reservation that involves Sisseton-Wahpeton Oyate Tribal Individuals.

Please check all that apply:

- ☒ The LRRB approves of the research.
- ☐ The LRRB approves of the research with the following contingencies:
- ☐ The LRRB does not approve of the research.
- ☐ The LRRB approves the publication of stated documents
- ☐ The LRRB approves of the publication of the stated documents with the following contingencies:
- ☐ The LRRB does not approve the publication of the document because:

Other Pertinent Comments: n/a

Dawn A. Eagle
SWO Research Specialist

3-17-15
Date

05/05/2015

Mr. Johnston,

In response with your request, I will as the CEO of the Woodrow Wilson Keeble Memorial Health Care Center give approval to your request for survey participation from members of our medical staff.

Please do not hesitate to contact me at this e-mail address or by telephone if you require any further statements of support for this project, and thank you for considering our facility and medical providers for participation in this project.

Sincerely,

Rick L. Sorensen

Rick Sorensen, Acting CEO
Woodrow Wilson Keeble Memorial Health Care Center

DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service
Indian Health Service
Wanblee Health Center
(605)462-6155 Ext.6222

March 20, 2015

TO: Marsha Stevens, GPIRB

FR: Francine Red Willow, HSA

Re: Request for Research Participation

This email is to ensure that per your email of March 17, 2015 with instructions as to the process to participate in the research. Mr. David Johnston, PA did contact me via telephone and email at to his research project re: "Health Disparities on American Indian Reservations: Can Mid-Level Practitioners Make a Difference?" He did send a copy of his questionnaire.

I spoke with our providers and we are willing to participate in this research by responding to the research questionnaire.

Thank you for your assistance in this matter.

Francine Red Willow, HSA
Wanblee Health Center
Wanblee, SD 57577
(605)462-6155 Ext. 6222
Francine.Redwillow@IHS.gov

CC: David Johnston

On Thu, Mar 26, 2015 at 10:16 AM, Gipp, Jana (IHS/ABR/FYH) <Jana.Gipp@ihs.gov> wrote:

Mr. Johnson : I have spoken to the Standing Rock Service Unit Clinical Director, Dr. Jumping Eagle, regarding your request to interview our providers on your research project. We are both in support of allowing Standing Rock Service Unit to participate in the project only in the instance that approval is received by the Great Plains Area Office that all their conditions are met and you are authorized to proceed. Please let us know when approval from the Great Plains Area Office is final. Thank you.

Jana Gipp 3/26/15

Jana Gipp, Acting CEO

Standing Rock Service Unit

701-854-8211

**Conroy, Sophia (IHS/ABR/PRH)**

**From:** David Johnston <daj25282@bethel.edu>
**Sent:** Tuesday, March 10, 2015 5:31 PM
**To:** Conroy, Sophia (IHS/ABR/PRH)
**Subject:** Fwd: Johnston, Research project seeking IHS approval
**Attachments:** Bethel IRB Approval.jpg; David Johnston, Research Project Questionnaire.docx; letter from Marsha Stevens.pdf

Mrs. Conroy,

Thank you for your time this afternoon on the phone!

I have been working with the Great Plains Area IRB, and they are requiring that I submit to them notifications of approval (from the service units) to send my survey to the individual IHS service units. If you think that the attached survey would be fine to e-mail to the physicians, physician assistants, and nurse practitioners at your facility, then would you mind sending me an e-mail which formally says so? Please do not distribute the survey to the providers yet-- I have to submit the service unit approvals to the Great Plains IHS before survey distribution.

In essence, I am hoping to gain approval to send out a 15-minute survey to employees at the IHS facility that serves your community. I have attached the following: the IRB approval from Bethel University, the letter from Marsha Stevens (Aberdeen IRB) we spoke about, and the survey I hope to send out.

We had discussed if I would like to survey contracted providers as well-- and I believe this study is suited more for the permanent IHS providers. Contracted providers will not be sent the survey, once all has been approved.

As a reminder, this survey is to be used for a graduate research project, and is a Level 3 research project-- meaning it is the least-invasive/low-risk a study can be. I can be reached at (507) 230-0255. Thank you for your time, and for your consideration of this research project!

David Johnston, PA-S
Bethel University Physician Assistant Program

Approve for Pine Ridge Hospital.

Sophia Conroy,
Acting CEO

**HornedEagle, Mike (IHS/ABR/WAG)**

**From:** HornedEagle, Mike (IHS/ABR/WAG) 3/24/15
**Sent:** Thursday, February 26, 2015 11:08 AM
**To:** 'David Johnston'
**Subject:** RE: Johnston, Research project seeking IHS approval

David,

In response with your request and after listening to the opinion of several members of the Executive Committee, I will as the CEO of the Wagner IHS Healthcare Facility give an approval to your request for survey participation, from members of our medical staff.

Please do not hesitate to contact me at this email address or by telephone again (605) 384-3621 ext. 288, if you require any further statements of support for this project, and thank you for considering our facility and medical providers for participation in this project.

Sincerely,

Mike

Michael Horned Eagle RN, CEO
Wagner IHS Healthcare Facility
111 Washington Avenue NW
Wagner, South Dakota 57380
Phone (605) 384-3621
Fax (605) 384-5497
W. Cell (605) 491-2367
Email: mike.hornedeagle@ihs.gov

On Tue, Mar 3, 2015 at 3:40 PM, Sanchez, Red Fox (IHS/ABR) <RedFox.Sanchez@ihs.gov> wrote:

Good afternoon David:

I support your research project and approve your survey for Kyle Health Center. Attached is some information about Kyle Health Center, please call me for any questions. I also included Dr. Montileaux who is our Outpatient Supervisor on this email.

Thank you.

Red Fox Sanchez
Health System Administrator
Kyle Health Center
Box 540
Kyle, SD 57752
605-455-8200
605-455-1589 Fax