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Effectiveness of Comprehensive Community Health Screening Events in Ada County,

Idaho: Are They Connecting Individuals with Personal Health Services?

by

Kristin E. Moore

A thesis

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of the requirements for the degree of

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Committee Approval

To the Graduate Faculty:

  The members of the committee appointed to examine the thesis of KRISTIN E. MOORE find it satisfactory and recommend that it be accepted.

_____
Dr. Elizabeth Fore,
Major Advisor

_____
Dr. Monica Mispireta,
Committee Member

_____
Rick Tivis, MPH
Graduate Faculty Representative

Idaho State
UNIVERSITY

Office of Research
921 South 8th Avenue, Stop 8130 • Pocatello, Idaho 83209-8130

November 13, 2013

Kristin Moore
212 E. Baldwin St.
Meridian, ID 83646

Dear Ms. Moore:

Based on your description of your project, "Effectiveness of Comprehensive Community Health Screening Events in Ada County, Idaho: Are They Connecting Individuals with Personal Health Services?" it is my determination that it does not constitute research with human subjects as defined in 45 CFR 46.102(f). Therefore, it does not require any submission to or approval by the Human Subjects Committee (the IRB for Idaho State University).

Please feel free to contact me if you have any questions or concerns.

Sincerely,

Ralph Baergen, PhD, MPH, CIP
Chair, Human Subjects Committee

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List of Abbreviations

AUDIT	Alcohol Use Disorders Identification Test
BMI	Body Mass Index
CHS	Community Health Screening
ED	Emergency department
ER	Emergency room
HCAB	Health Care Access Barriers
ISU- Meridian HSC	Idaho State University- Meridian Health Science Center
PHQ-9	Patient Health Questionnaire
PCMH	Patient-Centered Medical Home

Abstract

Idaho State University- Meridian Health Science Center and Ada County's comprehensive Community Health Screening Events program was implemented to provide free preventative health screenings and to help connect individuals who were uninsured or underinsured to needed healthcare services. Since its inception in March 2010, the program has conducted 26 events and screened nearly 700 individuals. Until fall 2013, no formal and consistent evaluation had been conducted to determine if the program was achieving its goals. Findings from exploratory analyses of preliminary data collected for the evaluation suggested that over one-third of participants with identified health concerns were successfully connected to necessary medical services. While initial results were promising, further evaluation is necessary utilizing a larger sample size representative of the overall population of the Community Health Screening participants to more accurately determine the true effectiveness of this program.

Keywords: comprehensive health screening, preventative healthcare, program evaluation

Chapter I: Introduction

In the United States, it is estimated that 47 million non-elderly individuals do not

have health insurance (Kaiser Commission on Medicaid and the Uninsured [KCMU],

2013). A lack of health insurance is a well-known barrier to receiving preventative

health services and screenings that help curb premature or unnecessary deaths from

undetected chronic conditions or illnesses that could have been controlled with early

detection (e.g., Agency for Healthcare Research and Quality [AHRQ], 2012, 2013;

KCMU, 2013; Starfield & Shi, 2004). Untreated chronic conditions and delayed

detection of other preventable or controllable illnesses may also lead to emergency

department (ED) use and hospitalizations that could have been avoided (AHRQ, 2012,

2013). In order to properly manage health, individuals need to be aware of their health

status and conditions. Access to primary care is vital; yet those without insurance or who

are underinsured are more likely to not have usual sources of, or access to, primary care

or preventative health services. In order to address barriers to care due to insurance

status, health screenings and health fairs have become standard practice in the U.S. and

worldwide to provide primary and select secondary prevention services to a wider array

of community populations.

Background

In March of 2010, Idaho State University-Meridian Health Science Center (ISU-

Meridian HSC) partnered with Ada County, Idaho, to provide free comprehensive

Community Health Screening (CHS) events to uninsured and underinsured Ada County

residents. This partnership was formed in part because the county wanted to find a way

to provide easily accessible preventative medical care to its growing indigent population.

Ada County officials believed that connecting this population to ongoing preventative care would aid in reducing ED visits, which in turn would lead to cost savings for taxpayers. With this in mind, one of the main goals of the CHS events is to connect participants with community resources and health services.

CHS design. Dillon and Sternas (1997) described health fairs as events where "community members are encouraged to explore, at their own pace, health exhibits and information presented in a highly visible, easily accessible, interactive learning environment" (p.2). Often, health screenings only focus on one disease such as diabetes or cancer (Dillon & Sternas, 1997; Lucky et al., 2011; Pasick, Hiatt, & Paskett, 2004). ISU-Meridian HSC and Ada County's CHS events are unique from traditional health fairs and screenings like the ones described above for two main reasons. First, the CHS events are a comprehensive process as opposed to traditional screenings that only focus on one health concern. An interprofessional team of students and faculty volunteers representing 10 health disciplines conduct the CHS events, which were designed using stations through which participants circulate in a consecutive manner. Each station provides a focused set of screening tools and assessments to give participants a broad overview of their current health status. While participants have the right to decline any of the screening tests offered, all are strongly encouraged to complete the entire screening process. Screening tests and tools assess areas such as nutrition, tobacco use, glucose and cholesterol levels, hearing, vision, hepatitis C, HIV, blood pressure, depression, and oral health.

The second feature that makes the CHS events unique is a referral station that aims to connect participants with community resources at the end of the screening

process. Participants review their results from the screening with a licensed medical provider. The licensed provider offers participants information on best sources of care that can meet the individual health needs identified during the screening assessment. Personal resources such as insurance status, financial standing, and access to transportation are also taken into consideration by the licensed provider when referral suggestions are made to ensure individuals are being directed to the best possible sources of care that are easily accessible. Through a variety of partnerships with local clinics, the referral station also provides a select number of prescheduled appointment times within a week or two of the CHS event to participants with the greatest health needs.   For those individuals with less pressing medical needs, the licensed medical provider reviews a list of health care services in the community that can best meet their needs. All medical providers included on this list have agreed to participate in this program and each offers free or sliding-fee scale services, which is necessary to meet the needs of the targeted population of individuals with limited or no health insurance.

Various considerations, including factors not related to the individual's health, impact into which category of needs an individual falls. Those factors not related to individual health include the fluctuation in the number of participants at a given event, the number of appointments available on an event by event basis, and the time at which a participant comes through the screening. Therefore, it is possible that a participant with only minor medical concerns could still receive an appointment if the event they attend has a low participant turnout, a large number of appointments, and if they were one of the first participants to complete the screening process. Conversely, someone who has multiple medical needs identified during the screening process may not receive an

appointment if they attend a CHS event with many participants, few appointments, and if they were one of the last participants screened.

   CHS participation. Nearly 700 adults age 18 and older have been screened at 26 CHS events since the project's inception in March of 2010. Six events are held during the academic year; three each semester. There was a 28.7% increase in participant numbers from the 2010-2011 to the 2012-2013 CHS events (Idaho State University-Meridian Health Science Center & Ada County, 2013).

Statement of Problem

   As the CHS expanded, it was imperative that a formal evaluation was completed. Without a more in depth look at the CHS events, it was difficult to determine what the impact was on the individuals who participated in the screening events. The main objective of this evaluation was to determine how successful the CHS events were at connecting participants with personal health needs to medical services to which they did not previously have access. This objective was created based on the general need for an evaluation, while keeping the overall CHS's goal of connecting participants with community resources and health services in mind. As the literature review will demonstrate, connecting individuals to preventative medical care services is vital to decrease health disparities, improve overall health and thus quality of life, and save taxpayers money by reducing costly ED visits through the management of health needs in an appropriate primary care medical setting. CHS events attempt to accomplish the latter by connecting participants to health care agencies that have the ability to provide a medical home for the individuals who do not have a source for consistent primary health care.

Study results were also necessary to identify which barriers participants had overcome in accessing care as well as those barriers that were still problematic. With this analysis, CHS planners will have the information necessary to build on the existing programmatic processes that mitigate barriers to care. In contrast, identifying barriers that were predictive of non-compliance will allow for CHS planners to create new protocol or procedures to ensure future participants have the best chance of successfully accessing needed medical services.

Study Questions

This evaluation's overarching question was how successful were these comprehensive Community Health Screening events at connecting participants with personal health needs to medical services to which they did not previously have access? The Health Care Access Barriers (HCAB) model (Carrillo et al., 2011), which is a model that targets modifiable determinants of health at the financial, structural, and cognitive level, and that will be discussed further at the end of the literature review, was used to develop two supporting study questions. Both questions aimed to identify which financial, structural, and cognitive factors were attributed to those individuals who attended medical appointments versus those who did not attend medical appointments after attending a CHS event. The first study question was how did socio-demographic factors, personal health beliefs, health status, experience with the health care system, and satisfaction with the CHS event affect the compliance with follow-up medical appointments among participants of a CHS event? The effect of participants' experiences with utilization of health care services after attending a CHS event on their intentions to seek future treatment was the second study question explored.

Impact of Study

The referral station is a unique service of the CHS events. The ability to offer actual appointment times is dependent on existing partnerships between the CHS and community health care providers. In order to continue offering and potentially expand the number of appointment times and the number of health care agencies partnering with the CHS, the program must be able to provide evaluation data documenting that these resources are being utilized by participants. Preliminary data from prior, less in-depth evaluation attempts suggested that this was the case. Clinics that provided specific appointment times at the 2012-13 events were contacted to determine participants' show rates, finding that 66.2% of participants who received an appointment time prior to leaving the CHS event kept their scheduled appointment. During the same 2012-13 event time frame, participants that provided email address were sent a brief follow-up email survey. Data indicated that 68.2% planned on following up with a medical provider; however, due to limitations resulting from inadequacies in the development of the survey questions, there was no data available to determine if an appointment was scheduled, kept, or if the participant was still in the planning stage of intending to make an appointment (Idaho State University- Meridian Health Science Center & Ada County, 2013).

This evaluation documented the utilization of recommended health services by continuing to collect show rate data from the clinics. In addition, a more comprehensive follow-up survey was developed in order to differentiate between participants who received an appointment at the CHS and those who it was recommended that they follow-up but who did not receive an actual appointment. For those individuals who did not

receive an appointment time at the CHS, the new survey assessed if they had already made an appointment, were planning on scheduling an appointment, or if they did not have plans to follow-up with a medical provider. For both those who received a CHS appointment and those who self-scheduled an appointment, the survey asked participants to self-report if they kept the appointment post CHS involvement. If findings verified that participants were utilizing the appointment times provided by the clinics, current partnerships could be strengthened with the focus on increasing the number and types of available prescheduled appointments. Utilizing the data collected from participants who self-scheduled and attended appointments at clinics from the referral list would provide a base for building prescheduled appointment partnerships with additional community organizations in the future. If it was found that participants were not utilizing appointment times, the CHS planning team could make programmatic changes or implement new protocols targeting the population found most likely not to adhere to prescheduled or self-schedule appointment times post CHS involvement.

In addition to the potential benefits of improvement of the screening process, effectiveness of the referral process, and documentation of how the CHS events connect participants to medical providers, data from such an evaluation could support an expansion of this program into other communities. If this evaluation demonstrated that the CHS events were effective in the above areas, the unique design would be able to serve as a foundation and framework for institutions in other communities and states in implementing their own comprehensive health screenings.

Chapter II: Literature Review

The fact that having a usual source of primary health care leads to a variety of improved health outcomes has been well established in the literature. For example, Blewett, Johnson, Lee, and Scal (2008) found that individuals with usual sources of care were more likely to receive preventative services such as flu shots, mammograms, pap smears, clinical breast exams and prostate-specific antigen tests. These preventative services along with many others help reduce disease, increase overall quality of life, and decrease premature death rates (Agency for Healthcare Research and Quality, 2011; Partnership for Prevention, 2007). Access to primary care and having usual sources for health services have been at the epicenter of health care redesign in the United States in recent years. Since its inception in 1990, Healthy People has included an objective of increasing access to preventative care in each of their decade long plans to improve overall health in the United States (National Center for Health Statistics [NCHS], 2001). Healthy People 2010 and 2020 specifically address the need to increase the proportion of individuals who have a usual primary care provider as an objective to meet their overall goal of increasing access to health services. Not only is this an objective, but it has also been identified as a Leading Health Indicator, which is a subgroup of objectives that are considered high-priority (NCHS, 2012; U.S. Department of Health and Human Services [HHS], 2013).

The following review of the literature will explore the major barriers to routine primary health care, the effect that these barriers have on emergency department (ED) use, how the patient-centered medical (PCMH) model is helping address these barriers to care and the overuse of EDs, and how ISU- Meridian HSC and Ada County's CHS events

are attempting to overcome these barriers by connecting individuals to PCMH. The Health Care Access Barriers (HCAB) Model will be utilized to demonstrate the interaction among barriers, use of the ED, the need for PCMH's and how the CHS events address barriers and increase access to health care.

Barriers Accessing Usual Sources of Medical Care

Despite a national focus on the importance of receiving preventative health care services and having a usual primary care provider, many factors impact an individual's ability to access health care services and establish a primary source of care.

Hours of operation. The hours of operation for primary care clinics or Patient-Centered Medical Homes (PCMH) is one factor affecting an individual's ability to obtain services and establish a usual source of medical care. In a 2012 survey, only 34% of primary care physicians in the United States indicated that their patients could access their practices after-hours (Schoen, 2012). Similarly, a review of individuals with usual sources of care found that only 40.2% of respondents indicated that their providers offered after-hour care (O'Malley, 2013).

Scheduling. Another factor influencing accessibility of services is long waiting periods for scheduled appointments. Focus group participants in a study by Wilkin, Cohen, and Tannebaum (2012) reported that they often had to wait 3 months to get an appointment with a primary care provider. Another study found that 53% of physicians surveyed indicated that their patients were not able to get same or next day care when they were ill (Schoen, 2012). Unfortunately, the ability to obtain timely health care differs based on characteristics such as income, education level, and age group (AHRQ, 2013).

Number of physicians. The number of primary care physicians compared to an area's population is often considered a potential barrier to accessing health care. Studies have long shown that the number of primary care physicians per capita positively correlates with better health outcomes such as longer life-expectancy, lower rates of overall mortality, decreased neonatal deaths, and decreased low weight births (Shi, 1992, 1994; Starfield et al., 2005). Based on data from 2010, Idaho ranked 48th out of all U.S. states for active primary care physicians per 100,000 population (Association of American Medical Colleges, 2011). Despite the physician shortage, the health outcomes discussed do not rank as low as one might expect. According to the United Health Foundation (2012), in 2012 Idaho ranked 17th in the country in overall health, 8th in low birth weight, and 16th in infant mortality rates. Age-adjusted overall mortality in Idaho received the lowest ranking of these measures, placing 23rd in the U.S. in 2010 (Murphy, Xu, & Kochanek, 2013).

Health insurance. A final yet substantial barrier to accessing care is whether an individual has health insurance or not. There is an extensive body of research discussing the disparities faced by those who are uninsured (e.g., AHRQ, 2013; Starfield & Shi, 2004). The Kaiser Commission on Medicaid and the Uninsured (2013) reviewed the literature to create a fact sheet outlining the effects of not having insurance. This review documented that individuals without insurance often do not receive recommended or necessary preventative screenings or care, do not receive timely diagnoses, and often do not receive follow-up care. In addition, the uninsured are more likely to postpone getting necessary care or prescriptions due to cost and often suffer poorer health because of these disparities (Kaiser Commission on Medicaid and the Uninsured, 2013). The United

Health Foundation (2012) identified Idaho's lack of health insurance coverage as one of its greatest health challenges. It was estimated that in 2012, 18% of Idahoans did not have health insurance which led to Idaho ranking 37th in the nation for this measure (United Health Foundation, 2012).

Emergency Department Use

Emergency department (ED) use and number of visits is often used to determine individual health status and to explain the importance of having and accessing primary care or PCMH. Between 1995 and 2010, the total number of ED visits nationally reportedly increased 34%; although the number of individuals utilizing EDs had remained stagnant (NCHS, 2013). While this increase seemed high, it did not adjust for population growth; therefore, a more accurate representation of ED visit trends might have been the visit rate, which increased 16% during the same 15 year period (NCHS, 2013). The over or unnecessary use of EDs is an important factor to consider. A review of literature conducted by Trzeciak and Rivers (2003) found EDs that were overcrowded delivered poorer care, were unable to provide timely diagnoses, and had patients that experienced poor health outcomes. Additionally, individuals who visited EDs for chronic conditions could suffer poorer health outcomes because EDs were unable to provide follow-up services necessary to manage chronic conditions (NCHS, 2013).

ED visit rates are frequently discussed in the context of increased overall health care costs. According to the Agency of Healthcare Research and Quality (AHRQ), as reported by NCHS (2013), emergency medical care accounted for 4% of all health care expenditures in the United States. Data from 2009-2010 indicated that 8% of all ED visits for those 18-65 were classified as non-emergent (NCHS, 2013). When EDs were

used for non-emergent needs, it was estimated that those visits costs 7 times more than if they had been addressed by a primary care type facility (Government Accountability Office [GAO], 2011).

Causes of Increased ED Use

As the rate of ED visits rises, studies have been conducted to assess the cause. As discussed previously, hours of operation of primary care providers and its negative impact on individuals receiving preventative health services may increase the use of the EDs. It is estimated that 65% of ED visits occur on weekends or between the hours of 5pm and 8pm on weekdays (GAO, 2011). As noted above, many primary care practitioners do not provide services when the majority of ED visits are occurring (O'Malley, 2013; Schoen, 2012). Additionally, simply being able to contact primary care providers may relate to ED use rates. A study by O'Malley (2013) found that individuals who reported that it was somewhat or very difficult to contact their usual sources of care after normal business hours were more likely to report being hospitalized or utilizing the ED in the past 12 months than those who said it was not at all or not too difficult to contact their usual sources of care after normal business hours.

Past experiences with primary care facilities and personal barriers may also contribute to an individual's decision to use EDs for non-emergent care. Diamant et al. (2004) found that access to transportation, not being able to take time off from work, having to care for someone else, being ill, having more important things to do, and needing to spend money on more important things all contributed to people not getting medical care in a timely manner. Past negative experiences such as unfriendly staff, excessive paperwork demands, and not being able to get all of their medical needs taken

care of in one place were all identified in a focus group setting as reasons people choose to go to EDs instead of primary care facilities (Wilkin et al., 2012).

Insurance status has also been identified as a factor to explain the growing rate of ED use. In 2007, data trends indicated that individuals with Medicaid were more likely to have visited the ED than those with either private or no insurance (Garcia et al., 2010; Tang, Stein, Hsia, Maselli, & Gonzales, 2010). One study demonstrated that out of individuals with private insurance, no insurance, Medicaid, or Medicare, those with Medicaid were the only group to have had a significant increase in visits from 1999 to 2007 (Tang et al., 2010). This same study also reported that while overall rates of ED use for ambulatory care remained the same from 1999 to 2007, individuals with Medicaid again had seen an increase of use of EDs for medical conditions that could have been controlled or cared for in non-emergent settings (Tang et al., 2010).

Patient-Centered Medical Home

An area that is gaining attention as one solution to improving health care in general in the U.S. is the use of an all-encompassing health care approach called the Patient-Centered Medical Home (PCMH). While there are various definitions and characteristics of PCMH, the 2007 joint statement on PCMH from the American Academy of Family Physicians, American Academy of Pediatrics, American College of Physicians, and the American Osteopathic Association is commonly cited in the literature. This document outlines seven principles to help ensure that the most efficient, cost effective, and appropriate care is being provided to patients in a centralized location while maintaining a focus on primary care.

Because the PCMH model of care is still new, much of the research to date has concentrated on the ability of clinics to transition to a PCMH model (e.g., Berryman, Palmer, Kohl, & Parham, 2013; Berenson et al., 2008; Coleman & Phillips, 2010). Within the last few years, a small but significant collection of literature is focusing on patient outcomes, many using ED visits as one measure to evaluate the success of PCMH. DeVries et al. (2012) found in a study of insured individuals living in the same geographic region that adults receiving services from clinics that met the criteria as a PCMH had significant reductions in ED rates and hospitalizations, lower medical costs, and were receiving better preventative treatment and testing for chronic conditions such as diabetes and asthma. In a smaller study, physicians and practices who received guidance and support during their transition to PCMH classification saw an improvement in blood pressure management, an increase in the number of breast cancer screenings, and a reduction in ED visits compared to the control group (Fifield, Forrest, Burleson, Martin-Peele, & Gillespie, 2013). Additionally, Roby et al. (2010) found that when individuals without health insurance were assigned a PCMH, the odds that they would use an ED decreased the longer they were associated with that medical home. Similarly, the odds of accessing the EDs multiple times also decreased (Roby et al., 2010).

Although the above studies support the idea that having a usual source of care decreases the likelihood of ED visits, it is worth noting that there is conflicting research. For example, a report based on data from 2007 found that children and adults aged 18 to 65 were just as likely to have at least one ED visit regardless of whether they had a usual source of care (Garcia et at., 2010). Similarly, Rust et al. (2008) found that having a

usual source of care may be necessary to help reduce ED visits, but that a usual source of care may not be sufficient if it is not accessible.

Idaho State University-Meridian Community Health Screening Events

Studies focusing on the relationship between using a PCMH or having some other form of usual source of care and the reported number of ED visits is a growing body of research. These studies are premised on the belief that by improving access to preventative health services and primary care physicians, health care costs will decrease as ED visits decrease. Currently, there is a great deal of literature discussing the importance of primary care and barriers to access; however, one area lacking sufficient exploration is the development of best practices to connect people with resources for a primary source of health care.

Unsure of how to best connect their growing indigent population with needed healthcare resources, Ada County officials approached Idaho State University-Meridian Health Science Center (ISU-Meridian HSC). The result of this initial meeting was the formation of a partnership and the creation of the Community Health Screening (CHS) events program. Ada County believed in what the literature reviewed indicated: connecting individuals without insurance or usual sources of care to ongoing preventative health services could lead to a reduction in ED visits, thus resulting in cost savings for taxpayers. The CHS events were the solution that would not only help provide easily accessible preventative medical care to the area's indigent population but would also connect participants to appropriate community health resources (Idaho State University-Meridian Health Science Center & Ada County, 2013).

Health Care Access Barriers Model

As the above research indicated, there are various factors and barriers for individuals seeking healthcare. While many well-known models have attempted to explain health disparities in the past, they often only focused on one type, or category, of barriers. For example, the Health Belief Model and Transtheoretical Model focused on the individual and did not account for external variables such as hours of operation (Edberg, 2007). Carrillo et al. (2011) attempted to expand on these narrowly focused models by providing the framework for a more all-encompassing approach to identifying and addressing barriers to healthcare through the use of the Health Care Access Barriers Model (HCAB). Going beyond the individual, this Model examined how the three main categories of barriers most often cited as causing health disparities interacted together. These three categories were financial, structural, and cognitive. Carrillo et al. (2011) argued that all need to be considered in order to find effective solutions to health care disparities (see Figure 1). Barriers included under each category were considered equally important and were all selected from a detailed review of relevant literature. Carrillo et al. (2011) described how they had implemented the HCAB in their personal work; however, to date, only one study by DeHeer et al. (2013) was found that utilized this Model.
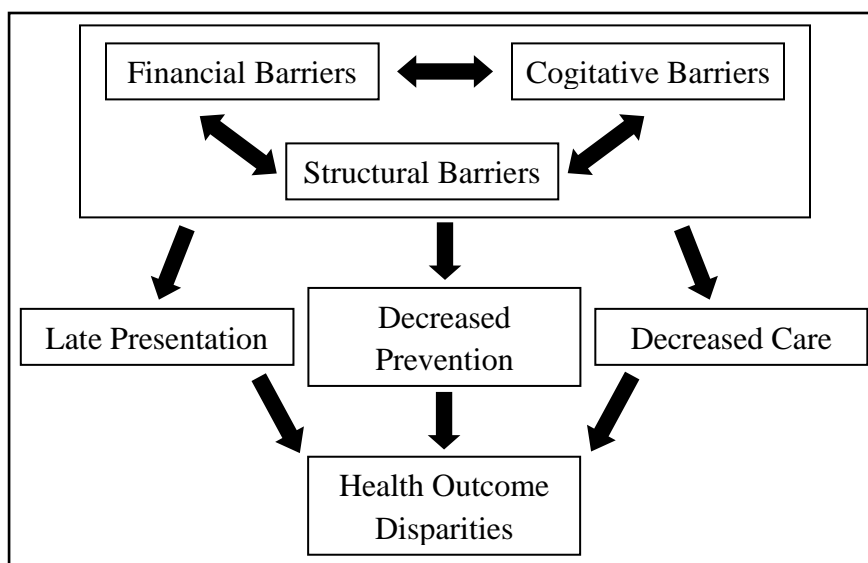
Figure 1. The health care access barriers model. Adapted from "Defining and Targeting Health Care Access Behaviors," by J. E. Carrillo et al., 2011, *Journal of Health Care for the Poor and Underserved*, 22(2), Figure 1, p. 565. © 2011 Meharry Medical College. Adapted with permission of Johns Hopkins University Press.

All factors included in these categories are measurable and modifiable because the authors argue that focus should begin with barriers that can be changed. The HCAB Model includes many barriers previously discussed. Examples of barriers that fall under the financial category are lack of health insurance or being underinsured. Wait times, operating hours of clinics, availability of transportation, and lack of childcare fall under structural barriers that may lead to health outcome disparities. Finally, the availability of interpreter services, knowledge of preventative services and resources, and being able to understand treatments and diagnoses represent examples of cognitive barriers to health care.

Using the HCAB Model as a framework, this current study aimed to identify which barriers to receiving recommended follow-up medical care were most typically faced by CHS participants. Identification of these barriers was essential to determine appropriate programmatic changes to successfully reduce their effects on the participants'

abilities to access needed health care services. The CHS has addressed financial barriers by providing free preventative screenings and by connecting participants to community resources that provide additional free or sliding fee scale services. Events are conducted from 4pm to 7pm to accommodate working individuals who are unable to take off time, and available appointment times and referral clinics also offer extended hour services to address structural barriers. Finally, cognitive barriers are targeted by providing educational information with all screening assessments; and Spanish speaking materials and interpreters are available at each event. Without data from a formal evaluation, despite these efforts already in place, the impact of the CHS screenings on the reduction of barriers, the appropriate use of partner health care agency appointments, the success of establishing medical homes, and the reduction of ED could not be determined. Finally, without such data, the CHS program was unable to ascertain areas of success or plan for future improvements in the delivery of its services.

Chapter III: Methodology

Study Design

This was an exploratory quantitative study using a prospective case series design. The main objective of this study was to evaluate the success of the comprehensive CHS events at connecting participants with personal health needs to medical services to which they did not previously have access. Two specific study questions were also posed to assess the impact of individual-level barriers and facilitators on medical appointment compliance and future follow-up care.

1. How did socio-demographic factors, personal health beliefs, health status, experience with the health care system, and satisfaction with the CHS event affect the compliance with follow-up medical appointments among participants of a CHS event?

2. How did participants' experiences with utilization of health care services after attending a CHS event affect their intentions to seek future treatment?

Study Participants

All participants who attended a CHS event during the fall of 2013 and February 2014 that provided phone and/or email addresses were included in the study. CHS event participants were recruited using flyers and posters that were widely distributed throughout Ada County, and included on community event calendars through local media outlets and television news stations.

Data Collection Procedures

Data for this study was collected at two different time-points: at the CHS events and during a follow-up contact 6-12 weeks later.

CHS event visit. As part of the CHS event, participants completed a paper and pencil screening documentation form which collected basic contact information, demographic information including age, gender, main language spoken at home, and race/ethnicity; and information on current access to health services such as health insurance status, years since last physical exam, and number of times they visited the emergency room in the last year. In addition to this self-reported information, CHS students and faculty recorded screening assessment scores and areas of health an individual needed to address through follow-up care with medical providers. During the last check out phase of the event, the document was scanned as part of the CHS's evaluation procedure.

Participants were required to sign a liability release prior to starting the screening process. The liability release, which was approved by ISU's legal department and HIPAA advisor, included a clause which allowed for participants to be contacted after the event for program evaluation and follow-up purposes. The process of informing participants about the liability release as well as ensuring that it was signed was conducted by ISU-Meridian HSC students.

Follow-up survey. The second phase of data collection occurred through the dissemination of a web-based or interviewer administered telephone follow-up survey.

Survey design. The survey was designed to assess factors related to the financial, structural, and cognitive categories outlined in the HCAB Model and provided data on demographics of participants, their health beliefs and attitudes, satisfaction with the CHS event, and their experiences with healthcare providers after attending a CHS event. Demographic questions supplemented the data already collected at the CHS event with

information such as education level, main form of transportation, marital status, and employment status. Health beliefs and attitudes were assessed through questions related to importance of health, self-perceived health status, and confidence in managing health. Finally, satisfaction with the CHS event participants attended was measured using a 5-point Likert agreement scale where 1= "Strongly Disagree" and 5= "Strongly Agree". Participants rated statements regarding assessments of the screenings offered, the student and faculty volunteers working the event, and the information and resources provided (see Appendix A for complete list of survey questions).

Dissemination. For those participants who provided email addresses, a message with a link to the web-based survey was sent requesting participants to complete the follow-up survey. The email was sent six to eight weeks after the CHS event to allow time for participants to follow-up with care and to allow for data entry from the events to occur. One week after the initial email, a reminder email was sent, followed by a second reminder one week after that. Reminder emails were only sent to individuals who had not yet completed the survey. Data was collected on surveys submitted any time after the first email until eight weeks after the February 2014 event. The emails requesting participation provided participants with information about the survey they were asked to complete. It also stated that completing the survey was voluntary and that all responses would remain confidential. CHS participants who chose to click on the link to the survey saw an additional notice repeating this information immediately before the first question.

Participants who did not provide email addresses but did share their phone numbers were called starting at six to eight weeks post screening event and asked to complete the same survey over the phone. Additionally, participants from the fall 2014

events who did not respond to email requests also received phone call requests starting

two to three weeks after the final reminder email was sent. The CHS interns who

administered phone surveys ensured the individual understood the survey was voluntary

and that their results would remain confidential. Once verbal consent was received, the

intern asked the same questions as the online survey. Both CHS interns completed the

necessary training regarding human subject research through the Collaborative

Institutional Training Initiative.

     Data management. Data collected from the CHS event and the follow up survey

was maintained in REDCap (http://project-redcap.org/), which is a safe, user friendly,

data collection and storage site/product offered to ISU faculty and students through a

collaborative agreement with the University of Washington's Institute of Translational

Health Sciences (ITHS; https://www.iths.org/). Email survey responses were

automatically saved on REDCap, while phone responses were manually entered by the

CHS interns administering the survey. Follow-up data was linked to the data collected at

the CHS event using participants' names; they were then de-identified prior to analysis.

Statistical Analysis

     In order to answer the first question of how socio-demographic factors, personal

health beliefs, health status, experience with the health care system, and satisfaction with

the CHS event affected the compliance with attending a medical appointment among

participants with at least one identified health need requiring follow-up care, Chi-square

analyses were performed on categorical and nominal variables (or those that were

combined to create categories) and t-tests were used on continuous variables to compare

those who attended an appointment and those who did not. Those factors found to have a

significant difference among those who attended a medical appointment and those who did not were then entered into an exploratory step-wise logistic regression to determine if a predictive relationship existed. Variables of interest were categorized as follows; original wording of questions can be found in Appendix B.

Appointment attendance. A binary dependent variable was created using a combination of responses to represent whether participants with identified health concerns which required follow-up care attended medical appointments after attending a CHS event. Participants categorized as not attending an appointment included respondents who received a prescheduled appointment during the CHS but did not attend, those who had not self-scheduled an appointment but planned on scheduling one soon, and those who did not plan on following up with a medical provider at this time. Participants who reported attending either a prescheduled CHS appointment or a self-scheduled appointment were counted as having attended an appointment.

Socio-demographic variables. Age, gender, main language spoken at home, race/ethnicity, home ownership status, number of occupants in home, employment, education, marital status, health insurance status, and main form of transportation were used to explore socio-demographic factors in relation to compliance with medical appointments among participants who had at least one identified health concern requiring follow-up care. Age was categorized as follows: 18-34, 35-44, 45-54, 55 and over. Due to the small sample size, race/ethnicity was categorized into either Caucasian or other. Number of occupants living in the home was calculated by adding responses to the questions assessing number of adults and children living in the home. Employment status responses were combined to represent employed ("employed full time" and "employed

part time"), unemployed ("unemployed and looking for work" and "unemployed and not looking for work"), and other (homemakers, students, retirees or unable to work). Educational status responses were combined with "some college" and "trade/technical/vocational training" becoming one category. "College graduate", "some postgraduate work", and "postgraduate degree" were also combined to represent college graduate and above; "some high school" and "high school graduate/GED" responses remained separate. Marital status was condensed to married or single, with single including those who stated they were divorced, separated, or widowed. The remaining questions utilized categorized data that remained true to the original response options provided. "Prefer not to answer" was a response option on all socio-demographic questions and was counted as missing.

Health belief variables. Health belief was measured using questions with 5-point Likert-type response options assessing self-reported overall health, confidence to manage health, and importance of their health.

Health status variables. Alcohol Use Disorders Identification Test (AUDIT) or CAGE-AID scores, Body Mass Index (BMI), blood pressure, total cholesterol (mg/dL), depression score, blood glucose (mg/dL), number of health concerns identified, and if medications were taken as prescribed were used to explore health status. AUDIT and CAGE-AID scores, which measure potential alcohol abuse, were used during different CHS events; therefore, results were re-coded into two categories: alcohol concern identified (1 or more "yes" response on the CAGE-AID questionnaire or a score of 8 or higher on the AUDIT) or no concern identified (Babor, Higgins-Biddle, Saunders, & Monteiro, 2001). BMI was split into the four categories outlined by the Centers for

Disease Control and Prevention (2011): underweight, normal, overweight, and obese.

Blood pressure measures were grouped as normal, prehypertension, high blood pressure

stage 1, or high blood pressure stage 2, as defined by the U.S. Department of Health and

Human Services' National Heart Lung, and Blood Institute (2012).   Total cholesterol

was categorized as desirable, borderline high, and high (American Heart Association,

2013). The Patient Health Questionnaire (PHQ-9) score, a screening tool used to

measure severity of depression, was classified as suggested by the tool's guidelines in

which scores indicated minimal, mild, moderate, moderately severe, or severe levels of

depression (Kroenke, Spitzer, & Williams, 2001). Blood glucose levels were categorized

into normal, pre-diabetes, and diabetes (American Diabetes Association, 2013). The

CHS documentation form had an area for students to mark if the participant required care

for each of the screening stations (nutrition, dental, lab, vision, physical, counseling,

hearing, viral results). This variable was calculated based on the number of stations

indicating the participant required additional care. Calculated numbers were then

categorized as: one to three concerns, four to six concerns, or seven to ten concerns.

Taking medications as prescribed data was collected on a 5 point Likert-type scale from

(1) always to (5) never; (6) N/A options were counted as missing.

   Experience with healthcare system variables. Factors explored representing

experiences with the healthcare system were whether participants identified a primary

care physician, number of years since last physical exam, ever called 911 in the last 12

months, number of emergency department visits in the last 12 months, number of years

since last dental exam, and number of years without medical insurance.

CHS event satisfaction. CHS event satisfaction was measured using responses rating overall satisfaction with the event. Eight statements rated on a 5-point agreement Likert-type scale ranging from (1) strongly disagree to (5) strongly agree were also included; first for individual analysis and then using an average score of all eight statements.

Examining participants' experiences with healthcare services after attending a CHS event and how it might affect their intentions to seek future treatment with clinics they accessed aimed to identify if participants established usual sources of care within the clinics they were connected to through the CHS. Frequencies of responses were calculated for how likely participants attending a medical appointment reported they were of accessing the same clinic for future routine medical care, future emergent medical needs, and whether or not a follow-up visit was scheduled after the initial appointment (see Appendix B for complete question wording).

In addition to the percentages of reported likelihood of accessing clinics for future medical needs, a *t*-test analyzed if there were differences in responses to the two likelihood questions among those who previously accessed a clinic and those who had not. Similarly, an independent samples *t*-test was used to determine differences in responses among participants who went to free clinics versus sliding fee scale clinics.

All analyses, including frequency and descriptive statistics, were performed using SPSS version 22 and the significance level was set at $< .1$ due to the small number of respondents.

Chapter IV: Results

Statistical analyses were preformed to answer this study's two questions of which factors affect compliance with follow-up medical care and how experiences with the healthcare system of those participants who attended a medical appointment affect their intentions to seek future medical care. Findings from the analyses performed to answer each question are presented below.

Study participants

A total of 97 individual participants were screened during CHS events in fall 2013 and February 2014. Forty-eight participants provided both a phone number and email address, two gave email addresses only, 44 phone only, and three did not provide any contact information. Of those who provided contact information, attempted contact was made with 67 (69%) participants through email ($n = 38$) and phone calls ($n = 17$); 12 individuals were contacted through both methods. In addition to missing contact information, reasons for non-attempts included participants who indicated Spanish as their primary language ($n = 22$) and funding barriers to placing long distance phone calls to those who provided out-of-state numbers ($n = 5$). Of those who were contacted, 32 (47.8%; 17 through email; 15 by phone) responded to the survey (33% of total CHS population). Two participants who responded through email did not complete the survey; therefore, those surveys were not included in the analysis. Of all participants receiving phone calls, three numbers were no longer working, three were busy and could not talk, one refused to participate, and seven received voicemails. Phone call surveys were conducted by CHS interns who worked inconsistent schedules and did not have phone numbers to provide participants when voicemails were left; therefore, phone messages

only included an email address as the means to reach the interns. Two participants who received both email and phone requests completed the survey online after receiving a voicemail. Four email addresses were invalid.

Survey respondents. Fifty-three percent of survey respondents were male ($n = 16$), and 70% ($n = 21$) were aged of 45 and over. There was a significant difference in age between respondents and non-respondents as 59.7% ($n = 40$) of non-respondents were between the ages of 18 and 44, $\chi^2(3, N = 97) = 7.59$, $p = .055$. The majority of respondents did not have medical insurance (93.3%) nor a primary care medical provider (80%), which is comparable to the 89.4% and 76.6% of non-respondents lacking medical insurance and primary care medical providers respectively. The overwhelming majority of respondents identified their race/ethnicity as Caucasian (85.7%), which is significantly different from those who did not respond to the survey (39.7%), $\chi^2(1, N = 86) = 16.16$, $p < .001$. Nearly all respondents identified English as their main language spoken at home (93.3%); conversely, only 47.7% of non-respondents identified English as their main language, $\chi^2(2, N = 95) = 19.97$, $p < .001$ (see Table 1).

Of all survey respondents, 27 (90%) self-reported having at least one health concern identified during a CHS event. Over one-third ($n = 10$) of those individuals received prescheduled appointments during the CHS with seven attending their appointment. Four (14.8%) participants self-scheduled and attended appointments, seven reported that they planned on scheduling an appointment soon, and six stated that they did not plan on scheduling with a healthcare provider for follow-up care at this time.

Table 1

Demographic Characteristics of CHS Participants, By Survey Response Status

Variable	Survey Respondents (*n* = 30)		Non-Respondents (*n* = 67)		χ^2	df	p
	n	%	*n*	%			
Gender							
Male	16	53.3	25	39.7	1.54	1	.215
Female	14	46.7	38	60.3			
Age							
18-34	5	16.7	21	31.3	7.59	3	.055*
35-44	4	13.3	19	28.4			
45-54	10	33.3	11	16.4			
55+	11	36.7	16	23.9			
Race/Ethnicity							
Caucasian	24	85.7	23	39.7	16.16	1	.000***
Other	4	14.3	35	60.3			
Main Language Spoken							
English	28	93.3	31	47.7	19.97	2	.000***
Spanish	0	0.0	28	43.1			
Other	2	6.7	6	9.2			
Medical Insurance							
Yes	2	6.7	7	10.6	0.38	1	.539
No	28	93.3	59	89.4			
Primary Care Provider							
Yes	6	20.0	15	23.1	0.11	1	.737
No	24	80.0	50	76.6			
Employment Status							
Employed	11	36.6	-	-	-	-	-
Unemployed	10	33.3	-	-			
Other	4	13.3	-	-			
Education							
Some high school	1	3.3	-	-	-	-	-
High school graduate/GED	5	16.7	-	-			
Some college/trade training	15	50.0	-	-			
College graduate and above	6	20.0	-	-			
Marital Status							
Single/divorced/ widowed	17	56.7	-	-	-	-	-
Married/cohabiting	9	30.0					

Note. Discrepancies in *n* and % value totals are due to missing data or "Prefer not to answer" which was counted as missing.

* *p* < .1 ****p* < .001

Factors Associated to Compliance with Follow-Up Medical Appointments

      All survey respondents who were identified as having at least one health concern

that required follow-up care ($n = 27$) were included in the analyses to answer the first

study question regarding which factors were associated with compliance of follow-up

appointments after attending a CHS event (see Figure 2). There was not a significant

difference among appointment type (prescheduled CHS or self-scheduled) and

appointment attendance rates, $\chi^2(1, \ N = 14) = 1.53, p = .217.$
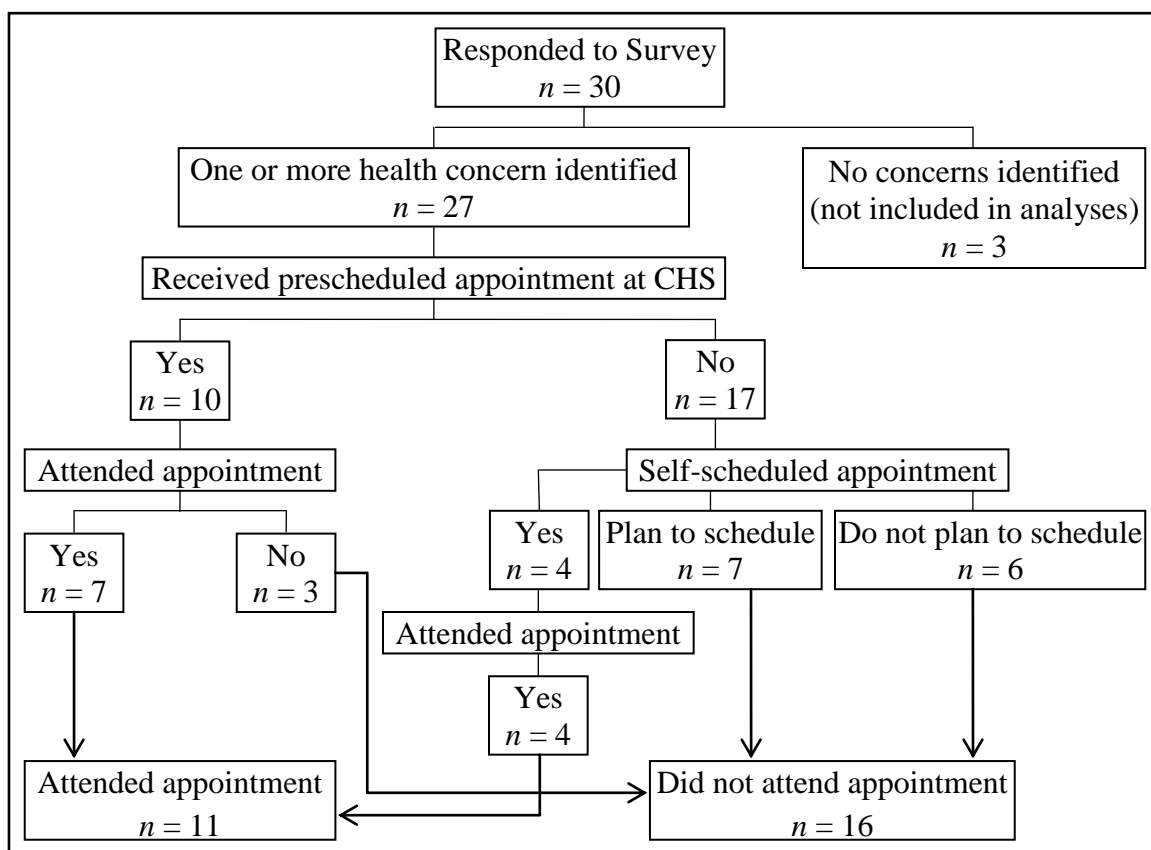
Figure 2. Attendance rates for both prescheduled CHS appointments and self-scheduled appointments.

      As this was an exploratory analysis, an extensive number of variables

representing socio-demographic factors, personal health beliefs, health status, experience

with the health care system, and satisfaction with the CHS event were included in the

Chi-square analyses. A complete table of results can be found in Appendix C.

Socio-demographic factors. Participants aged 55 and above were significantly

more likely to attend a medical appointment post-CHS involvement than any other age

groups, $\chi^2(3, N = 27) = 6.84$, $p = .077$. There were no significant differences based on

gender, main language spoken at home, race/ethnicity, home ownership status, number of

occupants in home, employment, education, marital status, health insurance status, or

main form of transportation.

Health beliefs. Analysis of self-reported overall health status showed that 62.5%

of those who did not attend an appointment reported their health as "good", which was

significantly different from the group attending appointments, $\chi^2(4, N = 27) = 8.22$, $p =$

.084. Those who attended an appointment had a nearly even distribution of self-rated

health with 3 reporting "poor" and two respondents falling into each additional category

("fair", "good", "very good", and "excellent"). There were no significant differences

between appointment attendance and how important health was to respondents.

Preliminary Chi-square results also showed no significant differences in regards to self-

confidence to manage health, $\chi^2(4, N = 27) = 6.38$, $p = .172$; however, an additional

analysis was performed after response categories were combined to create a 3-point scale

instead of the original 5-point scale. "Not at all confident" and "somewhat confident"

were combined to represent "not confident"; "moderately confident" remained as the

middle category; and "very confident" and "extremely confident" were combined to

represent "confident". Further analysis performed using this scale found that while over

92% of participants fell within the "moderately confident" or "confident" categories, the

majority of those who reported that they were "confident" they could manage their health were significantly more likely to not attend an appointment, $\chi^2(2, N = 27) = 5.94, p = .051$.

Health status. Significant differences were found in PHQ-9 scores, blood glucose ranges, total cholesterol, and total number of health concerns identified during the CHS event when comparing those who attended appointments and those who did not. Those who did not follow-up were most likely to have a minimal depression score on the PHQ-9 whereas the majority of participants who attended appointments experienced scores placing them in mild, moderate, or moderately severe categories, $\chi^2(4, N = 27) = 12.02, p = .017$. Blood glucose levels falling within pre-diabetes or diabetes ranges were significantly higher among those who attended medical appointments, $\chi^2(2, N = 25) = 7.64, p = .022$. Similarly, a difference was observed among cholesterol levels and compliance with follow-up; participants with borderline high or high cholesterol were significantly more likely to attend a medical appointment, $\chi^2(2, N = 25) = 6.67, p = .036$. Finally, participants with four or more concerns identified were more likely to attend a medical appointment than those with one to three concerns, $\chi^2(2, N = 27) = 6.29, p = .043$. No significant differences among alcohol use, BMI, blood pressure, or medication compliance were found.

Experience with the healthcare system. On average, individuals who attended the follow-up appointment had 3.88 less years since their last medical exam as compared to those who did not attend the follow-up appointment ($p = .011$). No differences were observed in the number of years since last dental exam, years without insurance, or the number of times a participant visited the ED among those who did and did not follow-up

with the medical provider. Both respondents who attended a medical appointment and those who did not reported similar experiences with the categorical healthcare system variables. Nearly 82% of all survey participants reported not being under a physician's care, and 14.8% had called 911 in the last year.

      CHS event satisfaction. While self-reported overall satisfaction with the CHS event attended did not differ between groups, two points within the agreement statements were significantly different. All participants who did not attend a medical appointment indicated that they agreed or strongly agreed the CHS provided information that will help them take better care of their health whereas only 81.8% of participants attending appointments agreed or strongly agreed with this statement, $\chi^2(3, N = 27) = 8.62$, $p =.035$. Similarly, 93.8% of those who did not follow-up agreed or strongly agreed resources were provided that they will use compared to 72.8% of attenders, $\chi^2(3, N = 27) = 8.23$, $p =.042$.

      Logistic regression results. The final model, which included depression range as the only variable, was found to be significant, indicating that this one variable was predictive of participants' appointment compliance post CHS involvement, $\chi^2(3, N = 20) = 10.4$, $p =.015$ (see Table 2). Variables not included in the equation were age range, self-reported overall health status, confidence to manage health (combined 3-point scale), cholesterol range, glucose range, years since last medical exam, and the two agreement scale statements representing CHS satisfaction ("useful resources were provided" and "information to take better care of health").

Table 2

Factors Associated with Appointment Compliance (n = 20)

Variable	*OR*	95% CI	Wald test	*df*	*P*
Depression Range (reference: Minimal)					
Mild	27.0	1.26 - 578.35	4.44	1	.035**
Moderate	3.0	0.14 - 64.26	0.49	1	.482
Moderately severe	0.0	0.0	0.00	1	.999
**p < .05					

CHS Participation and Follow-Up of Scheduled Medical Appointment

Nine (81.8%) of the 11 individuals who attended a medical appointment reported that a follow-up visit was scheduled after their initial appointment. Similarly, nine were extremely likely to continue to use the clinic they accessed for future routine medical care. The likelihood of participants accessing clinics for future emergent medical needs was less with only 45.5% (*n* = 5) indicating that they were either likely or extremely likely.

No significant differences were found in likelihood of using clinics for neither routine care nor emergent care (see Table 3). Similarly, when comparing clinics that were free versus those that were sliding fee, no differences were found in the reported likelihood questions (see Table 4).

Table 3

Reported Likelihood of Future Utilization of Clinics Differences Among Free and Sliding Fee Scale Clinics

	Free		Sliding Fee			
Variable	*M*	*SD*	*M*	*SD*	*t*-value	*p*
Routine medical care	4.40	1.34	4.20	1.79	0.20	.846
Emergent medical care	2.20	1.64	4.00	2.00	-1.49	.181
Note. Likelihood ranges from 1 (Not at all likely) to 5 (Extremely likely).						

Table 4

Reported Likelihood of Future Utilization of Clinics Differences Among Those Who Had Previously Accessed Clinics and Those Who Had Not

	Previously Accessed		Not Previously Accessed			
Variable	*M*	*SD*	*M*	*SD*	*t*-value	*p*
Routine medical care	5.0	0.00	4.0	1.74	-1.53	.177
Emergent medical care	3.25	2.06	3.0	1.89	-1.98	.848

Note. Likelihood ranges from 1 (Not at all likely) to 5 (Extremely likely).

Chapter V: Discussion

Summary of Findings

Results from a follow-up survey to evaluate ISU- Meridian HSC and Ada County's CHS events showed that over 40% of respondents were successfully connected to needed health services after attending an event. Successful connection to services was defined as an individual-with at least one health concern identified requiring follow-up care attending a medical appointment after participating in a CHS event. Since connection to necessary medical services is one of the main goals of the CHS, this evaluation aimed to examine which factors might contribute to whether participants comply with receiving follow-up medical care after an event.

Individuals attending medical appointments after attending a CHS event were often over the age of 55, reported lower confidence in their ability to manage their health, had poorer health status, and reported higher satisfaction levels of the information provided during the CHS event. Conversely, those who did not attend an appointment after the CHS event self-reported better overall health, a higher level of confidence to manage their health, and received results from screening tests that were more often in normal to borderline ranges. Additionally, this group was more likely to report a greater number of years since they last saw a primary care physician.

Not only do the CHS events aim to connect individuals with healthcare services, they also strive for participants to establish medical homes at the referral clinics. Of those who attended medical appointments, the majority had scheduled follow-up appointments after their initial visits; and most reported that they were likely or very likely to utilize the clinics for future routine medical care. Neither type of clinic accessed

(free versus sliding fee scales) or previous attendance to the clinic influence the likelihood of the participant's future utilization of the clinic.

Significance of Findings

Findings showed that While 40.7% of survey respondents who self-reported they had at least one health concern requiring follow-up medical care identified during the CHS event were successfully connected to medical care, it is likely that the percentage is even higher. The number of appointments distributed to participants during CHS events along with show rates reported by the clinics the appointments were with was tracked by the CHS planning team. This information indicated that there was a 60% attendance rate from participants who received one of 35 prescheduled appointments provided during the four CHS events evaluated. Ten individuals who completed the survey reported receiving one of the 35 prescheduled appointment times which suggests that had more surveys been collected, especially from the additional 25 individuals who received prescheduled appointments, a higher overall percentage of participants could have reported being connected to care. Additionally, a greater number of surveys collected may have shown a greater number of participants who self-scheduled an appointment post CHS involvement. Since there was a 100% show rate for those who self-scheduled, this might have also led to a higher percentage of individuals receiving follow-up medical care. The high percentages of kept appointment times among both those who self-scheduled and those who received prescheduled appointment times suggest that connecting individuals to care is not completely dependent on the CHS being able to provide prescheduled appointments. Instead, this information suggests that if CHS faculty and students can provide motivation and encouragement for participants to

schedule appointments themselves, those appointments would also be attended. Therefore, the CHS event planners should strengthen their current motivational interviewing component to better encourage participants with identified health needs to self-schedule with a medical provider after they leave the event.

Age range was the only significant socio-demographic factor affecting compliance with follow-up medical care. Individuals ages 45 and over were more likely to attend a medical appointment than individuals between the ages of 18 and 44. Possible explanations include older persons feeling a more urgent need for resolving health issues compared to younger individuals who have a sense of invincibility. Younger individuals might have time commitments related to family life or career building that take precedent over medical appointments whereas older individuals have more stable employment and more flexibility in their family schedules allowing them to make time for medical follow up. Finally, reasons behind this difference are likely multi-faceted; therefore, it is difficult to draw conclusions from this finding.

Those who reported a high level of confidence to manage their health and who self-reported their overall health was good were less likely to receive follow-up medical care. Similarly, those who agreed or strongly agreed that the CHS provided useful resources and information that would allow them to take better care of their own health did not attend an appointment after a CHS event. Not attending a medical appointment after a CHS event may be the result of individuals' beliefs that even though they had health concerns identified during the screening, they could manage their own needs and did not need help from a medical provider. Also, since they reported that their health was good, they may not have felt the concerns identified were not worth receiving additional

care because they were not experiencing significant enough symptoms to actually impact their overall health. It is worth noting that analyses performed for this evaluation included only those participants who self-reported that they had at least one health concern requiring follow-up care identified during the CHS event. While three participants self-reported that they did not have any health concerns requiring follow-up care, data collected during the CHS event showed that all participants surveyed had at least one concern identified. It is possible that these three participants are in denial about their actual health status, or have self-perceived health statuses similar to those participants who did not follow-up with medical care. However, until further analysis is completed to examine the three participants who self-reported a lack of need for follow-up, conclusions regarding this discrepancy cannot be made.

The fact that those who did not attend a medical appointment also reported a greater number of years since their last medical exam is also important to note. One possible explanation for the combination of a high confidence to manage health yet not receiving medical care is that these participants may distrust the medical system in general. The greater amount of time since last receiving a medical exam may relate to participants' high confidence in managing their own health and therefore seeing no value in receiving additional care. Since this group also felt the CHS event provided resources and information that would allow them to take better care of their health, they may have believed that the CHS was providing an accessible alternative to receiving routine medical care. They may also be fearful of receiving medical care in traditional healthcare settings. If distrust of the system is a factor, CHS planners could build a component into their existing motivational interviewing model to address negative feelings towards the

medical system. Additionally, participants' interactions with future health care professionals at the events can serve to demonstrate that medical providers are trustworthy and receiving medical care need not be feared.

As with self-perceived health status, differences were found among actual health status and compliance with attending a medical appointment. Those who had borderline high total cholesterol and/or blood glucose levels falling in the pre-diabetes or diabetes range were more likely to attend a medical appointment after attending a CHS event. Additionally, those with a greater number of health concerns identified were more likely to attend a medical appointment. This suggests that these factors created a perception of an immediate threat to the individual's current health status, thus resulting in them receiving follow-up medical care. The CHS planning team should consider implementing strategies that emphasize the importance of routine preventative care to participants with less pressing medical needs. In addition, they could expand the educational component of the CHS process to focus on how participants with lesser health concerns can maintain their good health, which in part is done through receiving recommended preventative tests and screenings with primary care providers on a regular basis.

Depression scores were the only variable found to be predictive of whether or not an individual followed-up with a medical provider after attending a CHS event. While the CHS had over 50 available prescheduled appointments for general counseling services through ISU- MHSC's student run clinic, only three appointments were scheduled with one appointment kept. Most often, those with mental health concerns were instead referred to partnering clinics that offer more extensive mental health

services once an individual becomes a patient. Participants with at least a mild level of depression may not think counseling alone is sufficient to address their condition. They may also feel that their depressive symptoms are simply a manifestation of their physical health concerns; therefore, if they can address the medical side of their health, they feel their depressive symptoms will subside. Knowing that even mild levels of depression increases the likelihood of participants receiving some form of medical care is an important finding from this study for future program development. CHS planners can use this information to evaluate their current mental health screening process as well as to develop strategies for increasing resources and community partnerships for additional mental health referral options.

Implications for Future Evaluation

The explanations behind this evaluation's findings are only assumptions; therefore, further evaluation with a larger sample of CHS participants is necessary for event planners to create the most effective protocol to reach those who do not attend medical appointments post CHS event. Similarly, despite results that were significant, it is difficult to draw accurate conclusions from the findings presented in this study because the sample population was not representative of the entire CHS population. CHS participants who identified their preferred language as Spanish and their race/ethnicity as Hispanic were excluded from the study. Future evaluation efforts must include surveys disseminated in Spanish; especially with the increase in the number of Spanish speaking participants observed at the screening events.

Limitations

The most significant limitation to this study was the sample size. The fall 2013 and February 2014 CHS events experienced a 47.7% decrease in participant numbers from the same timeframe a year prior; the first decrease since the program's inception. In addition to the small sample size, those who responded to the survey were likely not representative of all CHS participants as there were significant differences in age, race/ethnicity, and preferred language. Those who completed the follow-up survey were significantly older than those who did not complete the survey. Additionally, a greater portion of non-respondents identified their race/ethnicity as something other than Caucasian, although the respondent population overwhelmingly identified Caucasian. Finally, preferred language differed as well with 52.3% ($n = 34$) of non-respondents identifying a language other than English compared to only 6.7% of respondents identifying a language other than English. Given that all of these differences were significant, results from the evaluation may not accurately represent CHS participants as a whole.

The inability to collect follow-up data on participants who identified their race/ethnicity as Hispanic was particularly restrictive. Although overall CHS event turnout was lower, there was an increase in the percentage of participants identifying race/ethnicity as Hispanic. Of the 97 individuals who attended one of the four screenings evaluated, 26.8% ($n = 26$) identified their race/ethnicity as Hispanic and 29% ($n = 28$) reported Spanish as their primary language; conversely, only 12.5% ($n = 23$) of fall 2012 and February 2013 event participants identified as Hispanic (primary language was not assessed during this time). Due to programmatic limitations, the follow-up survey was

not disseminated in Spanish; therefore, a substantial portion of the CHS population was excluded from the study.

Another limitation resulted from the CHS interns who administered the phone surveys not being able to place long distance phone calls and not having access to a landline to receive participant callbacks when voicemails were left. Instead, an email address was given in the voicemail. This created an obstacle for individuals to respond since it may have been difficult for individuals to understand the spelling of the email address that was provided. Further, participants would have had to write down the email address, send the email, and then wait for an intern to send the survey link as opposed to being able to simply call back the phone number displayed on their caller ID. Finally, those with inconsistent internet access would not have been able to complete the web-based survey; once again excluding a subgroup of the CHS participants.

This study was conducted through a programmatic evaluation and therefore did not adhere to a research based design, causing its own set of limitations. One was the timeframe in which surveys were distributed and collected. Instead of maintaining a consistent schedule that is preferred in research studies, there were discrepancies in the survey dissemination timeline. Because student interns were only allowed to work a certain number of hours per week which followed the academic calendar, there were gaps in data collection. For example, contacts with participants of the November events were either postponed or the initial and subsequent attempts were interrupted by a holiday break. The holiday season could have also caused inconsistencies in data collected from participants during that time as they may have been too busy to schedule or attend an appointment. Similarly, participants at one of the earlier events had more time to respond

to the surveys since there was a rolling collection. Results could have been skewed because someone from October would have had more time to follow-up with medical care if they received care in January and at that time submitted an email version of the survey. Alternatively, survey collection ended eight weeks after the February 2014 events to allow time for analyses to be performed for this study, which would not allow for these participants to benefit from the same extended time for follow through. In addition to these inconsistencies in data collection, the length of time in which surveys were collected may not have been adequate to allow participants to attend an appointment. Additionally, no programmatic processes were in place to assess whether those who stated they were going to follow-up with care soon actually did or did not. Results may have varied if additional contact at a later point in time had been made with these individuals.

Implementing strategies that could have mitigated some of the limitations in this study was prevented by the fact that this was an evaluation of a preexisting program overseen by another entity. Additionally, the number of participants attending the events was beyond the control of the CHS planning team. Despite not being able to control the number of CHS participants, a greater response rate may have been obtained if measures were implemented at the event to promote buy in from participants to respond. For example, it may have been beneficial to talk with participants during the event about the dissemination of an evaluation survey. If participants knew to expect it, they might have been more likely to complete the survey or to answer their phones when contacted. Further emphasis on the importance of the participants' feedback to the future success of the events may have fostered a positive feeling of the value of their opinion and resulted

in an increased response rate. CHS planners should consider conducting in-depth interviews or small focus groups with past CHS participants to assess the best way to engage participants in future evaluation endeavors, determine if web-based and interviewer conducted phone surveys are an acceptable format for collecting evaluation data, and to receive input on additional survey questions.

As the background and literature reviews discuss, the CHS was created because the county wanted to reduce the number of ED visits. While this evaluation attempted to suggest that a reduction in ED visits was happening as a result of individuals being connected to medical services they would likely use in the future, this study was not the most effective way to evaluate this supposition. Instead, additional follow-up contact should be implemented. The survey used for this study better serves as an initial point of departure. Additional data and substantiated discussions could have been drawn if participants were contacted not only eight to twelve weeks post CHS involvement but again at six and twelve months post involvement. At the six and twelve month marks, participants' utilization of healthcare services should once again be assessed. Data should be collected regarding participants' access of clinics recommended during the CHS, how many times they visited the ED since the last time they were contacted, as well as any other healthcare they received. Contacting participants at these additional time points is necessary to determine the long term impact of the CHS events on participants' utilization of routine and emergency healthcare services.

Conclusion

Despite the numerous design flaws and limitations of this study, a step toward a more effective evaluation process was made. The CHS planning team will be able to

utilize these preliminary results to make programmatic changes within the CHS to better meet the main goal of helping individuals establish medical homes to receive routine health care in the appropriate healthcare setting. While these results are not generalizable or even strong enough to use as a foundation for obtaining additional support from community clinics or funding agencies, preliminary findings are positive and support the continued development of the CHS program with accompanying process and outcome evaluation measures. The CHS planning team wishes to adapt and expand the program into communities outside of Ada County, Idaho. To this end, further evaluations to determine the acceptability of CHS events to participants, the effectiveness of CHS events in reducing the use of the ED, and examining the most effective way to connect participants to needed medical services after attending an event. Additionally, procedures should be implemented to increase post event survey responses, improve marketing strategies to increase community outreach thus increasing the number of CHS participants, and develop additional partnerships with medical providers to enable CHS participants to self-schedule appointments after an event are recommended.

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Appendix A
ISU Community Health Screening Survey

Thank you for your interest in completing this survey. Before you begin, there are some things we would like you know:

- You do not have to complete this survey if you do not want to. If you choose not to participate, no one will treat you any differently. You will still be able to attend future Community Health Screening events or other health screenings offered by ISU.
- If you do decide to take the survey and then change your mind, you can exit the survey at any time.
- Your responses to this survey will be seen only by the core group of Community Health Screening event planners (two ISU faculty and two ISU students). No information that could identify you or your responses will be used in reports discussing the findings of this survey.

1. What is your name? (first and last)
2. What concerns about your health brought you to the screening event? (Check all that apply)
   (1) General health (2) Nutrition (3) Dental (4) High blood sugar (5) Cholesterol (6) Vision (7) Blood pressure (8) Medication (9) Mental health (10) Hearing (11) HIV (12) Hepatitis C (13) Flu shot (14) Other[1]
3. In general, how would you rate your current overall health?
   (1) Poor (2) Fair (3) Good (4) Very Good (5) Excellent
4. How much did attending the Community Health Screening affect how you rated your overall health?
   (1) Not at all (2) Somewhat (3) Very much
5. How important is being healthy to you?
   (1) Not at all important (2) Slightly important (3) Moderately important (4) Very important (5) Extremely important
6. How confident are you that you can manage your own health?
   (1) Not at all confident (2) Slightly confident (3) Moderately confident (4) Very confident (5) Extremely confident
7. Please rate how much you agree with the following statements:
   -The students and faculty at the Community Health Screening were friendly
   -The students and faculty of the Community Health Screening were professional
   -My questions about the screening services offered at the event were answered
   -Health concerns or risks were identified that I did not know I had
   -Health information was given to me that I will use
   -Resources were provided that I will use
   -Information on services that I was previously unaware of in the community was provided
   -The information/screenings I received will help me take better care of my health
   (1) Strongly disagree (2) Disagree (3) Neither agree nor disagree (4) Agree (5) Strongly agree
8. For which medical concerns did we recommend you follow up with a provider for? (Check all that apply)
   (1) Nutrition (2) Dental (3) High blood sugar (4) Cholesterol (5) Vision (6) Blood pressure (7) Medication concerns (8) Counseling (9) Hearing problems (10) Wax removal (11) HIV (12) Hepatitis C (13) I did not have medical concerns that required follow up[2] (14) Other

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[1] If 'Other' is checked on any question that has it as an option, respondents will be asked to explain.
[2] Red text or red outlined shapes indicate end of specific line of questioning and to move on to question #9 to end.

Did you receive a specific appointment time during check out?

Yes — Which clinic or provider was your appointment with?

No — Go to next page

Which clinic or provider was your appointment with?

Is this a clinic or provider you have used in the past?

Were you able to go to your scheduled appointment?

Yes

My appointment has not occurred yet

No

Yes branch:

What at the screening motivated you to go to this appointment?

Was a follow up visit scheduled after you went to your appointment?

(1) Yes (2) My needs were met during the one appointment and another was not needed (3) Other

How likely is it that you will continue using this clinic or provider for future routine medical care?

(1) Extremely unlikely (2) Unlikely (3) Somewhat likely (4) Likely (5) Extremely likely

How likely is it that you will continue using this clinic or provider for future emergency medical needs?

(1) Extremely unlikely (2) Unlikely (3) Somewhat likely (4) Likely (5) Extremely likely

No branch:

Why were you not able to go to your appointment?

Did you call the clinic or provider to tell them you would not be able to go to the appointment?

(1) Yes (2) No (3) The clinic or provider canceled my appointment

Have you rescheduled your appointment with the same clinic or provider?

Yes I rescheduled my appointment

No but I plan on rescheduling soon

No and I do not plan on rescheduling with this clinic or provider

Have you scheduled a new appointment somewhere else?

Yes I scheduled a new appointment

No but I plan on scheduling a new appointment soon

No and I do not plan on scheduling a new appointment at this time

Why do you not plan on scheduling a new appointment at this time?

Which clinic or provider was your appointment with?

Is this a clinic or provider you have used in the past?

Were you able to go to the appointment you scheduled?

Yes

No

My appointment has not occurred yet

Did you receive a specific appointment time during check out?

See previous page ← Yes | No

Have you scheduled an appointment with a healthcare provider regarding the health concerns that were identified at the screening?

Yes I scheduled an appointment | No but I plan on scheduling one soon | No and I do not plan on scheduling one at this time

Why do you not plan on scheduling an appointment with a healthcare provider at this time?

Which clinic or provider was your appointment with?

Is this a clinic or provider you have used in the past?

Were you able to go to your scheduled appointment?

Yes | My appointment has not occurred yet | No

What at the screening motivated you to go to this appointment?

Why were you not able to go to your appointment?

Was a follow up visit scheduled after you went to your appointment?
(1) Yes (2) My needs were met during the one appointment and another was not needed (3) Other

Did you call the clinic or provider to tell them you would not be able to go to the appointment?
(1) Yes (2) No (3) The clinic or provider canceled my appointment

How likely is it that you will continue using this clinic or provider for future routine medical care?
(1) Extremely unlikely (2) Unlikely (3) Somewhat likely (4) Likely (5) Extremely likely

Have you rescheduled your appointment with the same clinic or provider?

How likely is it that you will continue using this clinic or provider for future emergency medical needs?
(1) Extremely unlikely (2) Unlikely (3) Somewhat likely (4) Likely (5) Extremely likely

Yes I rescheduled my appointment | No but I plan on rescheduling soon | No and I do not plan on rescheduling with this clinic or provider

Have you scheduled a new appointment somewhere else?

Which clinic or provider was your appointment with?

Yes I scheduled a new appointment | No but I plan on scheduling a new appointment soon | No and I do not plan on scheduling a new appointment at this time

Is this a clinic or provider you have used in the past?

Were you able to go to the appointment you scheduled?

Why do you not plan on scheduling a new appointment at this time?

Yes | No | My appointment has not occurred yet

9. What did you find beneficial about the Community Health Screening event you attended?
10. What would you have changed about the Community Health Screening event you attended?
11. Please rate your overall satisfaction with the Community Health Screening event you attended.
    (1) Not at all satisfied (2) Slightly satisfied (3) Moderately satisfied (4) Very satisfied (5) Extremely satisfied
12. How likely is it that you would attend another Community Health Screening event?
    (1) Extremely unlikely (2) Unlikely (3) Somewhat likely (4) Likely (5) Extremely likely
13. Would you recommend the Community Health Screening to a friend?
    (1) Yes (2) No
14. If you would like us to contact someone about attending our future events, please include their email address so we can inform them of upcoming events.
15. How would you describe your current employment status?
    (1) Employed full time (2) Employed part time (3) Out of work and looking for work (4) Out of work and not currently looking for work (5) Homemaker, stay at home parent (6) Student (7) Retired (8) Unable to work (9) Prefer not to answer
16. What type of work do you do? *(will only show if #15=1 OR 2)*
17. What is the highest level of education you have completed?
    (1) Some high school (2) High school graduate/GED (3) Some college (4) Trade/technical/vocational training (5) College graduate (6) Some postgraduate work (7) Postgraduate degree (8) Prefer not to answer
18. What is your main form of transportation?
    (1) Car/truck/SUV/motorcycle that almost always works (2) Car/truck/SUV/motorcycle that only works occasionally (3) Bus (4) Walking/Biking (5) I depend on others to take me where I need to go (6) Prefer not to answer
19. Does anyone else use this vehicle as their main source of transportation? *(will only show if #18= 1 OR 2)*
    (1) Yes (2) No
20. What is your current marital status?
    (1) Single, never married (2) Married, cohabitating (3) Separated (4) Divorced (5) Widowed (6) Prefer not to answer
21. What type of health insurance do you have?
    (1) Private insurance I buy on my own (2) Private insurance I buy/is provided by my employer (3) Medicaid (4) Medicare (5) I do not have health insurance (6) Other (7) Prefer not to answer
22. Do you rent or own the place you call home?
    (1) Own (2) Rent (3) Other (4) Prefer not to answer
23. How many adults, including yourself, aged 18 and over live in your home?
    (1) One (myself) (2) Two (3) Three (4) Four (5) Five (6) Six or more (7) Prefer not to answer
24. How many children under 18 live in your home?
    (1) None (2) One (3) Two (4) Three (5) Four (6) Five (7) Six or more (8) Prefer not to answer
25. Thank you again for attending our screening. Please leave any other comments or suggestions here.

Thank you for taking the survey.
Have a nice day!

Appendix B

Questions Used for Independent Variables in Study Questions

Study Question #1	
Variable Question	Response Options
Socio-demographic	
Age	Fill in
Gender	(1) Male (2) Female
Main language spoken at home	Fill in
Race/Ethnicity	(1) Asian (2) African American (3) Caucasian (4) Hispanic (5) Native American (6) Other
Do you currently have medical insurance?	(1) Yes (2) No
Do you rent or own the place you call home?	(1) Own (2) Rent (3) Other (4) Prefer not to answer
How many adults, including yourself, aged 18 and over live in your home?	(1) One (myself) (2) Two (3) Three (4) Four (5) Five (6) Six or more (7) Prefer not to answer
How many children under 18 live in your home?	(1) None (2) One (3) Two (4) Three (5) Four (6) Five (7) Six or more (8) Prefer not to answer
How would you describe your current employment status?	(1) Employed full time (2) Employed part time (3) Out of work and looking for work (4) Out of work and not currently looking for work (5) Homemaker, stay at home parent (6) Student (7) Retired (8) Unable to work (9) Prefer not to answer
What is the highest level of education you have completed?	(1) Some high school (2) High school graduate/GED (3) Some college (4) Trade/technical/vocational training (5) College graduate (6) Some postgraduate work (7) Postgraduate degree (8) Prefer not to answer
What is your current marital status?	1) Single, never married (2) Married, cohabitating (3) Separated (4) Divorced (5) Widowed (6) Prefer not to answer
What type of health insurance do you	(1) Private insurance I buy on my own (2) Private insurance I buy/is provided by my

have?	employer (3) Medicaid (4) Medicare (5) I do not have health insurance (6) Other (7) Prefer not to answer
What is your main form of transportation?	(1) Car/truck/SUV/motorcycle that almost always works (2) Car/truck/SUV/motorcycle that only works occasionally (3) Bus (4) Walking/Biking (5) I depend on others to take me where I need to go (6) Prefer not to answer
Health Belief	
In general, how would you describe your current overall health?	(1) Poor (2) Fair (3) Good (4) Very Good (5) Excellent
How confident are you that you manage your own health?	(1) Not at all confident (2) Slightly confident (3) Moderately confident (4) Very confident (5) Extremely confident
How important is being healthy to you?	(1) Not at all important (2) Slightly important (3) Moderately important (4) Very important (5) Extremely important
Health Status	
AUDIT or CAGE-AID	Fill in
Blood pressure	Fill in
Cholesterol (mg/dL)	Fill in
Depression (PHQ-9)	Fill in
Glucose (mg/dL)	Fill in
Number health concerns identified	Fill in
Take medications as prescribed	(1) Always (2) Almost Always (3) Sometimes (4) Almost Never (5) Never (6) N/A
Experience with Healthcare System	
Do you have a primary care physician?	(1) Yes (2) No
# years since last exam	Fill in
In the last year have you called 911?	(1) Yes (2) No
Last dental exam (# of years)	Fill in
# ER visits last year	Fill in
Is this a clinic or provider you have used in the past?	(1) Yes (2) No

Satisfaction with CHS	
Please rate your overall satisfaction with the Community Health Screening event you attended.	(1) Not at all satisfied (2) Slightly satisfied (3) Moderately satisfied (4) Very satisfied (5) Extremely satisfied
Please rate how much you agree with the following statements:	
Health concerns or risks were identified that I did not know I had	(1) Strongly disagree (2) Disagree (3) Neither agree nor disagree (4) Agree (5) Strongly agree
Health information was given to me that I will use	(1) Strongly disagree (2) Disagree (3) Neither agree nor disagree (4) Agree (5) Strongly agree
Information on services that I was previously unaware of in the community was provided	(1) Strongly disagree (2) Disagree (3) Neither agree nor disagree (4) Agree (5) Strongly agree
My questions about the screening services offered at the event were answered	(1) Strongly disagree (2) Disagree (3) Neither agree nor disagree (4) Agree (5) Strongly agree
Resources were provided that I will use	(1) Strongly disagree (2) Disagree (3) Neither agree nor disagree (4) Agree (5) Strongly agree
The information/screenings I received will help me take better care of my health	(1) Strongly disagree (2) Disagree (3) Neither agree nor disagree (4) Agree (5) Strongly agree
The students and faculty at the Community Health Screening were friendly	(1) Strongly disagree (2) Disagree (3) Neither agree nor disagree (4) Agree (5) Strongly agree
The students and faculty of the Community Health Screening were professional	(1) Strongly disagree (2) Disagree (3) Neither agree nor disagree (4) Agree (5) Strongly agree
Study Question #2	
How likely is it that you will continue using this clinic or provider for future emergency medical needs?	(1) Extremely unlikely (2) Unlikely (3) Somewhat likely (4) Likely (5) Extremely likely
How likely is it that you will continue using this clinic or provider for future routine medical care?	(1) Extremely unlikely (2) Unlikely (3) Somewhat likely (4) Likely (5) Extremely likely
Was a follow up visit scheduled after you went to your appointment?	(1) Yes (2) My needs were met during the one appointment and another was not needed (3) Other

| Is this a clinic or provider you have used in the past? | (1) Yes (2) No |

Appendix C

All Chi-Square and *t*-test Results from Question #1

Socio-Demographic Differences by Appointment Compliance

Variable	Attended (*n* = 11)		Did Not Attend (*n* = 16)		χ^2	df	*p*
	n	%	*n*	%			
Age							
18-34	0	0.0	4	25.0	6.84	3	.077*
35-44	1	9.1	2	12.5			
45-54	3	27.3	7	43.8			
55+	7	63.6	3	18.8			
Gender							
Male	5	45.5	8	50.0	0.05	1	.816
Female	6	54.4	8	50.0			
Main Language Spoken							
English	11	100.0	15	93.8	0.71	1	.398
Other	0	0.0	1	6.3			
Race/Ethnicity							
Caucasian	10	90.9	12	80.0	0.58	1	.446
Other	1	9.1	3	20.0			
Home Ownership							
Rent	3	30.0	7	53.8	1.94	2	.379
Own	5	50.0	3	23.1			
Other	2	20.0	3	23.1			
Number Occupants in Home							
One	4	40.0	3	23.1	3.82	4	.431
Two	3	30.0	3	23.1			
Three	2	20.0	6	46.2			
Six	0	0.0	1	7.7			
Eight	1	10.0	0	0.0			
Employment Status							
Employed	4	40.0	7	46.7	2.52	2	.284
Unemployed	3	30.0	7	46.7			
Other	3	30.0	1	6.7			
Education							
Some high school	0	0.0	1	7.1	1.35	3	.718
High school graduate/GED	2	18.2	3	21.4			
Some college/trade training	6	54.5	8	57.1			
College graduate and above	3	27.3	2	14.3			
Marital Status							
Single/divorced/ widowed	7	77.8	9	64.3	0.47	1	.493
Married/cohabiting	2	22.2	5	35.7			
Medical Insurance							
No	10	90.9	16	100.0	1.51	1	.219

	n	%	n	%			
Yes	1	9.1	0	0.0			
Main Form Transportation							
Vehicle Always Working	8	72.7	11	78.6	1.47	3	.690
Vehicle Sometimes working	1	9.1	1	7.1			
Walking, Biking	1	9.1	2	14.3			
Rely on Others	1	9.1	0	0.0			

Note. Discrepancies in *n* and % value totals are due to missing data or "Prefer not to answer" which was counted as missing.
* *p* < .1 **p* < .001 ***p* < .001

Health Belief Differences by Appointment Compliance

	Attended (*n* = 11)		Did Not Attend (*n* = 16)				
Variable	*n*	%	*n*	%	χ^2	*df*	*p*
Overall health							
Poor	3	27.3	0	0.0	8.22	4	.084*
Fair	2	18.2	3	18.8			
Good	2	18.2	10	62.5			
Very Good	2	18.2	2	12.5			
Excellent	2	18.2	1	6.3			
Confidence to mange health							
Not at all confident	1	9.1	0	0.0	6.38	4	.172
Somewhat confident	1	9.1	0	0.0			
Moderately confident	6	54.5	5	31.3			
Very Confident	3	27.3	9	56.3			
Extremely confident	0	0.0	2	12.2			
Importance of health							
Moderately important	1	9.1	3	18.8	1.11	2	.573
Very important	7	63.6	7	43.8			
Extremely important	3	27.3	6	37.5			

Note. Discrepancies in *n* and % value totals are due to missing data.
* *p* < .1 **p* < .05 ***p* < .001

Health Status Differences by Appointment Compliance

Variable	Attended (*n* = 11)		Did Not Attend (*n* = 16)		χ^2	*df*	*p*
	n	%	*n*	%			
Alcohol Concern							
Yes	3	27.3	2	12.5	0.94	1	.332
No	8	72.7	14	87.5			
BMI							
Normal	1	9.1	2	13.3	1.81	2	.405
Overweight	0	0.0	2	13.3			
Obese	10	90.9	11	73.3			
Blood Pressure							
Normal	2	18.2	1	6.7	3.98	3	.264
Prehypertension	1	9.1	5	33.3			
High, Stage 1	3	27.3	6	40.0			
High, Stage 2	5	45.5	3	20.0			
Total Cholesterol							
Desirable	3	30.0	12	80.0	6.67	2	.036**
Borderline high	6	60.0	2	13.3			
High	1	10.0	1	6.7			
Depression (PHQ-9)							
Minimal	1	9.1	11	68.8	12.02	4	.017**
Mild	5	45.5	1	6.3			
Moderate	2	18.2	3	18.8			
Moderately severe	2	18.2	1	6.3			
Severe	1	9.1	0	0.0			
Blood Glucose							
Normal	2	20.0	10	66.7	7.64	2	.022**
Pre-diabetes	5	50.0	5	33.3			
Diabetes	3	30.0	0	0.0			
Number health concerns							
One to three	1	9.1	9	31.1	6.29	2	.043**
Four to six	9	72.7	6	62.5			
Seven or more	1	18.2	1	6.3			
Take medication as prescribed							
Always	4	40.0	3	18.8	0.06	2	.971
Almost always	3	30.0	2	12.5			
Sometimes	1	10.0	1	6.3			

Note. Discrepancies in *n* and % value totals are due to missing data or "N/A" response which was counted as missing.

* $p < .1$ ** $p < .05$ *** $p < .001$

Experience with Healthcare System Differences by Appointment Compliance

	Attended (*n* = 11)		Did Not Attend (*n* = 16)				
Variable	*n*	%	*n*	%	χ^2	*df*	*p*
Primary care physician							
Yes	3	27.3	2	12.5	0.94	1	.332
No	8	72.7	3	27.3			
Prior use of clinic							
Yes	4	36.4	0	0.0	1.53	1	.217
No	7	63.6	3	100.0			
Called 911							
Yes	2	18.2	2	12.5	0.17	1	.683
No	9	81.8	2	87.5			

Note. Discrepancies in *n* and % value totals are due to missing data.

Experience with Healthcare System Differences Among Those Who Attended An Appointment And Those Who Did Not

	Attended		Did Not Attend			
Variable	*M*	*SD*	*M*	*SD*	*t*-value	*p*
Years since last medical exam	1.22	1.01	5.33	5.10	-2.92	.011**
Years without insurance	6.56	6.72	6.01	5.84	0.21	.837
Number ED visits	1.33	1.57	2.00	1.73	-0.63	.561
Years since last dental exam	6.26	7.53	3.30	2.83	1.19	.260

****p* < .05*

Satisfaction with CHS Event Differences by Appointment Compliance

	Attended (*n* = 11)		Did Not Attend (*n* = 16)				
Variable	*n*	%	*n*	%	χ^2	*df*	*p*
Overall satisfaction							
Not at all satisfied	1	9.1	0	0.0	4.15	3	.246
Moderately satisfied	3	27.3	1	6.3			
Very satisfied	3	27.3	7	43.8			
Extremely satisfied	4	36.4	8	50.0			
Students/ faculty **friendly**							
Neither agree nor disagree	1	9.1	0	0.0	4.13	2	.127
Agree	3	27.3	1	6.3			
Strongly agree	7	63.6	15	93.8			
Students/faculty **professional**							
Disagree	1	9.1	0	0.0	3.81	3	.283
Neither agree nor disagree	1	9.1	0	0.0			
Agree	1	9.1	4	25.0			

Strongly agree	8	72.7	12	75.0			
Questions were answered							
Disagree	1	9.1	0	0.0	2.03	3	.566
Neither agree nor disagree	1	9.1	1	6.3			
Agree	3	27.3	7	43.8			
Strongly agree	6	54.5	8	50.0			
Unknown risks identified							
Strongly disagree	3	27.3	2	12.5	2.01	4	.734
Disagree	2	18.2	3	18.8			
Neither agree nor disagree	1	9.1	4	25.0			
Agree	2	18.2	4	25.0			
Strongly agree	3	27.3	3	18.8			
Useful information provided							
Disagree	1	9.1	0	0.0	1.94	3	.584
Neither agree nor disagree	1	9.1	3	18.3			
Agree	5	45.5	8	50.0			
Strongly agree	4	36.4	5	31.3			
Useful resources provided							
Disagree	1	9.1	0	0.0	8.23	3	.042**
Neither agree nor disagree	2	18.2	1	6.3			
Agree	3	27.3	13	81.3			
Strongly agree	5	45.5	2	12.5			
Previously unknown services provided							
Strongly disagree	1	9.1	1	6.3	1.50	4	.826
Disagree	0	0	1	6.3			
Neither agree nor disagree	3	27.3	3	18.8			
Agree	2	18.2	5	31.3			
Strongly agree	5	45.5	6	37.5			
Information provided to take better care of health							
Disagree	1	9.1	0	0.0	8.62	3	.035**
Neither agree nor disagree	1	9.1	0	0.0			
Agree	3	27.3	13	81.3			
Strongly agree	6	54.5	3	18.8			
Average agreement							
Disagree	1	9.1	0	0.0	4.99	3	.172
Neither agree nor disagree	3	27.3	5	0.0			
Agree	5	45.5	11	0.0			
Strongly agree	2	18.2	0	0.0			

Note. Discrepancies in *n* and % value totals are due to missing data.
**$p < .05$