ABSTRACT

The Waco Community Health Worker Program: A Qualitative Investigation and

Community Focused Restructuring

Amanda N. Davis

Director: Christopher M. Pieper, Ph.D.

Community health care worker programs have been increasingly used as a novel approach to reintegrating those historically excluded from healthcare, yet their varied characteristics lead to vastly different outcomes. The Waco Community Health Worker (CHW) Initiative is an example of a program with mixed results. The purpose of this study is to pin-point the weaknesses of the initial program and ways those issues may be concretely resolved. First, a background on CHW programs - their origin, their development, and the role they play in the healthcare system in the United States - is provided. Additionally, a review of the history of the Waco initiative is included. Two methods of research were used to collect data: a systematic literature review as well as snowball sampled general interview approach to collect qualitative data from key community informants. The interviews were transcribed via an A.I. transcription service, and then coded for themes and keywords using Atlas.ti. The qualitative data from the interviews was evaluated against the standardized six domains of successful CHW programs in the literature review in order to identify specific areas of strengths and weaknesses in the Waco program. Finally, potential structural and policy related revisions that would improve the effectiveness of the revised Waco CHW Initiative are suggested to improve program results after its reimplementation.

APPROVED BY DIRECTOR OF HONORS THESIS:

_____

Dr. Christopher M. Pieper, Department of Sociology

APPROVED BY THE HONORS PROGRAM:

_____

Dr. Andrew Wisely, Interim Director

DATE: _____

THE WACO COMMUNITY HEALTH WORKER PROGRAM: A QUALITATIVE INVESTIGATION AND COMMUNITY FOCUSED RESTRUCTURING

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Amanda Davis

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CHAPTER ONE

Introduction

Community health care worker programs have been increasingly used as a novel approach to reintegrating those historically excluded from healthcare, yet their varied characteristics lead to vastly different outcomes. The Waco Community Health Worker (CHW) Initiative is an example of a program with mixed results. By conducting interviews with key participants in planning and implementing the Initiative, the initial challenges of the program initially were identified. Using a standard organizational / program evaluation protocol, recommendations were then made by which the issues may be concretely resolved. These are based in patterns of successful CHW programs as documented in extant literature. Finally, a potential plan of action is formulated for the re-implementation of the Waco CHW program.

Origin

Worldwide

A CHW can be defined as a frontline public health worker who is a trusted member of the community, allowing them to serve as an intermediary between health services and the community to increase access to services and improve cultural competence and quality of care (American Public Health Association [APHA] 2020). While the first official CHW program dates back to the 1920s, the first instance of formally trained non-physicians to carry out primary care responsibilities were seen in

Russia during the late 1800s. The Russian Feldhesers were trained as a sort of paramedic to assist physicians and to practice independently in rural areas where physicians were not present. The Feldshers were literate and received three years of formal training, many of them also being trained in midwifery. This is in contrast to their successor, the Barefoot Doctors, in China. With their training, although limited, the Feldshers were the only group with the social status of "local people" authorized by the Russian state to provide primary care services in rural areas (Zdravoohranenija 1974). In this way, they can be considered predecessors of CHWs.

The first example of a large-scale CHW program was in Ding Xian, China in the 1920s. During this time, illiterate farmers were trained to record births and deaths, to vaccinate against diseases such as smallpox, to give first aid and promote health education, and to help communities keep their water sources clean (Sidel 1972). These trained farmers were initially called "Farmer Scholars" and later became known as "Barefoot Doctors." By the early 1970s, there were an estimated one million Barefoot Doctors serving the rural population of about 800 million people in the People's Republic of China. A unique aspect of the Barefoot Doctors was the expectation for them to serve as agents of change in their communities, helping to address their unique health problems (Rifkin 2001).

Throughout the 1960s, it became evident that the Western model of medicine was not sufficient to provide for the needs of rural and poor populations in developing parts of the world. The need for a novel approach to solving health issues in developing areas drew attention to the Barefoot Doctor idea as a sort of alternative health worker who could complement the work of physicians. As a result, the Barefoot Doctor model served

as a reference for designing other CHW programs in developing countries including Kenya, India,Venezuela, and Tanzania. This newfound idea of involving community based workers in healthcare was further popularized after the World Health Organization (WHO), published a book entitled *Health by the People* in 1975. This book contained case studies in which CHWs were the foundation of community health programs (Newell and WHO 1975). Just three short years later in 1978, representatives from nearly every WHO and United Nations International Children's Emergency Fund (UNICEF) wrote and published the Declaration of Alma-Ata. The Declaration included an explicit definition of a role for CHWs, stating that "primary health care … relies, at local and referral levels, on health workers, including physicians, nurses, midwives, auxiliaries, and community workers as applicable, as well as traditional practitioners as needed, suitable trained socially and technically to work as a health team and to respond to the expressed health needs of the community" (WHO, UNICEF). The ensuing rise in usage of CHWs centered around two agendas: a service oriented agenda and a transformative agenda. The service oriented agenda focused on the extension of primary and preventative care among existing health systems. The transformative agenda was concerned with community engagement and how to address social determinants of health, especially poverty and inequity (Standing and Chowdhury 2008). As the inequalities in healthcare access and outcomes have become more prevalent in high income countries, such as the United States, CHW programs have more recently become popularized throughout post industrial nations.

The United States

In the United States, inequalities in healthcare have come to the foreground of political conversation as health disparities have deepened and become more evident to the public. The disparities in health outcomes are associated with many social factors including county of residence, poverty, race, ethnicity, and SES. To begin addressing the disparities caused by these factors, the U.S. began introducing CHWs, which are also known as community health advisors, lay health advocates, *promotoras*, outreach educators, community health representatives, peer health promoters, and peer health educators. While the formal use of CHWs in health and human service programs have been documented since the 1950s, it was not until the 1960s that the federal government acknowledged CHW programs as a legitimate means for extending access to care for underserved communities (Witmer et al. 1995). By the 1970s, the importance of a community-based approach became increasingly apparent in light of the growth in health inequalities despite the advancements in quality of care. As a result, CHWs were employed in large numbers with more than 54,000 CHWs employed to date (U.S. Bureau of Labor Statistics). There is yet further growth projected for CHW as a profession as health inequalities persist.

Looking more specifically at Texas, it can be seen that the state has had a unique history of strongly embracing CHW programs. In 1999, Texas became the first state to recognize CHWs as a workforce in its legislature (London et al.). Further legislative and policy steps taken include Senate Bill 1051 in which the Department of State Health Services (DSHS) was tasked with creating a formalized statewide CHW training and certification program and House Bill 2610, which established an Advisory Committee to

advise DSHS on matters related to funding, reimbursement, and maximizing access to CHWs (Hall and Mackie). The DSHS certifies CHWs and instructors, training programs, and curriculum to ensure that the designated eight core competencies are met. The DSHS does not require training programs to use a specific curriculum but allows each program to develop training opportunities specific to the needs and issues of their community (Texas Health and Human Services). CHWs are included in Texas' 1115 Medicaid Transformation Waiver, which establishes initiatives for hospitals and Medicaid managed care organizations and provides incentives for delivery reforms. These clinics and hospitals use funds from the waiver to hire CHWs and various other providers to help patients to navigate the healthcare system, access community resources, and manage chronic conditions (Hall and Mackie 2017). Paralleling the national increase in demand for CHWs, Texas has exemplified a similar trend. Between 2008 and 2015, there was an increase in the number of certified CHWs from 573 to 3,628. Also during that time the number of Texas counties with CHWs increased from 48 to 130 counties. The number of training programs for CHWs has increased as well with growth from 14 programs in 2009 to 38 programs in 2015 (Texas Health and Human Services). With its early origins and continued dedication of resources to the development of CHW programs, Texas has led the way in the utilization of the once novel CHW approach to solving community health issues.

Purpose of CHWs

The term CHW can describe a variety of roles and encompasses many official job titles such as *promotora*, community health advocate, patient navigator, and lay health

worker to name a few (ICER 2013). Due to their status as community members, CHWs have a unique respect for the ethnic, racial, cultural, and experiential needs of the population they serve, therefore increasing the cultural competence of healthcare delivery. The population typically served are vulnerable patients of all ages from underserved, low-income communities. CHWs work to provide services from preventative service to helping individuals access care to chronic disease management to health literacy education. Working with individuals as well as households, CHWs are able to address patient and community needs by meeting them on a level playing field (Brooks et al. 2018). Although there are numerous definitions of CHWs and their roles, the American Public Health Association's (APHA) definition is the most commonly cited and accepted and reads:

> A community health worker (CHW) is a frontline public health worker who is a trusted member of and/or has an unusually close understanding of the community served. This trusting relationship enables the CHW to serve as a liaison/link/intermediary between health/social services and the community to facilitate access to services and improve the quality and cultural competence of service delivery. A CHW also builds individual and community capacity by increasing health knowledge and self-sufficiency through a range of activities such as outreach, community education, informal counseling, social support, and advocacy (2020).

As a result of this definition, CHWs have the flexibility to serve in a variety of capacities, which, in a study conducted by the Robert Wood Johnson Foundation Executive Nurse Fellows Program to identify best practices for CHW programs, have been grouped by into five major roles: bridging the gap between communities and the health/social service systems, navigating the health system, advocating for individual and community needs, providing direct services, and empowering individual and community ability to address health. Depending on the specific needs of the community served by a

CHW program, the CHW job description will emphasize some of these roles more than others.

The arguably most fundamental of these roles is bridging the gap between communities and the health and social service systems. Within this role, the CHW facilitates relationships between healthcare providers and patients, who are usually from disenfranchised groups and retain a sense of hesitancy towards healthcare as an institution. The CHW is able to achieve this by clarifying community cultural practices and perspectives to the healthcare provider while clarifying healthcare practices to the patient. The key to this facilitation role is effective communication.

The next role of the CHW is to educate patients on how to navigate the health and human services system. Through this function, CHWs are able to increase access to primary care services by making referrals, coordinating services, and teaching individuals the information and skills needed to obtain care. To enhance continuity of care, the CHW will follow up on patients, enroll clients in programs to help with the financing of healthcare and additional community resources that ease the burden of navigating the healthcare system.

CHWs should also encompass the role of serving as an advocate for individual and community needs. Due to their deep integration within the community, CHWs will naturally become attuned to issues that are plaguing the populations and community they serve. As a result, it should be expected that they articulate those needs and be a spokesperson for clients in situations they may not be able to advocate for themselves in. Furthermore, in collaboration with CHW management, the trends of needs should be

identified and potential services to address those needs should be located and implemented.

An additional role of a CHW is to provide direct services. Although by no means meant to replace primary and preventative care, CHWs promote wellness by providing relevant health information, educate clients on disease prevention, and assist clients in the management of chronic conditions and medication adherence. If needed, the client should be connected to support groups, especially for chronic conditions they may have. The general health of clients should be monitored through standardized health screenings and collected healthcare information and referred to preventative care services as necessary. This role especially hinges on the education level of the CHW and the level to which their official training includes medical knowledge. While this is a vital role evident in successful CHW programs, it would be unethical to have undertrained or under informed individuals supplying basic medical information. Therefore, education on health topics that CHWs may not be previously knowledgeable about is imperative.

Through the combination of all of these roles CHWs have been documented Among many of the known outcomes of CHW's services are the following: improved access to healthcare services, increased screening, better understanding between community members and need for healthcare providers, increased use of health care services, improved adherence to health recommendations, reduced need for emergency and specialty services (U.S. Department of Health and Human Services).

The Need for Community Health Workers

Brief Overview of U.S. Healthcare

The immense growth of any field naturally demands an increase in governance through means of standardization and regulation, as has been the case with the medical field. Above all, the groups with regulatory power over medicine have been concerned with enacting policies and changes that decrease healthcare spending. While this response seems reasonable to the exponential growth in such spending, its consequences have been at the expense of already vulnerable people groups. Not only has society burdened people of low socioeconomic status with challenges of social and built environments that are not conducive for health, but it has created a restrictive healthcare structure. The increasing bureaucratization of medicine in the United States as a response to economic concerns has led to the exclusion of low socioeconomic groups from healthcare.

The mention of "health care rationing" in political conversations today leads to an uproar of disgust and disdain. However, the current structure of the U.S. healthcare system is already *de facto* rationing, due to cost barriers, a method that aligns with traditional American economic ideology. In a free market system like our own, resources are allocated to consumers based on price, while their decision to purchase goods and services reflect their preferences, willingness to pay, and personal wealth. When resources are valued but scarce, their allocation through the price mechanism confronts issues of fairness and ability to pay, as has become glaringly obvious with healthcare (Cohen 2012). Beginning in the early 1960s, the government began to observe a trend of a dramatic increase in health care spending (*see fig. 1*) and recognized a need to regulate

that expenditure (Catlin and Cowan 2015).

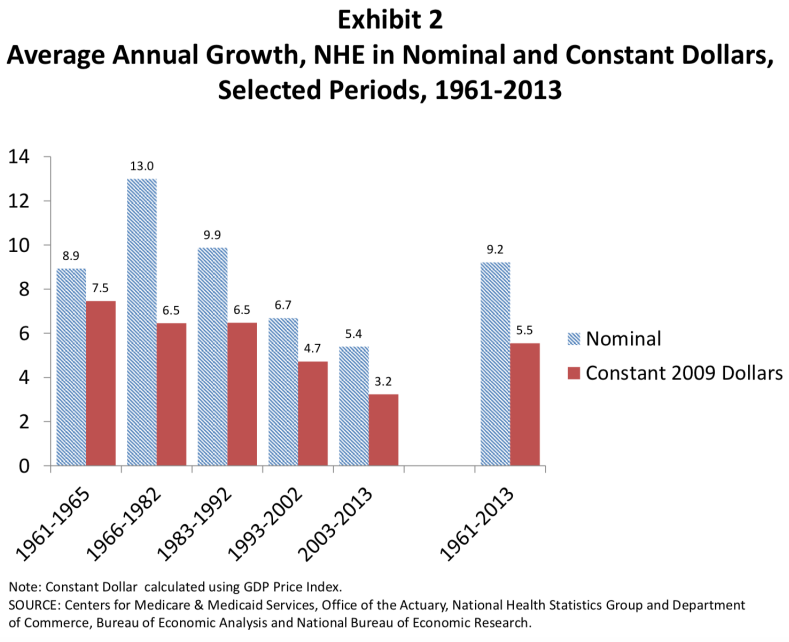


Figure 1. Average Annual Growth of National Health Expenditure 1961-2013

However, enacting change proved to be extremely difficult because many Americans tend to fail to see a need for shared sacrifice in terms of "the common good" -- usually higher taxation -- in order to control health care spending. The general attitude adopted is: "why should I be forced to pay for the health care of others who are 'undeserving' either because of their indolence or their eligibility for benefits?"(Cohen 2012). This made designing policy that would be accepted by the public yet still effective quite challenging. Therefore, the federal government began implementing methods of moderate health care rationing as cost containment tools with the intent of also effecting positive change. While exhibiting limited success, these tools have had the unintended effect of furthering disparities in access to healthcare by people of low SES.

One of the chief reasons that the annual expenditure on health care drastically rose was because of the traditional "fee for service" method of price setting by physicians. The ever increasing medical bills led to the realization that society had been blindly accepting the dominance and influence exerted by the medical profession. People were no longer willing to pay for services based on the assumption that physicians knew what they were doing and acted in the best interests of society. In response, more stringent forms of health insurance were introduced as cost containment tools, including Nixon's proposed health maintenance organizations (HMOs) (Light 2019). A key operational characteristic of HMOs is the emphasis upon requirements that certain clinical treatment decisions be approved in advance by utilization review staff, who are usually not physicians, employed by the insurance company (Starfield and Oliver 1999). Therefore, based on the public's negative perception of the price of health care in association with the unregulated power of physicians, HMOs offered a seemingly irresistible deal driven by cost effectiveness and efficiency. With prices that are especially attractive to individuals who can not necessarily afford private insurance or do not have the luxury of having choices of insurance through an employer, HMOs tend to appeal to those of lower to middle SES. These groups are already in disadvantaged positions when it comes to navigating healthcare, yet the pitfalls associated with HMOs are especially detrimental to them, preying on their vulnerabilities.

The primary and most outwardly obvious way that HMOs limit access to care for people of lower SES is the limitation on what physicians they are allowed to see and what treatments they are allowed to receive. To begin, individuals insured by HMOs have to select their primary health care provider from a list of pre-approved providers. While this

seems like a small detail, it has significant effects on the physician-patient relationships. Several studies have indicated that the longer the duration and stronger the perceived ties between provider and patient, the greater the benefits in terms of better recognition of the patient's problem, more accurate diagnosis, better compliance with appointment -- keeping and treatment, fewer hospitalizations, and lower costs (Starfield and Oliver 1999). Having to choose their primary care provider (PCP) from limited options leaves those enrolled in HMO programs at a severe disadvantage in reaping the benefits of good primary care.

Furthermore, a study on the clinical perceptions of patients with low SES and its effect on clinical decision making and healthcare delivery exhibits those disadvantages in action. Researchers conducted a series of interviews with Medicare and Medicaid (both of which operate under HMO models) enrollees, who, in using public insurance as a proxy of SES, can be assumed to be of a lower SES. When asked about the provider attitude towards patients, the generalized response was: "if you go in there and you got lots and lots of money, their attitude toward you is a lot different than if you go in there any you're low income" (Arpey et al. 2017). Many subjects perceived that their PCP viewed and treated them differently because of their SES. They frequently reported situations where they felt that providers did not truly listen to them or answer their questions. When asked to describe how they perceived their PCP viewed and treated them because of their SES, responses included: "a customer, on the back burner, leech, a number on a file" and other derogatory terms (Arpey et al. 2017). Whether or not providers actually viewed and treated them in such a manner, this perception caused real feelings of shame and hesitancy to return for care. Even if an individual recognizes

incompatibility with their provider, they often are not offered the resources or flexibility to shop around and find a better fit, leading them to give up on seeking primary and preventative care, leading to further issues downstream.

Additionally, even if an individual finds a PCP who they feel connected to and establishes continuity of care, HMOs can still greatly limit the treatments they are eligible to receive. In the primary care setting, these limitations most often manifest in terms of what medications a PCP is able to prescribe. For instance, a patient who needs a more potent or restricted drug to manage their condition may be declined coverage. Common reasons for a patient to be denied care are the services requested were not determined to be "medically necessary," the services were determined to be "experimental or investigational," or the service is just not covered by the plan (Ehrlich Law Firm 2020).Therefore, the patient is left with the options of paying for the drug out of pocket or attempting to manage the condition with less effective but cheaper medications. In this situation, people of lower SES are faced with serious decisions. Paying for medication may mean that they cannot pay the bills or provide food for their family, making the decision easy. Patients generally choose to forgo treatment as a lesser priority than more basic needs. However, patients are left feeling dissatisfied and discouraged, leading to overall negative attitudes towards healthcare, specifically primary care in this instance, lead to patients discontinuing primary care.

The effect of HMOs decreasing the use of primary care by people of lower SES began with the introduction of its more stringent forms and was strengthened by the failure of the Clinton Plan. Despite the apparent widespread support for health system reform, the Clinton Plan dissipated into political conflict and special interest groups were

allowed a large influence over the policies that were put into effect. The proposed increase in governmental regulation of healthcare ironically resulted in private employers and insurance companies being allotted greater power. One of the chief legacies of the national reform was the rapid acceleration in managed care in all public and private healthcare insurance programs (Starfield and Oliver 1999). The most influential change these reforms brought about was the strengthening of HMO models within Medicare and Medicaid. Previously, HMOs affected a greater number of middle SES individuals, but as it became a larger force within public health insurance, it began affecting a greater number of Americans of lower SES. Although HMOs were originally believed to be beneficial for lower SES individuals because it was an attempt to control price, it ended up furthering the challenges and frustrations associated with healthcare. The mechanism through which it created challenges was the principle of equity of care by allowing services to only be available only to people who can afford them while depriving other groups from care that may be needed but is expensive (Starfield and Oliver 1999). In turn, many people gave up on healthcare altogether, depending on the availability of medical treatment from emergency departments when care was absolutely necessary rather than keeping up with their health through preventative care.

The use of emergency department (ED) services has dramatically increased in response to the barring of easy access to preventative care. Looking back overtime, national ED visit growth has outpaced population growth. In 1995, there were 37 visits per 100 persons; by 2010, this number grew to 43 per 100 (McClelland et al. 2014). Between 2006 and 2016, ED visits increased by 2.3 million each year with uninsured visits making up about 16% of visits (Johnson 2019). Over that time period, the intensity

of ED care grew, as did the expectations for diagnostic precision. The result was an ED system that in many parts of the country could not handle the demands placed upon it, leading to congested waiting rooms and long delays for admitted patients. The introduction of Obama's Affordable Care Act (ACA) aimed to expand insurance coverage to more Americans, hoping to decrease the reliance on ED services through an emphasis on primary care. Although insurance coverage has increased, there is yet to be a decrease in ED service usage (McClelland et al. 2014). One in ten patients ED visits and one in 20 hospital discharges are still among patients with no insurance (Johnson 2019). There have not been conclusive findings as to why the ACA was not effective in this way, but the reality has been that there is a dependency on ED services as the only form of care, especially in areas with high rates of poverty. Even when patients can muster the incredible weight length times, there is often not much that can be done to help them.

In his documentary, *The Waiting Room*, Peter Nick portrays this reality poignantly. Trauma centers, like the hospital depicted in this documentary, must balance high priority cases coming in from ambulances with less emergent situations, like someone with chronic pain. For instance, the documentary follows the story of an uninsured carpenter with bone spurs who is returning for additional care because he is in excruciating pain. His daughter and granddaughter are reliant on him but with his pain, he cannot fulfil the tasks his job requires. First, the man had to wait nearly all day in a room full of sick and injured people to even speak with a physician. And when he did, there was hardly anything the physician could do for him. Without insurance, the surgery to treat the spurs or alternatively referral to a pain management physician to at least manage the pain would be detrimental to the carpenter financially. His story is crushing. The

carpenter is a hardworking man striving to provide for his family, but the lack of ability to treat or even manage his pain is preventing him from doing that. What's heartbreaking is that the carpenter's situation is not a unique one. The reality of low SES groups who have been excluded from effective insurance, or insurance altogether, is that their health suffers. Being obstructed from care - from impediments to primary care to extensive ED waiting room times- these people commonly let their health go unchecked, allowing development of complications of conditions that under normal circumstances are well controlled.

The original intent of HMOs to regulate medicine by curbing costs to consumers through more direct involvement in medical care was admirable but has led to discouragement from and restriction of access to primary care. Although HMOs do not necessarily have malicious intent when they establish the limits of their policies or determine what treatments and physicians to approve, their effect can often be destructive. While health care providers suffer in a professional manner, patients suffer in a deeply personal and often detrimental manner. Consumers frequently do not understand or are not made aware of the fine print behind their health insurance plan, leading to potentially grave consequences as was the case for the young Hilsabeck family. In his book *Sick: The Untold Story of America's Health Care Crisis*, Jonathan Cohn relays the story of the Hilsabeck's struggle with their HMO after the birth of their twins. Soon after birth, their son, Parker, was diagnosed with cerebral palsy. During the first few months of therapy, it seemed as if all of the bills were being taken care of by insurance but after 60 days of treatment, the company decided that the services Parker needed to have any chance of being able to walk were no longer eligible for coverage (Cohn 2007). In

denying Parker's treatment, they were inadvertently making the statement that his quality of life was less valuable than their economic gain. Such is the case when access to care or a treatment is denied for people of lower SES; it conveys the reality that lower SES individuals are less valuable than the insurance company's gain. Their actions force out people who do not have access to the flexible resources and knowledge to navigate care themselves. The underlying message being sent to those people is that their lives are not as valuable as everyone else's, leaving them feeling disillusioned with the entire institution of medicine, leading to the discontinuation of care entirely.

How CHWs Address the Downfalls of Our Healthcare System

CHW programs are a public health approach to alleviating the barriers to care for disadvantaged populations. From a fiscal framework standpoint, CHW programs reintegrate disenfranchised populations by focusing on promoting upstream care and last dollar rationing, both of which are principles that focus on preventative care.

The "upstream" and "downstream" model of health care is based on a parable that attempts to explain the difficulty of practicing medicine in modern times. The story is based on the premise that a doctor standing by a river sees someone drowning, so he or she jumps in to save him. Just after the first person is saved, someone else cries out for help, and another and another. The doctor is so consumed with saving those struggling immediately in front of him or her that there is no time to see who is pushing them in upstream (McKinlay and Marceau 2019). This story is designed to emphasize that a majority of our resources in the healthcare industry are focused on "downstream efforts," or treating immediate needs, as is manifested in the high usage of ED services. While this

mentality may be effective in treating pathological illness, the implications for attending to politically caused illnesses requires considering what is "upstream." An example of a politically caused illness is asthma, which is a disease largely understood to be caused or triggered by environmental factors that range from mold and tobacco smoke all the way to $PM_{2.5}$ (particles under 2.5 in diameter, which are able to penetrate deep into the lungs). These environmental conditions, especially $PM_{2.5}$, are a result of the regulation of emissions and changes in air-quality standards at the local, state, and national levels, therefore causing the categorization of asthma as a politically caused illness (Brown et al. 2003). This necessitates examination of which individuals, interest groups, or corporations are "pushing people in" and the health care structures necessitated by their actions (McKinlay and Marceau 2019). As society becomes increasingly medicalized, considering the social, political, and economic roots of illness is exceedingly important in better understanding how to more effectively treat and potentially resolve medical conditions. These upstream changes would most directly result in patients having the opportunity to find a PCP that they can develop a relationship with and therefore receive better care, be encouraged to continue receiving care, and feel valued as a person. All of which would alleviate the downstream reliance and heavy spending on ED visits.

A fiscal means of redirecting dependency on downstream care to preventative measures would be concentration on "last dollar rationing." First dollar and last dollar rationing refers to opposing views on where the most money should be invested within health insurance plans. First dollar rationing focuses on putting money away for when there is a catastrophic illness or accident. The trade off in turn for insurance covering for more expensive tertiary care is that it provides more limited access to primary care. This

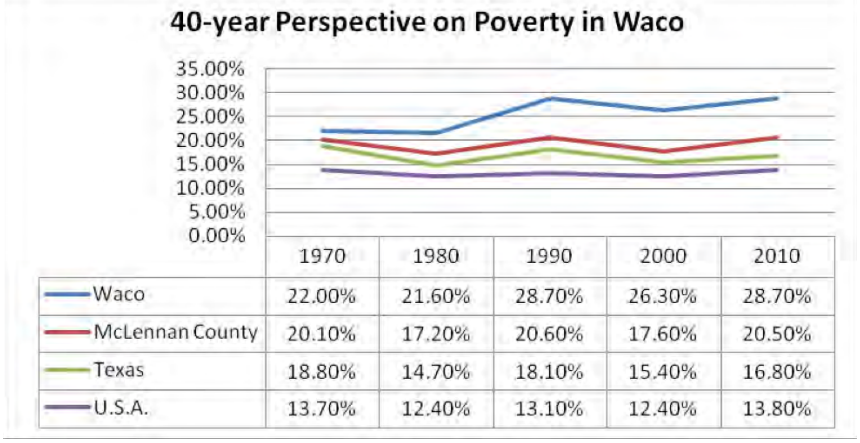
method of rationing is currently how most insurance in the United States operates. On the other hand, last dollar rationing would budget money for assured access to primary and secondary care while the individual would pay more towards tertiary care (Cohen 2012). A last dollar approach would create a larger pool of coverage for primary care, therefore allowing extension to people groups who may not currently have that luxury.

Increasing spending on primary care would decrease the burden downstream, specifically for ED care. The framework of CHW programs operate under the premises that if people of low SES were granted access to primary care, then they would no longer rely on care from the ED because their PCP would be able to identify and control illnesses at an early stage, rather than allowing dire medical situations to develop. Not being reliant on ED services for issues that can be treated by a PCP or could have been prevented by a PCP would allow ED services to be more effective, timely, and cost efficient overall, which would benefit everyone.

The Need for a CHW Program in Waco

The City of Waco, Texas demonstrates a unique need for a CHW program because of its high poverty rates, historical lack of access to primary care, and uniquely diverse population composition. With a population of around 139,236 and a poverty rate of 26.8% in 2018, it can be estimated that more than 37,300 people in Waco live in poverty. This is more than double the national and Texas poverty rates of 11.8% and 14.7%, respectively, in 2018 (United States Census Bureau). What is further troubling is that over the past 40 years, McLennan County, Texas, and the U.S. as a whole have experienced ups and downs in poverty rates, Waco's rate has experienced the fastest

growth out of those groups (*see fig. 2*) (Report from the Poverty Solutions Steering Committee to the Waco City Council).



	1970	1980	1990	2000	2010
Waco	22.00%	21.60%	28.70%	26.30%	28.70%
McLennan County	20.10%	17.20%	20.60%	17.60%	20.50%
Texas	18.80%	14.70%	18.10%	15.40%	16.80%
U.S.A.	13.70%	12.40%	13.10%	12.40%	13.80%

Figure 2. The 40-year Perspective on Poverty in Waco

While poverty is a categorically financial issue, it is inextricably bound to poor health. The association between poverty and poor health reflects causality in both directions. Chronic illness can have a severe impact on household income and is associated with substantial healthcare costs. On the other hand, poverty generally entails characteristics including lack of access to healthy food, unsafe neighborhoods preventing exercise, and increased exposure to severe stressors that lead to poor health outcomes (*see fig. 3*). Therefore, the poor are caught in a vicious cycle: poverty fosters poor health and poor health maintains poverty (Wagstaff 2002). Wacoans who live in poverty are no exception to this cycle. However, the Waco CHWs work to mitigate the cyclical relationship between poverty and health by intercepting those most susceptible and connecting them to community resources that will remove them from the cycle entirely.

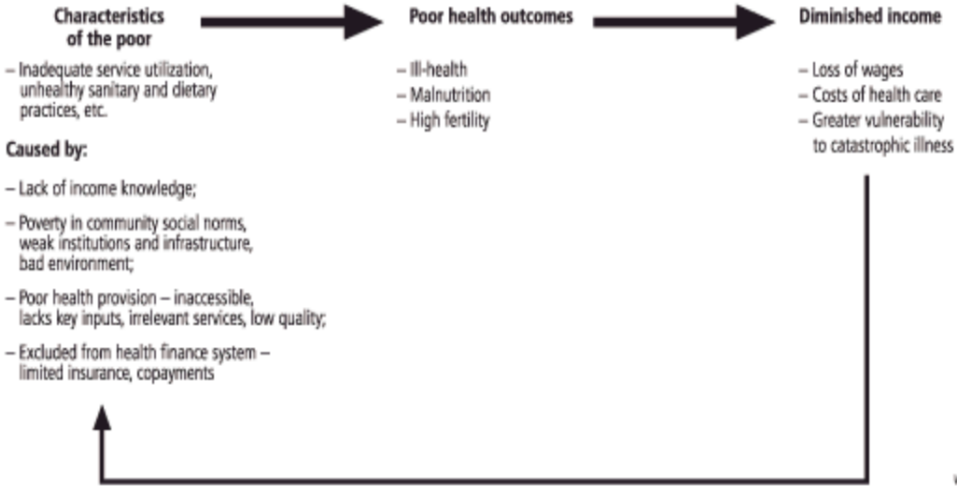


Figure 3. Cycle of Poverty and Health

Additional need for a CHW program in Waco can be seen through the historical trend of having low accessibility to healthcare, which is especially striking in light of population demographics. In a 2016 study, more than one in ten residents reported problems with access to healthcare, citing cost and transportation as the most common barriers. This explains why nearly 30% of residents have not had a routine checkup in the previous 12 months. Residents also use ER frequently with 25% of residents having been to the ER at least once in the past year and 5% of them reporting that they use the ER as their source of primary care (Waco-McLennan County Community Health Assessment). This trend reflects a lack of accessibility to primary care by the Waco community. It is important to acknowledge that the lack of accessibility is not an issue that has gone entirely unaddressed. For instance, the Family Health Center was founded in 1969 to address a shortage of physicians and lack primary care access to the less fortunate

population of McLennan County, which includes Waco. It now has 15 clinics across McLennan County that provide medical, dental, and behavioral healthcare to the local vulnerable populations (Family Health Center 2020). Despite their effort and the efforts of others, the barriers to primary care persist as reflected in the rates of ER usage. The Waco CHW program will assist in addressing the excessive use of ED services, especially since there are existing primary care resources available. Not only is this beneficial to the local hospitals in an economic sense, but more importantly connect patients who may not have otherwise had access to healthcare a means of doing so.

A further area that exhibits the needs for a CHW program in Waco is its highly diverse population. According to the United States Census Bureau, around 21% of the population is Black or African American alone and about 32% of the population Hispanic or Latino. This means that around half of the population is composed of individuals of a minority race/ethnicity, which is significant because race/ethnicity is known to be a fundamental factor in health outcomes and equity. Race is understood to impact health primarily through its interconnectedness with SES as well as increased levels of stress from discrimination on an interpersonal, institutional, and societal level (Williams et al. 2019). The intersectionality of race/ethnicity and health can be observed in Waco as well. For instance, Black residents were 160% less likely to have health insurance compared to White residents; Hispanic residents were 460% less likely to have health insurance than White residents. Additionally, ER visits are twice as likely among Blacks and 50% more likely among Hispanics in McLennan County in comparison to White residents (*see fig. 4*) (Waco-McLennan County Community Health Assessment).

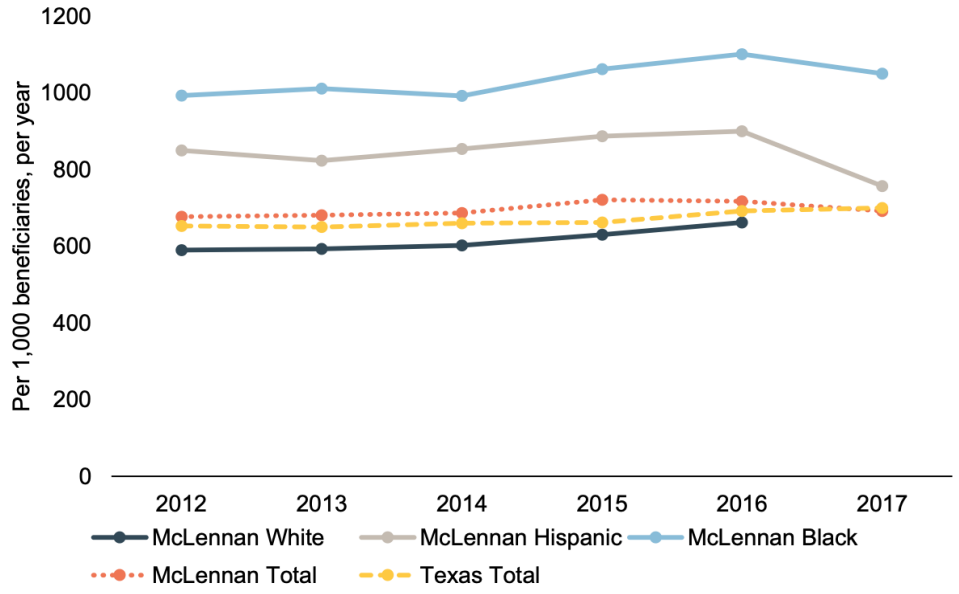


Figure 4. Emergency Department Visit Rate by Race for McLennan County

These statistics illustrate the disproportionate effect of barriers to care on historical minorities. The Waco CHW is a method of addressing this issue because of its focus on cultural competency via the use of trained community members in establishing lasting relationships with members of disenfranchised populations. Mobilizing community members as CHWs rather than outsiders allows for a greater sense of respect and understanding of the diverse traditions and social practices of the Waco community (Gampa et al. 2017). More complete knowledge of the groups being served allows for greater trust to be established, which is essential to the success of CHW relationships with clients and provides the grounds for providing successful services.

As a result of these demonstrated needs, the McLennan County Community Health Care Worker Initiative was implemented in 2018 as a grassroots, community-based health initiative utilizing the knowledge and experience of McLennan County community members to improve individual and community health in the county. Under

the guidance of the nonprofit Prosper Waco, community partners, including the Family Health Center, Baylor Scott and White Hillcrest, Ascension Providence Hospital, and the Waco-McLennan County Health District, helped implement the Waco CHW Initiative utilizing private grant of nearly $600,000 from the Episcopal Health Foundation. Ten CHWs underwent a 160- hour, 16 week training course and intensive interviews to be selected for the program and were set to serve four ZIP codes in Waco: 76704, 76705, 76706, 76707 (Conlon 2018). Since its implementation, there has been little data collected on the efficacy of the Initiative and despite the clear need for such a program, it has experienced limited successes. As of March 2020, coinciding with the beginning of the COVID-19 pandemic, the Waco Initiative went dormant due to both financial issues as well as unsuccessful logistical functioning.

Despite the lack of initial success of the CHW Initiative, Prosper Waco and the Waco-McLennan County Public Health District are still confident in the program's ability to address the health needs of our community. However, they also recognize the necessity of re-evaluating the Initiative to figure out what worked, what did not, and how those problems can be concretely resolved. This is where the current study comes in. By conducting interviews with individuals identified as key informants by Prosper Waco, this research will piece together what exactly went wrong in the initial implementation of the Initiative and the most effective means of addressing the identified difficulties.

CHAPTER TWO

Methods

The methods used in this research are of three forms: a meta-analysis of existing CHW programs in comparable cities, a snowball sampled general guided interview and a program evaluation procedure geared toward improvement recommendations. The details of these methods are described below.

Objective 1: Determine characteristics of successful CHW programs as documented in existing literature.

The goal in this stage was to gather characteristics of successful CHW programs from the perspective of official guidelines set forth by governing public health bodies in the United States as well as successful programs in areas with similar populations metrics and demographics to Waco. The official recommendations for CHWs are largely prescribed by the CDC with some policies and procedures set forth by the Texas Health and Human Services Commission. Both sources are utilized in outlining theoretical characteristics of successful CHW programs, which included defined domains.

Objective 2: Gather information on the Waco CHW Initiative and identify areas in need of improvement via analysis of the qualitative data provided by key informants.

Interviews

This project utilized a snowball sampled general interview guide approach to collect qualitative data from various individuals playing integral roles in organization and implementation of the Waco CHW Initiative. Snowball sampling is a recruitment technique in which participants are asked to assist researchers in identifying other potential subjects. While this method of sampling is not considered a representative sample, it is a useful technique for conducting qualitative research within a specific and relatively small population (Oregon State University 2010). A snowball sample is appropriate for this study because of the relative limited number of people involved with the Waco CHW Initiative. The type of interview conducted was a general interview guide approach, which is intended to ensure that the same general areas of information are collected from each interviewee. This provides a degree of focus to the interview while still allowing for adaptability in obtaining information from each interviewee (Valenzuela and Shrivastava). Interviews, of approximately 30 minutes duration, were administered orally to each participant. Interviews were recorded using an audio device with consent of subjects. A general set of questions were developed and used to guide conversation during the interview. Due to the general interview approach, varying questions were utilized during each interview to address specific topics the interviewee brought up or certain topics the interviewee would be knowledgeable on because of their particular stakeholder status.

Participant Recruitment & Human Subjects

The project aimed to recruit a sample population of 15 participants, composed of CHWs, program administrators, and individuals involved in the implementation of the program. To identify potential interviewees, Prosper Waco provided a list of key informants of both internal and external stakeholders in the CHW program who were involved in the original implementation of the program. Participants were located using this initial list of provided key informants from Prosper Waco and additional participants were located via word of mouth networking.

The data collection progress went as follows: key informants were contacted via email. Upon agreement to an informational interview, the interviewee was sent a "Protection of Participants" document **(see Appendix A)**. This document included an explanation of the project: the purpose, participant requirements and time commitment, and a confidentiality agreement. After participant signatures were obtained, the interview was conducted. It was explained that participants would be able to decide the degree to which their identity is attached to the information and opinions discussed during their interview. Confidentiality to the degree that they indicated was ensured. All transcriptions and recordings will be kept by the primary researcher until the completion of this study. Transcripts and recordings were kept confidential throughout the duration of this study and were destroyed upon its completion.

Data Analysis

Results of the information gathered by this project will be organized in the following manner. The interviews were recorded, transcribed via an A.I. transcription

service, Otter.ai, and then coded for themes and keywords using Atlas.ti. Data obtained from these interviews were reviewed in this manner and common themes were delineated.

Atlas.ti Protocol

The Atlas.ti analysis procedure was completed in three steps. The first step included the construction of a conceptual or theoretical framework. In the case of this study, the identified six domains of successful CHW programs served as the theoretical framework. Secondly, there was a selection of quotations and coding of data. Each deindividuated transcript was reviewed carefully for key terms used as identifiers for each domain and coded accordingly. Thirdly, a deductive critical discourse analysis of the data was completed using the products, networks and tables, of the Atlas.ti software (Rambaree 2013).

Step 1. The transcript produced by Otter.ai was reviewed for accuracy and corrected as needed. Each transcript was downloaded as a Word Document. Once in a Word Document format, each transcript was deindividuated and direct identifiers were replaced with “interviewee” and “interviewer” as appropriate. File names were assigned randomly as “Interview 1,” “Interview 2,” “Interview 3-1,” “Interview 3-2,” (the interview recording was longer than the maximum allowed per session in the Otter.ai transcription service and was broken into two recordings) and “Interview 4.” Direct identifier file names were recorded in an anonymized log. The Word files were then converted to open in .rtf format. Next, a new project was created in Atlas.ti. The

deindividuated transcripted were uploaded into a document group within that project. This grouping allowed for Atlas.ti to group characteristics and analyze for groups of codes between transcripts.

Step 2. Each of the six domains of successful CHW programs (education, performance, management and supervision, tools and job aids, workload, and financial reimbursement, and outcomes) were used as a basic theme for interview coding (*see fig. 5*).

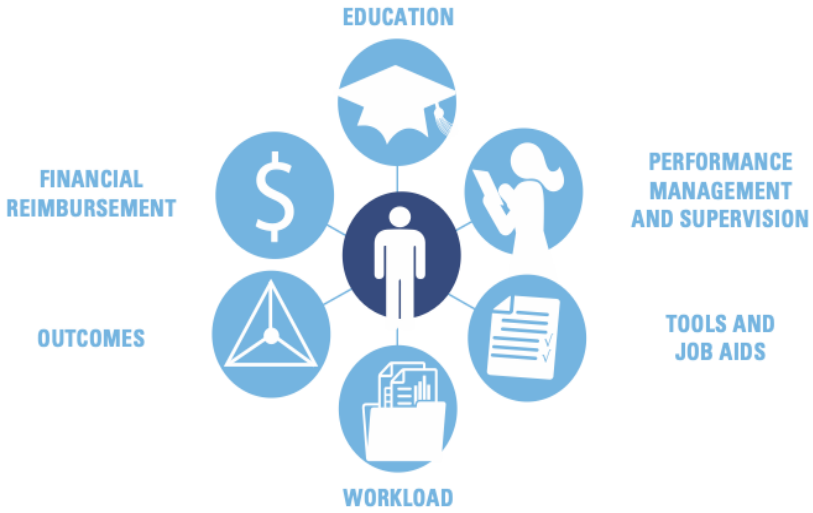


Figure 5. The Six Domains of a Successful CHW Program

These domains were utilized as basic coding themes because in a meta-analysis of case study literature, it was found that the six domains were characteristics common among successful CHW programs. The domains serve as categorizations of evidence-based best practices that must be appropriately considered in the building of a successful

CHW program. In their planning and structure, successful programs have not only addressed each of these domains, but planned how to implement them well into program infrastructure and day to day operations. In working towards creating a successful CHW program in Waco, these domains were chosen as basic coding themes because it allowed for deductive critical discourse analysis, which in turn created a standardized method for evaluating the Waco CHW program. Each of these domains is explained in detail in the literature review chapter of this study.

Table 1. Keywords Used to Determine What Domain/s to Assign a Quotation

Domain	Keywords Used in Coding
Education	Training, education, certificate, certification, degree, curriculum, class, development
Performance Management and Supervision	Leadership, authority, support, coordinator, deadlines
Tools and Job Aids	Surveys, forms, assessment, data collection
Workload	Case load, time management, number of clients
Financial Reimbursement	Pay, money, funding, grant, hire, part-time, benefits, compensation
Outcomes	Evaluation, assessments, report, emergency room usage

Step 3. To better organize and analyze the coding of the interviews, three output methods were utilized: the co-occurence and primary document table, a word list/cloud, and network diagrams.

The Atlas.ti coding system is based on grounding theory and density. Groundedness refers to the number of data segments or quotations associated with a certain code. Density is the number of associations between a code and other codes (Alvira-Hammond 2012). As code was assigned to data segments, quotations were created. The coding process created two analysis tools: a co-occurrence table and a primary document table. The co-occurrence table reported relationships between two codes as well as the strength of the relationship and counts. The primary document table, or codes table, reported the relationship between codes and documents and the distribution of codes across documents (Emmelhainz 2017).

A word list and cloud were created from the grouped document to identify the most commonly used words across the interviews. To ensure that only significant words were displayed, all words determined to be common to the English language by Atlas.ti were removed from the list and cloud. The list provided an exact count of the number of times each word was utilized. The cloud depicts the number of times a word was used by increasing its size and central location accordingly. Therefore, the most commonly used words were the largest and in the center of the cloud. These tools were used to pinpoint recurring themes and consider their significance in the evaluation of the Waco CHW program.

In addition to these tables, networks, or graphical views of the project were created. Networks are used for the analytic purpose of making visible the changing conceptual relationships between the codes to be represented in their evolving form (Woolf 2008). Networks were made both for each interview and between interviews. For the networks of each respective interview, all codes (the six domains and stakeholders)

were mapped and each associated quotation for those codes were displayed. One interview network map is not included in this study because the interviewee did not agree to be directly quoted. Using the grouping of the documents to create inter-interview networks, each code (domain) was made the center of a network and all associated quotations across all interviews were mapped around the central code. This allowed for a more useful organization of quotations and connections between topics when evaluating each domain and considering what improvement recommendations should be suggested. To analyze these results, a deductive critical discourse analysis was utilized.

Discourse is a system of possibilities for the construction of knowledge based on interpretations and understandings (Flax 1992). Critical Discourse Analysis (CDA) is an analytical approach used to facilitate critical reflection on the structures that lead to certain discourses, which in turn provides the basis for understanding and explaining social problems (Wodak 2001). With CDA, researchers deconstruct a text, in the case of this study transcripts, to analyze underlying meanings and motivations. As a result of this process, researchers provide interpretations of the text through quotations that support their findings.

Based on the results of the Atlas.ti study and narrative resulting from CDA, the Waco CHW program was evaluated against the identified six domains of successful CHW programs using a five-point Likert scale. The scale is based on quality as follows: 1 - very poor, 2 - poor, 3 - fair, 4 - good, 5 - excellent. These scores were assigned based on a review of the quotations coded for each domain considering the both the substance of the quotations and number of times each domain was coded for. As a result of these

ratings, recommendations on how to improve the program were made in alignment with best practices evidenced in successful CHW programs.

CHAPTER THREE

Literature Review

Implementing a CHW Program - Best Practices

In an extensive literature review conducted by the Robert Wood Johnson Foundation Executive Nurse Fellows Program to identify best practices for CHW programs, six domains were identified: education, performance management and supervision, tools and job aids, workload, financial reimbursement, and standardized outcome evaluations.

Education Domain

There is currently no national standardized curriculum or set education path for CHWs. However, there is a consensus that the minimum formal education for CHWs should be a high school diploma or GED certificate. In fact, the 2007 Community Health Worker National Workforce Study reported that 32% of organizations CHWs to have a bachelor's degree (Health Resources and Services Administration [HRSA] 2007). While the curriculum is variable, the National Community Health Advisor Study has identified core skills that are used to develop CHW training (Rosenthal et al. 1998). These core skills include:

-Communication skills	-Advocacy
-Interpersonal skills	-Teaching skills
-Service coordination skills	-Organizational skills
-Capacity-building skills	-Knowledge base on specific health issues

CHWs are trained to strengthen the skills that they had at the time of hire and provided the education to improve skills and competencies they need for the specific program (HRSA 2007). In addition to these core skills, it is recommended that training include information about health, illness, and social determinants of health including environmental, psychological, economic and cultural factors (Campbell and Scott 2011).

In Texas, the DSHS has created a formalized statewide CHW training and certification program in alignment with Senate Bill 1051 (Hall and Mackie). In turn, the DSHS certifies CHWs, training programs, and curriculum, making it imperative that the DSHS and its regulations are closely followed in the establishment of a CHW program (Texas Health and Human Services). The regulatory and statutory laws relevant to CHW programs can be found in **Appendix B**.

Performance Management and Supervision Domain

As with any organization, the management and supervision of CHWs should be structured to recruit, oversee, and develop the CHWs in their program. This process begins with hiring CHWs according to predetermined criteria and job description. While there are a wide range of characteristics that allow CHWs to be successful in their work, research has shown that the programs that thrive the most are those that include CHWs who represent the community they serve. When CHWs are recruited locally, they are found to be able to better communicate, to serve as liaisons between recruited clients and providers, and to gain support from various community resources (Brooks et al. 2018). This leads to the enhanced ability to affect program utilization, health awareness, and health outcomes (Abbatt 2005). In the event that CHWs are recruited from outside the

community, it is imperative that community members be consulted in the hiring process to ensure that the applicant's skills, values, and background align with that of the community (Campbell and Scott 2011). Research has shown that some qualities of successful CHWs are: cultural competence, communication skills, commitment to the community, shared values and experiences to those being served, adaptable, respected and trusted as a community member, willingness to learn, and excellent personal health practices (O'Brien et al. 2009).

A clear definition and job description for the roles and responsibilities expected of the CHW is vital to managing and evaluating performance. A written definition provides clear expectations, specifies qualifications, and a source of accountability for both the CHW and program administrators (Brooks et al. 2018). Some expectations cited from successful CHW job descriptions include: possessing good communication skills, knowing about health issues, being able to work independently, facilitating client empowerment, building constructive relationships, conflict resolution, being patient, non-judgmental, and friendly (Centers for Medicare and Medicaid Services 2011).

In addition to finding suitable candidates, it is also important to provide the CHWs with appropriate support and supervision is key to a successful program. When administration is ineffective, it is found that CHW morale and productivity tends to be low (Jaskiewicz and Tulenko 2012). Therefore, effective support and supervision, which is best when founded in consistent feedback during CHW meetings, can be expected to result in proper resource allocation, appropriate timelines to complete work, and an increased ability to problem solve independently (Patel and Nowalk 2010).

Integral to effective supervision is a defined set of expectations and areas of control for the supervisor. This establishes a two-way sense of accountability and provides a framework for what is expected within the CHW-supervisor relationship (Campbell and Scott 2011). Some ways that a supervisor can ensure that their CHWs will excel in their roles is to provide ongoing mentoring, ready accessibility to answer questions, fostering peer-to-peer community within the CHWs, as well as to provide recognition where due. The ratio of CHWs to supervisor recommended is 6:1 (Jaskiewicz and Tulenko 2012).

Considering recognition and rewards, there are both intrinsic and extrinsic components that need to be harnessed to retain CHWs and maintain their productivity. As an intrinsic aspect of the CHW role, most CHWs report feeling a sense of gratification through their ability to serve others and the responsibilities entrusted to them. Because the CHW position tends to be used as a gateway position to other healthcare careers, it is important to provide incentives, monetary and not, as extrinsic motivators to prevent CHW attrition. An effective non-monetary motivator has been found to be community recognition. Further, CHWs expressed that receiving support and continual mentoring made their jobs more rewarding and meaningful (Brooks et al. 2018).

Tools and Job Aids Domain

Another important component to building a successful CHW program is having standardized protocols and resources, along with a clearly defined CHW role (Jaskiewicz and Tulenko 2012). Equipping the CHWs with tools such as checklists, educational materials, and interview and assessment forms is critical to organizing and facilitating the

work of the CHW (Brooks et al. 2018). Without organization, it is impossible to run an effective program. Standardized tools are imperative to streamlining the completions of tasks and services, evaluation, and planning by the CHW. One such example is the following flowchart *(see fig. 5)*, which is used for patient recruitment and screening by the Community Care Network (CCN) in Wooster, Ohio.

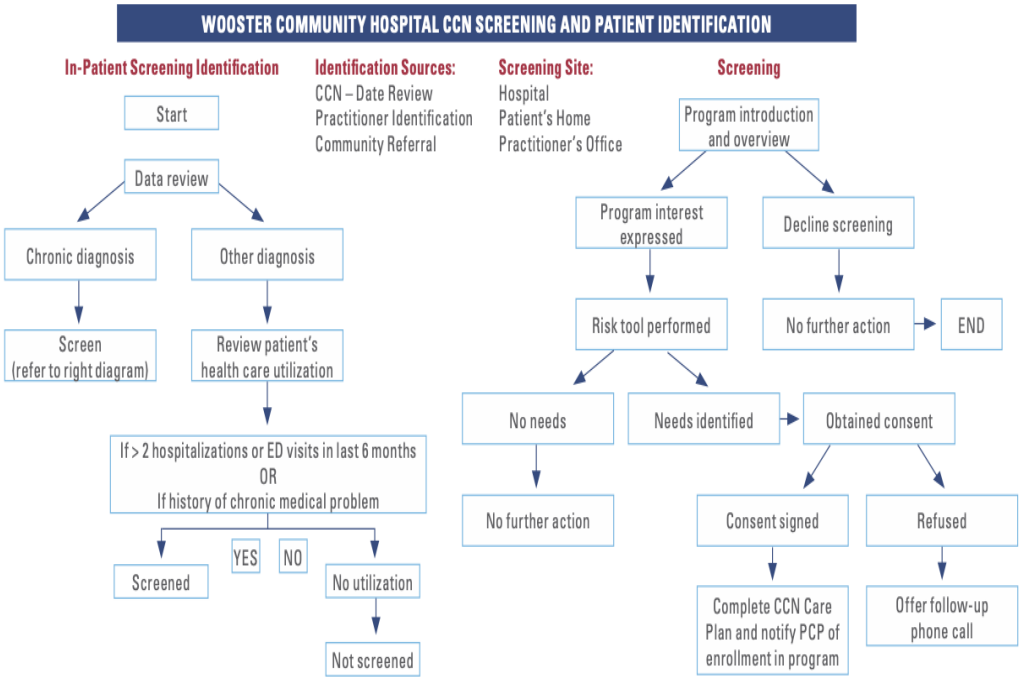


Figure 6. Wooster Community Care Network Patient Screening Pathway

Workload Domain

Another important aspect of a successful CHW program is balancing productivity and quality, which can be achieved by determining an appropriate workload. CHW workload can be broken down into three categories: number of tasks, organization of

tasks, and catchment area, which can be further broken into number of households and geographic distribution.

Number of tasks. There are numerous factors to consider when determining the number and organization of tasks assigned to CHWs. Some of these relevant factors include the program's goals, characteristics of the patient population, and whether the CHW's role is focused on one health issue or multiple (Brooks et al. 2018). In countries outside the United States, CHWs are usually trained to be experts on one health issue each. There one CHW may focus on diabetes and another one hypertension and heart disease. In this sort of model, many different CHWs may visit the same household to tend to their assigned area of expertise (Cherrington et al. 2008). This allows the CHW to have fewer assigned tasks and therefore more manageable responsibilities. This is key to maximizing efficiency in training and day-to-day operations when utilizing individuals who may not have extensive medical education. A drawback to this model is that it may cause the care provided to be more fragmented, which can be frustrating to the patients and CHWs alike (Brooks et al. 2018).

Organization of tasks. To best maximize productivity, tasks must be meticulously organized. Tools that enable CHWs to complete their tasks effectively and efficiently are checklists, questionnaires, teaching guides, a streamlined means of documentation, and protocols (Jaskiewicz and Tulenko 2012). Additionally, any needed supplies or equipment must be readily available to facilitate those tasks. Prior to a client visit, planning with the care team makes sure that all appropriate forms, assessments, and

screenings are filled out, needed services are not forgotten, and all tasks are completed. Tasks should be organized to maximize the efficiency of the visit but also so not to overwhelm either the client or the CHW. As a result it is recommended that like tasks are grouped together and integrated into one visit. Productive visits have been found to last about an hour with most programs requiring at least one face-to-face meeting per month (Brooks et al. 2018).

Catchment area. The catchment area, or more generally the number of clients assigned to a CHW, directly influences CHW workload. Some programs assign clients by the household while others assign CHWs by individual clients. Each method has pros and cons. Assigning a CHW to a large household presents challenges because each household member is likely to have varying needs. Similarly, the geographic distribution of clients is an important consideration when assigning workload. Depending on if the area is urban or rural, there are differing transportation related difficulties that must be evaluated. Clients in rural areas are more likely to be highly dispersed, which increases travel time between clients. In an urban area, considerations such as traffic and parking issues must be taken into account.

When determining the appropriate number of households to assign a CHW, it is necessary to evaluate the needs of each client and the ensuing workload. One measure of client associated workload is the three tiered "intensity" system as described by Viswanathan et al. (2009). Low-intensity visits include prevention and screening tasks. On the other hand, high-intensity visits are face-to-face, are longer than an hour, occur in the patient's home, and may require visits over an extended period of time of months or

more. Examples of high-intensity clients are chronic disease management or maternal-child visits (Viswanathan et al. 2009). As a result, some programs have assigned CHWs to as few as ten households and upwards of 1,000 households (Patel and Nowalk 2011). However, the majority of programs in the United States maintain a lower CHW to client ratio ranging between two and ten clients per CHW (Palazuelos et al. 2013). The linked nature of workload, productivity and quality implies that an increase in task intensity, number of households served, and geographic distribution will directly impact workload and quality of service, making the balancing per specific community needs imperative (Brooks et al. 2018).

Financial Reimbursement Domain

There is a growing body of case studies supporting the cost-effectiveness of CHW programs in reducing health disparities, increasing access to care, improving quality of care, and increasing health literacy. In fact, a recent analysis of cost data from 14 studies revealed that CHW interventions produced an average savings of $2,245 per patient and a 12% decrease in ED visits (Institute for Clinical and Economic Review [ICER] 2013). The remaining question is how to finance such a program. The current literature describes four primary financial models for CHW programs: charitable foundations and government agencies, Medicaid, the government at either the federal, state, or local level, and private organizations.

The most common method of financing CHW programs in the United States is through charitable foundations and government agencies, usually utilizing a community-based organization (CBO) as a facilitator. There are usually firm requirements that must

be met for continued funding through these sources. Some specific sources for grants are the National Institute of Health (NIH), HRSA, and Temporary Assistance for Needy Families (TANF). There are additional grant opportunities at the state and local level for more health specific needs (Brooks et al. 2018).

There are several avenues within Medicaid to secure funding including direct reimbursement and managed care contracts. Through direct Medicaid reimbursement, CHWs are considered "billable providers." A significant caveat is that federal regulations do not allow direct billing by CHWs. Rather, billed services must be a part of an established program. This comes as a part of the January 2014 changes to Medicaid payment for preventative services. If a preventative service is "recommended by a physician or licensed practitioner and prevents disease, disability, or other health condition; prolongs life; and promotes physical and mental health efficiency," then it can be billed to Medicaid through the prescriber (Federal Register 2013). Another method around the inability of CHWs to directly bill Medicaid is to use a SS1115 Waiver, which allows states to use federal funds in ways that do not meet all federal standards. The second avenue for funding through Medicaid is the Managed Care Contract in which a specified amount of funds from the state are allocated per the number of Medicaid enrollees in the CHW program (Brooks et al. 2013).

The third model for financing a CHW program is through the use of federal, state or local funds, which are generally supported through tax revenue. In the budget, these funds are most often listed as line items within a pre-existing program that provides CHW services. This model is commonly utilized by county hospitals and public health departments (Brooks et al. 2013).

The fourth source of funding is from private organizations such as managed care organizations, insurance companies, and health care providers (hospitals and health systems). Usually, these sources will contract with or employ CHWs. The goal in this scenario, especially for health care providers, is to save money through decreased usage of ED services for non-emergent needs (Brooks et al. 2013). The following diagram from study by the University of Texas Institute for Health Policy is recommended by Carl H. Rush MRP, Principal of Community Resources LLC, as a reference for determining the best model of CHW program funding for a specific community.

	Basic pathways		
	A **Conventional health care**	**B** **Population/community-based public health**	**C** **Patient-centered care systems (emerging hybrid structures)**
1 **Promising program models**	Emergency room diversion "Hot-spotters" (high cost users) Prenatal/perinatal coaching Primary care based chronic disease management Care transitions Home/community-based long-term care	Specific condition-focused initiatives Community development approach (social determinants)	Patient Centered Medical Homes Accountable Care Organizations Health Homes
2 **Specific CHW roles in these models**	Care coordination Self-management support for chronic conditions Referral and assistance with non-medical needs and barriers Medication management support Patient/family advocacy Support and extension of health education Patient navigation	Basic outreach and education Community advocacy/organizing	Combination of health care and population-based (as at left)
3 **Payment mechanisms for these models**	Fee for service Managed care organizations: admin/service dollars; duals Medicaid 1115 waivers Internal financing Prospective payment (FQHCs)	Medicaid waivers Block grants Prevention trust fund (Mass. model) Pooled funds from third-party healthcare payers	Bundled/global/prospective payment Supplemental capitation payment for specific services
4 **Options for third-party payers**	CHWs directly employed by payer Health care provider contracts/add-ons to hire CHWs CBO contracts to employ CHWs CHWs as independent contractors		

Figure 7. Sustainable Financing of CHW Activities: Three General Pathways

Outcome Domain

As with any other program, it is imperative that the outcomes of CHW programs be evaluated by an approved standard of means in order to maximize program effectiveness. One such outcome measurement plan is the Triple Aim, which includes three suggested operational measures: experience of care, health of a population, and per capita cost. As these are broad categories, outcome measures according to the specific focus of a CHW program should be included under each. A sample of more detailed outcome measures was developed by Brooks et al. (2018) according to recommendations from HRSA (2011), ICER (2013), and IHI (2009) is as follows:

Experience of Care			Health of a Population	Per Capita Cost
Process of Care and Utilization	**Behavior Change**	**Satisfaction**		
CHW programs referrals: # from ED # from PCP # from community **Access to services:** # of clients enrolled # of patients served # of appointments made # of CHW visits **Education programs taught by CHWs:** # of education sessions offered # enrolled in education sessions # of clients completing program # and type of materials disseminated **Number of clients enrolled in wellness and/or education programs:** diet, exercise, smoking	**Changes in knowledge** **Client reminders** **Risk reduction** **Physical activity** **Diet changes** **Self-management of:** Medication compliance Lifestyle changes	**Client satisfaction with CHW** **Likelihood to recommend** **Why patient uses CHW services**	**Health Risk Appraisal (HRA)** **Health/functional status** **Reduced morbidity** **Reduced mortality** **Healthy Life Expectancy (HLE)** **Reduction in health disparities** **Specific measures consistent with population:** Glucose HTN Cholesterol Lipids HgbA1c Weight Smoking	**Decreased ED visits** **Decreased admissions** **Decreased readmissions** **Total cost per member of the population served**

(HRSA, 2011; ICER, 2013b; IHI, 2009)

Figure 8. Detailed Outcome Measures Sample

Stakeholders

As essential to the success of CHW programs as CHWs are the stakeholders both within the executing organization as well in the community. Four aspects of relationships with these stakeholders have been identified as critical to growth and success of a CHW program: identification, education, communication, and sustainment (Brooks et al. 2018).

Identification

The first step to recruiting community partners is to begin outreach efforts to the communities where the CHW program is intended to work. An advisable area to begin outreach is with local public health and non-profit organizations who have goals centering around bettering community health outcomes (Brooks et al. 2018). For example, if a CHW is focused on addressing health needs of low income mothers, outreach to the local Women, Infants, and Children (WIC) program would be an appropriate place to start. Furthermore, since CHW programs are meant to benefit the community, it is beneficial to have the input of internal and external stakeholders during the planning process so as to ensure the structure, implementation, and evaluation of the program are in alignment with community values and practices. Some external stakeholders to consider asking for feedback are community officials, the local health department, non-profit organizations, and policymaking groups. Internal stakeholders who input should be reviewed are the governing board, social workers, medical staff, and case management (Jaskiewicz and Tulenko 2012).

Education

After identifying stakeholders and receiving their input, the next step is to secure their support, which can be accomplished by educating them about the role of a CHW, laying out the cost-benefit of a CHW program, and the documented evidence of successful CHW programs. Some program elements to consider as important to share with stakeholders are included in the following table derived from a list from Brooks et al. (2018).

Table 2. Areas for Proper Education of Stakeholders

Program Design	Program Implementation	Program Evaluation
- Long term program mission and goals - Define the CHW role - Sustainable planning strategies - Educational requirements - Establish a shared understanding of the CHW program	- Assess partnerships - Identify program operational practices, policies, and method of financing - CHW workload, productivity, and supervision	- Cost-benefit analysis - Measurement of outcomes

Communication

Especially in the stages of relationships with stakeholders, communication is key to ensure that the needs and expectations of both their organization and the CHW program are being met. In the long run the CHW program should benefit the stakeholder, however, upon implementation of the program, it is going to require much adjustment and work on the side of the partner organizations. Therefore, it is vital that the administrators of the CHW program be in constant communication with them, assessing

needs, answering questions, and resolving any issues that may arise. At the beginning of the partnership, it may be necessary to have weekly or biweekly meetings to adequately maintain lines of communication. As the maturity of the program progresses, it would be expected that meetings could be reduced to monthly meetings as long as operations are running smoothly. Depending on the specific role of the stakeholder, different conversations will need to be had. What is most important is that these various conversations are had from the level of health care governance and senior leadership to the medical, nursing, and case management (Brooks et al. 2018). Each of these roles are integral to the overall success of the program, and clear communication will foster trust as well as increased effectiveness as goals and tasks are able to be more closely aligned.

Sustainability

Hopefully riding on the shirttails of the trust gained from stakeholders in the communication and implementation of the CHW is their sustained support. One specific approach to creating sustainable relationships and therefore a sustainable program is to form a separate planning team focused on sustainability (Brooks et al. 2018). This team would be responsible for discussing relevant issues, making decisions, and implementing the sustainability plan. In addition to team members, such teams include a coordinator and facilitator. The coordinator manages the timeline, is accountable for communication with internal and external sources, and oversees that action steps are implemented (Batan et al.). The facilitator, usually an outside contracted individual, who can provide an outside, more objective opinion on topics such as reducing staffing levels or de-prioritizing certain policy strategies. To ensure that the community values the efforts of

the program, it is recommended that external stakeholders, such as community officials or non-profit organizations, be invited to the team. Involving internal stakeholders can be more troublesome and requires careful selection because of the stronger conflict of interest present. Some of these members might include program coordinators or CHWs themselves. A primary responsibility of this team as a whole is to maintain continuous communication with stakeholders outside of the sustainability planning team to keep everyone informed and engaged. This team function is essential to creating long term support and buy-in to the CHW program (Brooks et al. 2018).

When implemented well, CHW programs can reduce health disparities, improve community health outcomes, improve patient experience, and increase affordability of care. However, to attain these goals, as research has shown, the six domains of successful CHW programs must be considered, planned for, and implemented into program infrastructure. Of equal importance to the success of a CHW program is the support of its stakeholders who must be identified, educated on the needs and goals of the CHW program, and communicated with effectively and often in order to create a sustainable program. With these goals and means in mind, this study now moves to using the six identified domains as a foundation for comparison and evaluation of the Waco CHW Program.

CHAPTER FOUR

Qualitative Data Collection and Discussion

The results of the critical discourse analysis of the interview data produced through Atlas.ti are organized in the following manner. First, each domain is assigned a score utilizing a five-point Likert scale based on comparison to evidence-based best practices identified in the Literature Review. The scale is based on quality as follows: 1 - very poor, 2 - poor, 3 - fair, 4 - good, 5 - excellent. The score is explicated using the number of times each domain was coded for and supported with the network of quotations associated with each domain. After each domain is discussed, an overall sense of the community's overarching opinion on the Waco CHW program is synthesized.

Table 3. Likert Scale Rating Per Domain

Domain	**Occurrences**	**Likert Scale Rating**
Tools and Job Aids	12	3
Workload	12	3
Outcomes	13	1
Financial Reimbursement	17	1
Education	21	4
Performance Management and Supervision	32	1

Education Domain Evaluation

The education domain appeared a total of 21 times in the interviews. While the standardized education process of CHWs as a result of Texas laws and regulations was a strength of the Waco CHW program, there was a lost opportunity with additional community specific training through the Family Health Center. As a result, the education domain received a Likert score of 4 (good).

While those employed by the Waco CHW did have variable amounts of education and work-force experience, all seven of the CHWs did have at least a high school diploma or GED certificate. Due to the DSHS creation of a formalized statewide CHW training and certification program, all of the CHWs employed in the Waco Program received the same job training. In addition to the standard training that they received in person, they also took part in a chronic disease self-management education program through the Texas A&M umbrella. Since this portion of the CHW's education was standardized and regulated, it proved to be a strength of the Waco CHW Program.

One weakness within the education domain was the lack of utilization of community specific training that was intended to be delivered by the Behavioral Health Program at the Family Health Center (FHC). An external stakeholder at the FHC shared that they were invited to a meeting with some CHW's and program leadership during which the CHW representatives told the stakeholder that they were there for training. The stakeholder responded, "I mean I would love to do the training, I just didn't know that's what I was there for. I thought we were just talking about how the program's going." There was clearly a miscommunication of expectations. The external stakeholder continued to share that "although on paper, it may have been reported that the CHWs

received training from us, [the FHC] did not provide them any training." While the partners at the FHC were not ready at the time to deliver training, they have indicated since that they are willing and able to do so. The miscommunication, however, prevented such training from occurring originally.

Performance Management and Supervision Domain Evaluation

The performance management and supervision domain appeared a total of 32 times throughout the interviews. The first topic that arose within this domain were conflicting perspectives on the hiring practices of the CHW program. An additional point of repeated conversation was the lack of a clear definition of roles and responsibilities expected of CHWs. Finally, the lack of a stable, strong leadership structure proved to be a major impairment to the program identified across interviews. For these reasons, the performance management and supervision domain was assigned a Likert score of 1 (very poor).

Hiring Practices. The CHWs ranged from recent high school graduates to retired healthcare workers and included both community members as well as individuals who would be considered "outside hires." The two outside hires were individuals who had just finished their undergraduate degrees at Baylor University. Despite being outsiders to the Waco community, they are reported to have been "exceptional recommendations for the program." However, the stakeholders had mixed opinions on these hiring practices. An external stakeholder indicated that these hiring practices would lead to a "revolving door. [The Waco CHW Program] is bringing people in, helping with their education, but also

building them. [The Waco CHW Program] is building them into what they need. And then they become very appealing candidates for other organizations that the CHW Program works closely with." This sentiment is validated by the fact that two CHWs were lost to school, one to a full-time job, and one took a director position before returning to the Waco CHW program. The issue of pouring money via human capital into the CHWs just to have them leave is a valid concern, especially from an organizational efficiency and financial standpoint. If one is to invest resources, time, and money into an individual employee, there is an expectation that the investment will bring benefits over time. If the employee chooses to leave after a short period of time working, then the investment likely was not a "break-even" scenario, which is problematic from a business standpoint.

On the other hand, an internal stakeholder saw this practice of building of employees and their transitioning to new positions as a success of the program. The internal stakeholder shared that "it was really neat to see our more seasoned CHWs so willing to help build that younger population, to share those best practices. That's something that worked exceptionally well, having a very diverse group." The stakeholder continued, stating, "having people that worked from all perspectives … that did not create any barriers as far as carrying out work, even those who were anti-vaccine or pro-abstinence, would come in and help on whatever was needed." A further example of bearing the community being served in the CHW workforce is that the Waco CHW Program was the first program under the City of Waco to hire a transgender individual. From this perspective, the diversity of individuals from their personal beliefs and

identities to their level of formal education, are assets that strengthen the CHW program through its ability to better reach varying populations within the Waco community.

While both the external and internal stakeholder harbor contrasting opinions, there is value can be found in each side. The view of the external stakeholder looks out for the Waco CHW Program as a business entity through the maximization of its investments and retainment of employees. The view of the internal stakeholder conveys the value of having a diverse workforce and its ability to widen its impact on the community.

Role and Responsibility of CHWs. A commonly identified issue expressed across interviews is that the CHWs lacked an understanding of what their roles and responsibilities entailed. An internal stakeholder shared that "the challenges being voiced by the CHWs was that they felt like they couldn't solve client issues. But in the role of a health worker, you're that bridge, you're the connector that is connecting [the client] to an existing program or service. To some of the CHWs this made sense and to some it didn't." This issue indicates that some of the CHWs misunderstood the intention of their position. The CHW position is not to directly solve the medical or social problems facing clients, but to empower patients with the resources and information needed to tackle those problems and facilitate resource usage as needed. The stakeholder continued by sharing an example of role conflict with a CHW who was a retired nurse. The retired nurse especially struggled with separating that as a CHW she was not to provide care. Regardless of whether the CHW has a background that would enable them to perform more than their prescribed role, CHW actions should adhere with the defined role and

responsibilities. It is unclear if this issue arises from the CHW hiring process, an obscure job description, or a lack of enforcement from program leadership. However, these are the areas where role definition would be expected to be conveyed and reinforced.

Program Supervision and Leadership. On the topic of program supervision and leadership, there was a consensus that from the inception of the Waco CHW Initiative, there was a lack of consistent and effective leadership. The initial CHW completed their official training in January 2017 and at the end of that month, the program director transitioned out. This was significant because the Waco CHW Initiative was the dissertation project of that employee. So while the program "appeared perfect on paper," there was not a day-to-day level of involvement in the implementation of the program. According to several sources, this laid an unstable foundation for the program. An internal stakeholder shared that "in the period between [the CHWs] graduation and new leadership came on board, there was very, very little direction. There was little hands on support with implementing what was expected. The CHWs were almost given free range, if you will." This reality had both immediate and long-term consequences. The immediate consequences included strained relationships with community stakeholders as no one was leading communication with them as the program was first being implemented. During this critical time period, it is expected that there will be questions and concerns that arise as new procedures are adopted and implemented. Because community partners did not receive appropriate support during that time, relationships with those partners were weakened.

An additional identified consequence of the lack of leadership at a critical point of the program's execution is that the CHWs had "free range" from January through mid-April. As a result, time management among the CHWs became an issue. An internal stakeholder identified that "time management became a big issue because not everyone works well with that much time." While this could have been more of a personnel issue, the stakeholder shared that "[the CHW] class was perfect. The situation is a perfect example of a group project in school. Some students take two weeks to do their half while some students take a few hours if no one sets deadlines or is monitoring them." The lack of accountability established early created long term difficulty with working efficiently. Even an internal stakeholder identified this issue as "a very alarming observation." Furthermore, external stakeholders indicated that there were personality issues with a certain individual in a leadership role who interacted with them, limiting positive acceptance of the program among community partners. The lack of a strong, effective leadership presence willing to work on the day-to-day implementation of the CHW program created numerous identified barriers impeding its success.

Tools and Job Aids Domain Evaluation

The tools and job aids domain appeared 12 times throughout the interviews. The most common theme in discussion about this domain is that the CHWs did utilize assessments, forms, and filing systems, however, those tools required an overwhelming amount of data collection by the CHW or were not necessarily effective. However, an important note is that this study was not able to ascertain any of those forms or resources

to assess them directly. For these reasons, the tools and job aids domain received a Likert score of 2 (poor).

The CHWs lacked direction upon beginning to visit clients in the early stages of the program because of the amount of data they were expected to collect. An external stakeholder described their job as an "impossible task" as they tried to identify all the pieces of information about the client. This was largely due to a lack of appropriate tools to do so and a lack of understanding of what an assessment or care plan was. As job aids were developed and utilized, it became evident that there was a massive amount of information to be gathered in a single client visit. An internal stakeholder shared that the questions in those surveys were pulled from the Community Health Assessment. However, the stakeholder continued on to say "there were so many questions … 30 questions, as wonderful as they are, really are a lot. Unless you're breaking them up, and I don't believe they were breaking them up." Not only were these assessments stress-inducing for the CHW, but also the clients. Ensuring that the client is comfortable and not berated with questions is imperative during the first encounter because that is when rapport and trust is built. Furthermore, if the CHW is not equipped with standardized protocols and resources, there will not be streamlined completion of tasks. In sum, although there were tools and job aids available, they were not well developed or effective.

Workload Domain Evaluation

The workload domain occurred 12 times throughout the interviews. The three subdivisions of the workload domain discussed during interviews were the number of

tasks assigned, organization of tasks, and catchment area. The number of tasks assigned appeared to be highly variable and dependent upon individual CHW interest and efficiency. Organization of tasks is largely related to the tools and job aids domain, which was previously found to be present but ineffective. Finally, the catchment area, or area and number of clients assigned to each CHW, emerged to be a point of confusion. For these reasons, the workload domain received a Likert score of 3 (fair).

Number of Tasks. In conversation, it was discovered that the CHW's tasks were delegated based on each individual's ability to efficiently manage clients and related to the CHW's specific interests. As previously discussed, time management became an issue for several CHWs as they did not have a source of accountability for deadlines. As a natural result, the CHWs who were meeting deadlines and managing clients efficiently took on a greater number of tasks. Otherwise, this was not identified as a major barrier to the success of the CHW program.

An interesting theme that arose during an interview with an internal stakeholder is that CHWs were allowed to have an informal "specialty" or unique pocket of interest. An example of this is that the CHW team had a representative from the LGBTQIA+ community who was incredibly passionate about serving that population and was allowed to do so. An internal stakeholder expressed that "if [the CHW] is qualified and interested, they must have that experience." The stakeholder continued to explain that the clients were incredibly receptive of the CHWs who came from similar identities or populations as themselves, as the literature would similarly predict. This feature of the Waco CHW Program not only offered the opportunity for CHWs to use their experiences and

expertise to serve the community, but also produced more personable results among clients.

Organization of Tasks. As previously discussed in the tools and job aids domain, the procedural tasks of the CHW appeared to be relatively unorganized, creating barriers to program execution and efficiency. One key feature of the organization of tasks domain identified as important in the literature review was the CHW planning the client visit with a care team prior to the visit, which was absent from all interview discussion. It is unclear whether those team-based meetings occurred and were not mentioned or if they did not occur. That is a feature of the Waco CHW Program that is critical to clarify moving forward.

Catchment Area. The catchment area, or the number of clients and their area of residence, assigned to each CHW emerged as an area of uncertainty among both internal and external stakeholders. The original grant application used to receive funding had written into it four zip codes that it was to serve: 76704, 76705, 76706, 76707. The intention of doing so was to demonstrate need, and it worked. However, once the program was implemented, the zip code designation proved to be a stumbling block. An internal stakeholder revealed that even when a case from outside the designated zip codes was referred, the referral was often accepted as a result of wanting to help as many people as possible. Furthermore, an external stakeholder was still under the impression that only three zip codes were being served. This is problematic because those making the referrals did not know the bounds of the catchment area, indicating greater issues of

either lacking a catchment area definition, unclear communication with external stakeholders, or both. Even though the grant has expired, it remains quite evident that the zip code "rule" remains a point of confusion, indicating that a clearer catchment area should be defined and communicated to community partners.

Financial Reimbursement Domain Evaluation

The financial reimbursement domain was coded for a total of 17 times throughout the interviews. A common theme identified across interviews was that the funding of the Waco CHW Program was a contentious topic for which many solutions were attempted. Additionally, a trend of the CHWs not being satisfied with their salary, a part time position, and no benefits became apparent. As a result of this organizational and individual financial instability, CHW morale was damaged, for which reasons the financial reimbursement domain was assigned a Likert score of 1 (very poor).

Originally, the Waco CHW Program was funded through a grant from the Episcopal Health Foundation that was administered through Prosper Waco. As long-term funding solutions were explored, the avenue determined to be the best course of action was to hire CHWs as employees of the City of Waco. However, this became problematic because the CHW position was part-time and as they were being onboarded as city employees in 2017, the City of Waco decided to do away with all part-time positions. As a result, it was decided that a staffing agency would be used to pay the CHWs. While the staffing agency was beneficial in reducing associated liabilities, it was expensive and proved to be only a temporary solution. Eventually, the CHWs were brought on as

employees of the City of Waco. The instability in funding was not only harmful for organization operations but also to CHW morale.

As the CHW's were assigned an increasing number of tasks, they began to question their salary and part-time, no benefits position. Along with the frustration induced by being passed around as employees under different organizations, CHWs began to express that "they didn't have a home or that they weren't part of the city." An internal stakeholder shared that this was very difficult, especially in light of their "incredible skill in mobilizing the community…They had a very strong skill set when it came to grassroots work. But the program, as new as it was, needed a home." This issue still does not seem to have been resolved as this study was unable to identify where the CHWs, who were hired recently after the program underwent a dormant period, are receiving pay from and as employees of what organization/entity.

In a contrasting opinion to that of the CHWs, an internal stakeholder in more of a leadership role did not see these issues to be as significant. The stakeholder thought that the CHWs working part-time fit their role "beautifully" and "did not think compensation was a deal breaker because there was an abundance of applications. People wanted to learn what the role was, people wanted to serve the community." This opinion was informed by the stakeholder's experience in the workforce, which supplied the knowledge that the CHW's pay was on target for their position.

The information from these interviews indicate that there was yet for a stable means of program funding as well as settlement on an appropriate CHW wage to emerge. Even in light of the opinion that the CHW's compensation was on par with the market,

morale was significantly damaged by these conflicts, therefore limiting the success of the program and necessitating that a more agreeable solution is reached.

Outcomes Domain Evaluation

The outcomes domain appeared 13 times throughout this study. Although the CHWs were collecting an immense amount of data during their clients, they were not taking measures that were to be used as a standardized means of program evaluation. Due to the absence of outcome measures, the outcomes domain received a Likert score of 1 (very poor).

Due to the funding and community partner investment into the program, it was expected that measures of evaluation would be taken and delivered as evidence of the usefulness of the Waco CHW program. However, no such measures were being taken. This became problematic when it came time to deliver reports to community stakeholders, including both major hospitals in Waco, the Public Health District, and the Family Health Center among others. With these major community partners, there were ambitious expectations to display the value of the Waco CHW program, yet there was nothing to show. An internal stakeholder shared that "the program [was] supposed to address the frequent utilization of the emergency room and we [weren't] even measuring it." The stakeholder continued, explaining that "CHWs have direct contact with clients...it's something that can be slipped in easily. How's it going, how are you, whatever it is. And then, have you made any trips to the ER since we last spoke, but we weren't measuring that." Although the CHWs were collecting data, they were not directed to collect data that would appropriately measure the CHW program based on its

predetermined goals internally and expectations from external stakeholders. Defining what standardized measures are to be utilized and how to gather that information is imperative not only to justifying the investment of a CHW program, but also to creating a sustainable, ever growing and adapting program.

The Waco CHW Program and the Waco Community

Despite the challenges facing the Waco CHW Program, there is an overarching positive attitude towards its purpose and goals. The external stakeholders throughout the community indicated that they are excited for the return of the CHW after thoughtful reworking and have missed it, even in all of its challenges. The Word Cloud created by Atlas.ti from the most common words throughout the interviews is a testament to that (*see fig. 9*).

Figure 9. Atlas.ti Word Cloud of the Most Common Words Across Interviews

Community partners also conveyed their willingness to provide further support to the program whether it be through additional educational opportunities for CHWs or through continued referral of patients to the program. The positive response of the community should be encouragement and a source of inspiration to refinement and reimplementation of the Waco CHW Initiative.

CHAPTER FIVE

Conclusion

The discussion in this section is organized as follows. First, recommendations for improvements of the Waco CHW Program by each domain are made. Then, concerns that will need to be addressed in the future as the program develops are detailed. Finally, limitations of this study are considered and recommendations for further research are made.

Recommendations

Education. As discussed in the evaluation of the education domain, the regulation of CHW education by the State of Texas ensures the certification of only qualified individuals. However, there are two suggestions for improvement are recommended: 1) continuing education, 2) and to take advantage of the community-specific training being offered by the Behavioral Health Department of the Family Health Center.

Continuing education would be beneficial in ensuring that all CHWs are staying up to date on their knowledge and can direct clients to the best, most effective resources to meet their health needs. As health issues in the community evolve, it is important to ensure that each CHW has the same knowledge on the issues and available resources to address that issue. Therefore, a biannual or even annual meeting to reevaluate the health needs of the populations being served and how CHW work can be altered to fit those ever-evolving needs.

Since CHWs are intended to be tailored to fit the populations they serve, it is advised that the CHW program to utilize the community specific training being offered by one of its community partners. While the statewide training is comprehensive, learning about the intricacies of the health needs of the Waco community could only benefit the CHWs. Furthermore, the training would come without a financial burden, meaning that there would be benefits without having to spend any money, which is optimal.

Performance Management and Supervision. There are three general recommendations for this domain, applying to each subdivision: hiring practices, role and responsibility of CHWs, and program leadership and supervision. As revealed in the evaluation of the existing hiring practices for the Waco CHW Program, there are two contrasting approaches in determining who to hire. One approach focuses on maximizing economic efficiency while the other centers around representing the diversity of the community the program serves well. Each of these perspectives are important to include in building successful hiring procedures. Program leadership deciding what the appropriate balance for the Waco CHW program will be key to the successful hiring and retention of CHWs in the future.

Drawing from the evaluation of the conveyed role and responsibilities of a CHW, there is a distortion of expectations between program leadership and CHWs. The purpose of CHWs is to serve as the connection between the community and available resources. However, the CHWs are moving towards wanting to solve the issues facing the client, rather than equipping them with suitable resources. In addition to being outside the scope

of the CHW role, this tendency creates immense liabilities as CHWs are not necessarily healthcare professions with the appropriate training and credentials or economic funding to solve client issues independently. Therefore, program leadership must create a clear definition of the CHW role and communicate it to CHWs from the job application process to day-to-day operations. Providing CHWs with streamlined resources and protocols should additionally limit CHW deviation from their expected role. This expectation must not only be conveyed but enforced. Although CHWs are offering additional help to clients out of the goodness of their hearts, it is not within the bounds of their occupation, is financially irresponsible, and creates a liability for the program, therefore necessitating that such action be disciplined by program leadership.

The evaluation of program supervision and leadership was perhaps the greatest hindrance to the success of the Waco CHW program. As any program in its infancy, the success of the CHW program hinges upon having a consistent, dedicated, well-respected individual at its core. Leadership is responsible for developing and maintaining positive relationships and communication with community partners and fostering a structured, productive, accountable workplace for the CHWs. An individual or group of individuals capable of fulfilling these needs should be sought out in order to ease the process of implementing the CHW program.

Tools and Job Aids. To improve within the tolls and job aids domain, it is recommended that the Waco CHW compile a standardized set of tools and resources to be used by CHWs during client visits. An efficient way to do so would be to create a packet system in which packets or folders for broad categories of visits are readily

available. For instance, there would be a folder with appropriate resources for the first client visit. The folder would include the primary assessment, any necessary forms, and other various resources typically used during the first encounter. There could also be additional folders on diabetes, hypertension, pregnancy or other health needs common to clients. Naturally, each of these folders would be customized with resources as needed by each unique client. A folder system could create a more organized process and a similar starting point for each visit. Having a baseline packet ensures that a minimum level of preparedness is met and that the CHW collects comparable metrics and provides appropriate resources across similar cases.

Workload. Resulting from the evaluation of the workload domain there are three recommendations for improvement, one for each subcategory: number of tasks, organization of tasks, and catchment area.

To better streamline the number of tasks assigned to each CHW, consider identifying the greatest health needs expected of the Waco population -- whether that be diabetes, hypertension, hypercholesterolemia, et cetera -- and have designate one or two CHWs to be "experts" in that resource area. While this "specialty" should not replace a standard generalized knowledge, this streamlined approach would be expected to improve efficiency and lessen the burden of each CHW harboring a wide and deep knowledge of health issues. Additionally, it would allow for CHWs to indicate and explore any areas that they may be interested in, increasing their attachment to their work. For instance, as was previously discussed, the LGBTQIA+ CHW on staff is Waco was especially passionate about serving the LGBTQIA+ population and their needs, and

had a sort of informal expertise on the issues that clients of that demographic would be facing. Although creating “specialists" for specific health issues would likely require a more formal set of education, doing so would be attainable and affordable as the Family Health Center Behavioral Health Program indicated that they would be willing and able to provide such additional tailored training.

Considering the organization of tasks, as previously mentioned in the recommendations for tools and job aids, it would be beneficial if a folder system were created. Creating a centralized location for all forms, assessments, and screenings facilitate better organization and could take on either a paper or virtual format, depending on the preferences of the program leadership. Having both online and true paper folders would be recommended, especially in light of the changes occurring as a result of the COVID-19 pandemic. This way, a CHW could be prepared for a client visit whether it be virtual or in-person. Online “folders” could be easily created, edited, and shared via Google Drive or Microsoft Drive.

The evaluation of the catchment area revealed that there was in fact not a clearly defined or communicated area from which referrals are accepted and assigned. The first step would be to determine where referrals will be accepted from. It is recommended that the zip code system is done away with. Not only were those guidelines not followed to begin with, but also are a form of reverse redlining. Redlining is a discriminatory practice that puts resources or services out of reach for residents of certain areas based on their race, ethnicity, or economic status. Historically, redlining targets the certain minority populations by excluding them or making access to certain resources nearly impossible. Reverse redlining is a newer phenomena and functions by unfairly extending a service to

a specific targeted region due to race, ethnicity, or SES (Pennsylvania Human Relations Commission 2005). This is applicable to the use of zip codes to determine whether CHW service was to be provided or not because of its linkage to Section 8 Housing. Section 8 is a name for the Housing Choice Voucher Program, which is Funded by the U.S. Department of Housing and Urban Development. Through this program, low-income residents apply to qualify for rental assistance vouchers. Once approved, tenants can choose to live at any rental property designated by the City as Title 8 Housing. In Waco, there are 15 Title 8 sponsored apartment complexes/homes. 12 out of 15 of those complexes/homes are located in a zip code served by CHWs according to the original grant application (Waco Housing Authority and Affiliates 2020). However, the remaining three complexes/homes are not within those zip codes despite their status as low-income housing. This exemplifies reverse redlining as the most in need of the community are identified as the population the CHW program is targeting to assist, yet some of that population's members are systematically excluded through the zip code requirement. Therefore, it is strongly recommended that the zip code rule is eliminated and new qualifications for referral are established and communicated to community partners who serve as a source of referrals to the program.

Financial Reimbursement. The financial reimbursement domain may be the most difficult to provide recommendations for due to the inability of this study to ascertain any official documents or records of program financing. For overall program financing, it is suggested that program leadership critically review the four common methods of financing a CHW program as delineated in the Literature Review. The most plausible

sources of funding would be through a private grant, to bill Medicaid through a SS1115 Waiver or the Managed Care Contract, or to use federal, state, or local funds through the public health department. Since the Waco CHW Program is not operated through an established medical practice, it is not possible to use direct Medicaid reimbursement. Similarly, since the CHWs are not contracted or employed by an insurance company, hospitals, or health systems, the program cannot be funded by one of those private organizations.

Another financial consideration that needs to be addressed is the paying and benefits of the CHWs. While an internal stakeholder in a leadership position voiced that CHW was on par with the market, the pay was clearly causing frustration and discouragement among the CHWs, indicating that change may be necessary. A potential course of action would be to bring CHWs on as full-time employees with benefits. This change may be further warranted as the program grows and the number of cases necessitate a greater time commitment from the CHWs. An additional option would be to increase CHW compensation. Since this study was not able to pin-point an exact CHW salary, it is difficult to say if a compensation increase would be feasible or appropriate. However, when determining CHW pay, program leadership should keep in mind that the median percentile hourly wage of a CHW is $18.45 per hour (U.S. Bureau of Labor Statistics Occupational Outlook Handbook 2017).

Outcomes. The first recommendation for the outcomes domains is to determine which outcome metrics will be most useful in evaluating the progress of the CHW program both internally and to community partners. Two broad outcome measures that

data should be collected on are ED usage and client health outcomes over time since these are the primary goals of the CHW program. Due to HIPAA laws, direct information about the patient's ED visits and health status would have to be gathered from the client rather than medical records. Appropriate questions should be developed and included in surveys used during client visits. The data from those surveys should be compiled into an analyzable form (charts, graphs) and included into a report to be delivered to community stakeholders on a regular time interval schedule (annually, biannually, quarterly). The data should also be scrutinized regularly internally to identify strengths and weaknesses of the program and to develop and apply solutions accordingly.

Additionally, external stakeholders indicated that in addition to receiving official program reports, it is beneficial and encouraging to hear referral success stories as well as basic statistics such as the percentage of referrals that are successfully transitioned to CHW clients. These are easy metrics to provide and thus the request from community partners should be heeded. Regular meetings with external stakeholders to provide this information are critical to supplying useful feedback, and creating a two-way, productive relationship. It should be expected that meetings will need to be held more frequently upon initial implementation of the program to establish trust and address any questions or complications that might arise. One troubling situation recognized in the evaluation of outcomes is that external stakeholders were receiving very different feedback and outcome measurements from program leadership. For instance, one stakeholder expressed they had immense difficulty in tracking down anyone in the program to speak with while another was receiving feedback about the success of provided referrals. To ensure equal treatment of external stakeholders, they should receive the same reports on

outcome measurements as to convey that each partnership is valued and respected equally.

Future Concerns

As the program continues to develop and expand its impact, a foreseeable issue would be how the homeless population of Waco will be served by the CHW program. Since the homeless population are generally frequently ED users and lack strong ties to health resources in the community, it seems natural that the group would be a target group of CHWs according to the goals of a CHW program. Especially if the zip code qualification is eliminated as recommended, there would be no program regulations that exclude homeless individuals from being eligible CHW clients. The logistics of serving the homeless population presents numerous challenges. To start, the individual or family will not have a permanent address, making it difficult to have patient visits. One way to circumvent this issue would be to utilize telephone calls, if available, to communicate with the homeless individual. Another option would be to host office visits with the homeless individual. These are just a few of the considerations that would need to be addressed if the target population was expanded to include the homeless, which only seems appropriate if the CHW program is to serve the most in-need of the Waco community. However, it should be noted that this is a long-term consideration that will only become relevant once the CHW program becomes established and is able to expand its capabilities.

Limitations

A primary constraint of this study was the limited interview sample size. Although unexpected, the sample size was limited for a few reasons. Firstly, the COVID-19 pandemic has hindered interviewing abilities as well as the availability of healthcare professionals as their services are in high demand. Additionally, there were less individuals knowledgeable on the CHW program than expected at the onset of this research. Therefore, the realized sample size was much smaller than the predicted sample size. If this study were expanded in the future, it would be recommended to create a more robust list of initial key informants to build the snowball sample from.

An additional limitation of this study was the lack of access to primary source documents. For instance, the original grant application and various assessment forms and tools used by CHWs during client visits. Such documents would have been valuable to informing the evaluation of each domain. As Prosper Waco continues in planning for the re-implementation of the program, it is suggested that all documents, formal assessments, and CHW tools are collected, categorized by domain, and used to supplement the evaluation provided by this study.

Despite these limitations, this study was still able to present an evidence based structure of a successful CHW program, create a standardized approach to evaluating the Waco CHW Program, and provide recommendations for the improvement of the program based on its evaluation. Six domains of CHW programs were identified and explicated after a meta-analysis of existing literature. After conducting informational interviews with key informants, the transcripts were coded for each of the six domains using Atlas.ti. Then, each domain was evaluated and scored using a critical discourse analysis approach.

As a result of each evaluation, recommendations were made for how to move the Waco CHW Program to better reflect the structure and practices of historically successful CHW programs. This work not only delineates the need for a CHW program in Waco, but also presents preliminary plans for the development and operations of a successful program. Although the original implementation of the Waco Initiative faced immense challenges, CHWs are invaluable in their grassroots-based ability to reintegrate medically disenfranchised populations and decrease ED dependency for non-emergent needs. CHWs empower and equip these vulnerable populations with the resources to live as healthy, productive members of the Waco community, a goal that must be pursued tirelessly to protect the right to health of each individual. Therefore, it is necessary that the Waco CHW Initiative be refined and reimplemented, using this study as a source of guidance in doing so.

APPENDICES

APPENDIX A

Protection of Participants Document

Research project title: The Waco Community Health Worker Program: A Qualitative Investigation and Community Focused Restructuring

Research investigator: Amanda Davis

Research Participants name:

We do not anticipate that there are any risks associated with your participation, but you have the right to stop the interview or withdraw from the research at any time.

Thank you for agreeing to be interviewed as part of the above research project. This consent form is to ensure that you understand the purpose of your involvement and that you agree to the conditions of your participation. Would you therefore read the accompanying information sheet and then sign this form to certify that you approve the following:

- the interview will be recorded and a transcript will be produced
- you will be sent the transcript and given the opportunity to correct any factual errors
- the transcript of the interview will be analyzed by Amanda Davis as research investigator
- access to the interview transcript will be limited to Amanda Davis and academic colleagues and researchers with whom she might collaborate as part of the research process
- any summary interview content, or direct quotations from the interview, that are made available through academic publication or other academic outlets will be anonymized so that you cannot be identified, and care will be taken to ensure that other information in the interview that could identify yourself is not revealed*
- the actual recording will be kept until the thesis is defended
- any variation of the conditions above will only occur with your further explicit approval

*Or a quotation agreement could be incorporated into the interview agreement

Quotation Agreement

I also understand that my words may be quoted directly. With regards to being quoted, please initial next to any of the statements that you agree with:

	I wish to review the notes, transcripts, or other data collected during the research pertaining to my participation.
	I agree to be quoted directly.
	I agree to be quoted directly if my name is not published and a made-up name (pseudonym) is used.
	I agree that the researchers may publish documents that contain quotations by me.

All or part of the content of your interview may be used:

- In academic papers, policy papers, or news articles
- Online and in other media that may be produce such as spoken presentations
- On other feedback events
- In an archive of the thesis as noted above

By signing this form I agree that:

- I am voluntarily taking part in this project. I understand that I don't have to take part, and I can stop the interview at any time.
- The transcribed interview or extracts from it may be used as described above.
- I have read the Information sheet.
- I don't expect to receive any benefit or payment for my participation.
- I can request a copy of the transcript of my interview and may make edits I feel necessary to ensure the effectiveness of any agreement made about confidentiality.
- I have been able to ask any questions I might have, and I understand that I am free to contact the researcher with any questions I may have in the future.

_____

Printed Name

Participants Signature **Date**

Researchers Signature **Date**

Contact Information

This research has been reviewed and approved by the Baylor University Research Ethics Board. If you have any further questions or concerns about this study, please contact:

Researcher name: Amanda Davis
Tel.: 678-672-7736
E-mail: amanda_davis1@baylor.edu

Advisor name: Dr. Christopher Pieper
E-mail: christopher_pieper@baylor.edu

APPENDIX B

Texas Regulatory and Statutory Laws Related To CHW Programs

The regulatory laws relevant to CHWs are TEX. ADMIN CODE 1 § 351.20 (2014). The relevant statutory laws are TEX. HEALTH & SAFETY CODE ANN. §§ 48.001, 48.051, 48.052, 48.053 & 48.101; TEX. HEALTH & SAFETY CODE ANN. § 1001.035; TEX. HUMAN RES. CODE ANN. § 32.071 (2013); TEX. INS. CODE ADD. § 845.155 (2013).

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