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We are the doctors in the community: An Assessment of the Community Health Strategy in Gichagi Slum, Ngong, Kenya

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Abstract

We are the doctors in the community: An Assessment of the Community Health Strategy in Gichagi Slum, Ngong, Kenya

By Nicole Janes

Background: The Community Health Strategy is part of a government initiative that has been in place in Gichagi slum, Ngong, Kenya since 2011. Through this program, local volunteers serve as community health workers (CHWs) and provide a number of basic health and preventative services, including community level health education, referral services to the primary hospital, first aid and distribution of items such as condoms and water treatment tablets. However, funding cuts have led to a decrease in the number of active CHWs. Without financial motivation and sufficient equipment to perform their duties, CHWs in Gichagi have been largely inactive.
Objectives: To assess the community's awareness, attitudes and utilization of community health services provided by CHWs in Gichagi slum, Ngong, Kenya, as well as to establish the attitudes of the CHWs who provide the community health services in Gichagi.
Data and Methods: I conducted a cross-sectional quantitative survey with a qualitative supplement through: 120 surveys on Gichagi residents' awareness, attitudes and utilization of community health services; and a focus group discussion with 10 Gichagi community health workers assessing their views of the program.
Results: Key findings included: (1) Community health services were known by 65.83% of Gichagi residents, but utilized by only 34.17%. Despite low utilization of services, survey participants expressed overwhelming satisfaction with the community health worker program. (2) CHWs who participated in the focus group discussion felt unsupported by the Ministry of Health. As residents of the slum, they perceived the loss of their stipend as highly detrimental as they lost both their motivation to perform their duties and their ability to purchase supplies for the program. Despite these negative aspects, CHWs gained increased respect and social standing in the community via their status as a CHW. Renewal of their stipend, additional trainings and recognition were established by CHWs as highly desired methods to maintain their motivation.
Discussion: Through the recommendations provided, the Community Health Strategy can increase the efficiency of the Strategy, maintain CHW participation and ultimately improve health outcomes through the provision of basic health and preventative services in Gichagi slum.

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Table of Contents

List of Tables

Chapter 1: Introduction and Background of the Community Health Strategy in Kenya

Introduction

According to the World Health Organization, Kenya has a severe shortage of qualified health workers to care for its population of nearly 46 million people (WHO, 2007; CIA, 2015). In addition, high healthcare costs are a barrier for poor and rural Kenyans in need of care. In 2010, Kenya adopted a new constitution which called for the decentralization of government services, including the health sector. This change has had a major impact on health financing as responsibility shifted from the national level to the county level. Upon this switch, many counties were found unprepared to effectively manage the transfer in responsibility and revenue (USAID, 2013).

In Kenya, community health services have become a key strategy in combatting common health issues and providing basic preventive care at the community-level in the most resource poor areas. Community health services are provided through a government program known as the Community Health Strategy, a component of the Kenya Vision2030 development initiative launched in 2006 to address health issues at the community level. The goal of Kenya Vision2030 is "to create a globally competitive and prosperous nation with a high quality of life by 2030" (Kenya Vision2030, 2015). The multi-sectoral activities of Vision2030 are centered around three "pillars": economic, political and social development. The economic pillar is focused on increasing the economic well-being of Kenyans through an increase in the GDP growth rate. The sectors targeted in this pillar are tourism, manufacturing, livestock and agriculture, financial services, gas and oil, trade, and information technology services. The political pillar addresses issues of democracy, government transparency and accountability, peace building, and conflict resolution, among others. The political pillar works to advance legal aid and awareness of the

law, leadership and ethics, application of legal reforms and constitutional reforms, and a stronger criminal justice system. The social pillar in particular is concerned with improving Kenyans' quality of life and creating social development through social and human welfare programs. This social branch of Kenya Vision2030 involves a number of categories, including health; environment, water and sanitation; education and training; population, urbanization and housing; and gender, youth and vulnerable groups (Kenya Vision2030, 2015). It is through this pillar that the Community Health Strategy is delivered.

Background

The Community Health Strategy was formally instituted in Gichagi slum, Ngong county in 2011. As part of the strategy, the Ministry of Health (MoH) in Ngong recruits and trains local community volunteers, known as community health workers (CHW), to facilitate the delivery of basic health care and to improve general knowledge of public health practices with the goal of reducing the burden of disease in the community. The term "community health worker" encompasses a broad spectrum of people who are trained to provide basic healthcare and education to their home communities, often on a voluntary basis (WHO, 2007). The CHW program is overseen by a local Community Health Committee (CHC), which is also composed of local volunteers. Selected CHWs receive basic health education and occasional technical trainings on topics selected by the Community Health Strategy Coordinator. Each CHW is then assigned a zone of Gichagi to conduct household visits and deliver health services, which include community level health education; referral services to the primary (subcounty) hospital; first aid; home-based care; deworming; information, education and communication materials; distribution of items such as condoms and water treatment tablets; and community integrated management of

childhood illnesses and basic maternal care. A professional health worker serves as the Community Health Strategy Coordinator within the MoH and plays a key role in building the capacity of the community health work force and linking community health services with the other levels of health care within Ngong county.

At its inception, the CHW program in Gichagi was funded by AIDS, Population and Health Integrated Assistance, or APHIAplus, a program of USAID. Through this partnership, CHWs received a monthly stipend of 2,000 shillings, or approximately $20. This was a five-year project with 46 recruited CHWs. Unfortunately, the APHIAplus project was terminated in its second year. After support from APHIAplus ended, the stipend for CHWs was suspended and the number of CHWs was reduced from 46 to 25. Support for the Gichagi CHW program was subsequently taken up by the African Development and Emergency Organization (ADEO). This partnership is currently in its first year of a three-year project. With support from ADEO, the focus of the Community Health Strategy has shifted to maternal and child health, HIV/AIDS and home-based care. In addition to ADEO, the CHW program receives occasional support for trainings and activities from other organizations. Population Services Kenya is one such organization that promotes hypertension screenings at the community level. In Gichagi, there is one community health worker trained to conduct door-to-door hypertension screenings for all community residents.

Research Questions and Study Aims

Despite the presence of a community health worker program, recent funding cuts have lowered the number of CHWs by nearly half and taken away the small stipend that CHWs depended on to help them perform their duties. Likewise, the Ministry of Health does not have

the capacity to monitor the CHWs' activities or assess whether the program has had a positive effect on Gichagi residents' health. The purpose of this special studies project is to assess the community's awareness, attitudes and utilization of community health services provided by community health workers in Gichagi slum, Ngong, Kenya, as well as to establish the attitudes of the CHWs who provide community health services in Gichagi. In a resource poor setting such as Gichagi slum, community health workers have the potential to be an important tool in promoting good health practices and providing basic health services that fill gaps in people's access to health care. During my summer practicum, I worked with the Community Health Strategy Coordinator from the local Ministry of Health office in Ngong and developed a research study to assess Gichagi's community health worker program and the effectiveness of the health services offered. The Ministry specifically requested a research study as there had been no prior surveys of the Gichagi community addressing this topic and the formal state of the CHW program was unknown. The study consisted of a primary quantitative survey portion for community members and a supplementing qualitative focus group discussion with a group of ten CHWs.

Through this study, the Ministry of Health in Ngong sought to address the following questions:

- Are Gichagi residents aware of the community health services offered in Gichagi?
- How do residents of Gichagi view community health services and community health workers?
- Do residents of Gichagi feel that the CHW program has positively impacted their health?
- What benefits and constraints do CHWs experience in fulfilling their roles?

The main goal of this special studies project was to assist the Ngong Ministry of Health in determining the status of their community health program and identify ways to improve the program. In order to achieve this goal, this project aimed to achieve the following objectives:

- Collect and analyze primary data to determine community awareness, attitudes and utilization of community health services, as well as CHW attitudes of the community health program;
- Contextualize findings through a review of the literature on informal settlements, common health issues reported in informal settlements, and the use of community health workers in community health programs; and
- Identify areas for improvement based on research findings and literature review.

With the information gathered from this study, the Community Health Strategy Coordinator aimed to reform the CHW program and address the concerns of both Gichagi community members and CHWs regarding the community health program. Likewise, the Community Health Strategy Coordinator can use findings from the study as supporting evidence for additional funding requests, specifically concerning the impact that the removal of the monthly stipend has had on CHW performance and satisfaction. While the results of this study are specific to Gichagi, much of the information learned may be useful for other community health programs facing similar challenges.

Chapter 2: Health Issues in Informal Settlements and the Role of Community Health Workers

This literature review provides a summary of informal settlements, common health issues reported in informal settlements, and the use of community health workers in community health programs. By providing a background on informal settlements and the prevalent health issues therein, this review supplies the context for the unique role that community health workers can play in improving health and increasing access to basic care and prevention services for the residents of informal settlements. Although my field site of Gichagi was located approximately 20 kilometers from Nairobi, Ngong, the city where Gichagi is located, is highly urbanized and experiences a high volume of travel to and from Nairobi. As a semi-urban slum, Gichagi has many similarities to informal settlements in Nairobi, which have served as the site for the vast majority of studies looking at slum residents' health. The similarities between Gichagi and the sites discussed in the literature review will be further discussed in the conclusion.

Informal Settlements

According to the United Nations Human Settlements Programme (2012), an informal settlement, or slum, is an area with "inadequate access to safe water, inadequate access to sanitation and other infrastructure, poor structural quality of housing, overcrowding, and insecure residential status." In addition to this definition, informal settlements, are characterized by low income and education levels, high unemployment, and elevated disease prevalence (Buigut, Ettarh & Amendah, 2015). By 2050, nearly 55% of people in Sub Saharan Africa are projected to live in urban areas (UN DESA, 2014). As the urban population continues to grow, the number of people living in informal settlements is expected to double over the next decade. Those most

affected by this transition to informal settlements will be people with low socioeconomic status (Ayah et al., 2013). However, in spite of their large numbers, there is a lack of official information concerning their informal settlements and their residents. Due to their illegality in some areas, slums are often not included in formal population surveys or are lumped together with other non-slum areas, which fuels their stigmatized status and misunderstandings of the unique issues they face (Fotso, Ezeh & Oronje, 2008).

In Sub Saharan Africa, Kenya has experienced one of the fastest rates of urbanization. Close to a quarter of Kenya's nearly 46 million residents live in urban areas, where high rates of poverty have resulted in the proliferation of informal settlements for the urban poor (Kenya DHS, 2010; Kimani-Murage & Ngindu, 2007). In the capital city of Nairobi, over half of the city's 3.915 million residents live in slum areas (Karanja & Makau, n.d.; CIA, 2015). Because these settlements are informal and illegal, residents do not benefit from government infrastructure or services, such as waste collection, sewage systems or water lines. Without these crucial services, overcrowded, densely populated informal settlements overwhelm available environmental resources, leading to adverse environmental and social conditions that contribute to poor health outcomes for slum dwellers (APHRC, 2002). In the absence of a proper waste disposal system, residents dispose of their garbage in empty plots and the open spaces on a settlement's physical border. After rain, runoff water mixes with garbage and human waste, which can result in contamination of crops and drinking water. Improper sanitation contributes to more than just water and food pollution. Often, small livestock and feral animals rummage for scraps until a community member sets the trash heaps on fire, filling the air with thick smoke, which in turn contributes to respiratory ailments commonly reported in slum housing.

Common Health Concerns in Informal Settlements

Due to the conditions mentioned above, slums generally tend to have worse poverty-related health outcomes than the formal settlements they neighbor, yet access to and utilization of health services remain low due to a combination of financial, geographic and social constraints experienced by slum dwellers (Breiman et al., 2011). While residents of informal settlements face a number of health issues, among the most significant risks are related to poor sanitation and hygiene, sexual and reproductive health, and the rise in noncommunicable diseases among the poor. For example, even when services are present, many people may not be able to afford care or have adequate health knowledge to identify the warning signs of illness. When people are unable to work or attend school due to poor health, their economic fulfillment is reduced. This creates an inter-generational cycle of poverty and poor health, especially for women who often face social and educational barriers related to gender. In Gichagi slum, both residents and community health workers alike cited sanitation and hygiene, sexual and reproductive health, and noncommunicable diseases among the most reported health issues and requested additional services for the Community Health Strategy.

Sanitation and Hygiene

In 2010, Kenya's new Constitution stated that every Kenyan has the right "to accessible and adequate housing, and to reasonable standards of sanitation" (Government of Kenya, 2010). However, sanitation initiatives remain underfunded with just 0.1% to 0.5% of the nation's 2012 gross domestic product (GDP) going towards sanitation (Corburn & Hildebrand, 2015). In densely populated areas with little to no formal infrastructure, substandard sanitation and hygiene pose substantial threats to health and dignity. In informal settlements, women are

disproportionately affected by inadequate sanitation, experiencing increased susceptibility to violence, food contamination, infectious and chronic illnesses, and educational and economic unfulfillment. Because women are often the caretakers and breadwinners of their households, their health correlates to the health of their children and other family members they support (Corburn & Hildebrand, 2015). When women are sick, especially those in low income households, they are less able to consistently work and provide healthy, nutritious meals for their children. In addition to increasing infectious and diarrheal diseases, poor sanitation and hygiene helps to perpetuate a cycle of gender inequality. When their traditional caretakers in the home become sick, young girls may be taken out of school to help care for their family members. Ending a girl's education early puts them at risk for early marriage and violence, and decreases their own future earning potential.

Sanitation and hygiene needs in informal settlements are supported by a collection of studies conducted in Mathare slum, one of the largest and oldest informal settlements in Nairobi, including a survey of 650 residents of Mathare on household living conditions, expenditures, safety, disease and self-rated health. Although 67% of respondents were women, less than half of women reported having good health, compared to 62% of men who reported good health. Reliable water access, which was defined as having access 24 hours a day seven days a week, was a major predictor of good health. Over 80% of households in Mathare reported having unreliable access to water, 88% of which reported poor health. In contrast, of those who did have reliable access to water, 72% also reported having good health. On average, the researchers found each public water source was shared by 108 households (Corburn & Hildebrand, 2015). These needs are similar to what I found in Gichagi, where one public water source serviced hundreds of households in a any given zone.

In addition to water access, waste disposal was an issue for the majority of Mathare residents. Eighty-six percent of households reported disposing of their water into the streets, and 88% said they did not have an organized system for solid waste disposal. Of the households that did have a solid waste disposal system, 82% reported good health. Common causes of poor health reported by respondents were respiratory illnesses, diarrhea, fever, malaria, typhoid and skin rashes. Additionally, nearly half of all survey participants reported having a sick child in past six months, with diarrheal diseases being the most common illness, along with malaria, typhoid fever, skin infections and respiratory tract infections (Corburn & Hildebrand, 2015). Waste disposal is a serious environmental and safety issue in Gichagi.

Twenty-two focus group discussions held with Mathare residents yielded themes centering on the relationship of inadequate sanitation with diarrheal diseases, HIV/AIDS, malnutrition and food contamination, economic impacts, menstrual health and girls' education, and dignity and violence. Focus group participants suspected that poor sanitation, particularly improper human waste disposal, increased their exposure to food contamination and contributed to the high rate of childhood diarrhea. Some of the economic concerns discussed by Mathare residents included healthcare costs for sanitation-related illnesses, missed wages for people who missed work due to illness, and paying to use public toilets (Corburn & Hildebrand, 2015).

In focus groups with women and girls, the participants discussed the negative impact that inadequate sanitation and facilities had on girls' school absenteeism and drop-out rates. Women also expressed a concern over their security when using public toilets, especially at night. Having to walk far distances to use public toilets, some of which did not have working locks or lighting, increased women's vulnerability and fear of rape. This discussion supports findings from the survey in which nearly 75% of residents reported not feeling safe in Mathare, with an additional

three-quarters also reporting poor health (Corburn & Hildebrand, 2015). Given that the majority of Gichagi survey respondents were women, the findings from this study have strong implications for the far reaching effects of inadequate sanitation services. From these examples, it is clear that sanitation and hygiene have a broad influence on people's emotional, mental and physical well-being.

Sexual and Reproductive Health

In addition to sanitation and hygiene, sexual and reproductive health is a major concern for the growing population of urban poor. According to a study by the African Population and Health Research Center (2014), the fertility rate in Nairobi's informal settlements in 2010 was 4.7 compared to the city average of 2.6. Additionally, due to poor economic, education and gender dynamics prevalent in informal settlements, women and girls in these areas tend to experience a high degree of sexual and gender-based violence, as well as early exposure to sexual activity (Corburn & Hildebrand, 2015). Evidence from a number of studies on sexual and reproductive health in Nairobi slums illustrates the increased risk for sexual violence and adverse sexual health outcomes commonly faced by women in informal settlements. In a study based in Kibera, the largest urban slum in Africa, over a third of women reported being forced to have sex and 30% reported having to perform other sexual acts, in comparison to 14% of all Kenyan women (Corburn & Hildebrand, 2015). Sexually transmitted diseases also contribute to poor sexual and reproductive health outcomes among the poor. In Nairobi slums alone, the HIV/AIDS prevalence rate is 12%, while the national prevalence rate is 5.3% (J. Madise et al., 2012; UNAIDS, 2014).

Despite the high burden of adverse health conditions, programs addressing sexual and

reproductive health needs are lacking for the urban poor. Low knowledge of, access to and utilization of prenatal care among urban poor women puts them and their babies at risk for serious complications (Beguy, Mumah & Gottschalk, 2014). In Korogocho and Viwandani slums in Nairobi, women between the ages of 12 and 54 years who experienced a life-threatening obstetric complication and failed to seek care identified the following barriers to care: inability to identify danger signs; poor health decision making; unaffordability of healthcare; low physical access to care services; nighttime insecurity; unfriendly healthcare providers; cumbersome hospital procedures or requirements; inadequately equipped health facilities; and poor accessibility to referrals (Essendi et al., 2011). Similar to the situation described above, women in Gichagi experience comparable obstacles to care, particularly related to affordability of health services, physical access to services and knowledge of danger signs.

Unintended pregnancies are another common issue in Kenya, where facility stock-outs, cultural pressure to have large families, and inadequate sexual knowledge lead to low use of modern contraceptives (Fotso, Izugbara, Saliku & Ochako, 2014). Likewise, comprehensive family planning services are largely unavailable for many women in Gichagi. The nationwide maternal mortality ratio in Kenya is 488 deaths per 100,000 live births (Kenya DHS, 2010). Unsafe abortions contribute significantly to this number. Among a national sample of 2,625 women who had an abortion, over 75% presented with complications from unsafe abortions. Women whose pregnancies were unintended were twice as likely to experience complications than women whose pregnancies were wanted (Ziraba et al., 2015).

In informal settlements where fertility is high and access to care is low, the maternal mortality ratio is even higher than in the general population. In Korogocho and Viwandani, there were 706 maternal deaths per 100,000 live births between 2003 and 2005. The main causes of

death were abortion complications, hemorrhage and sepsis. Among the women who died, only 21% had received assistance from a skilled health professional in delivering their baby or aborting their pregnancy (Ziraba, Madise, Mills, Kyobutungi & Ezeh, 2009). This is similar to Gichagi, where many women are unable to give birth with the assistance of a skilled birth attendant. Although the slum is located within close proximity to the subcounty hospital, traveling from the narrow muddy slopes of Gichagi to the hospital is fiscally and physically difficult to obtain, especially at night. For these financially constrained and geographically isolated women, pregnancy and childbirth continue to present significant risks to health.

Noncommunicable Diseases

In addition to the growth of informal settlements, urbanization is associated with a number of dramatic lifestyle changes, such as a decrease in physical activity, increased alcohol consumption, cigarette smoking and poor nutrition. These lifestyle changes contribute to the rising prevalence of noncommunicable diseases, such as diabetes, heart disease and hypertension, for newly urbanized societies (Ayah et al., 2013; Joshi et al., 2014). According to Ayah et al. (2013), noncommunicable diseases will exceed infectious diseases as the leading cause of death by the year 2020. In a study involving 5,190 residents of Nairobi slums, over half had one of the four risk factors mentioned above for noncommunicable diseases (Haregu, Oti, Egondi & Kyobutungi, 2015).

As poverty increases, so does the prevalence of noncommunicable diseases. However, awareness and screening rates for noncommunicable disease remain low. A survey of 2,045 residents of Nairobi's Kibera slum showed that participants were exposed to a high number of risk factors for noncommunicable diseases. Over two-thirds of residents reported heavy alcohol

consumption, while nearly half were overweight or obese. While physical activity remained relatively high, harmful alcohol intake and moderate smoking levels reported in overweight and obese patients suggest that dietary factors are a major contributing factor to type II diabetes in survey respondents (Ayah et al., 2013). Similarly, a survey of 5,190 adult residents in Korogocho and Viwandani slums resulted in a diabetes prevalence of 4.8% in females and 4.0% in males, yet less than a quarter of people who had diabetes were aware of their status and under 5% had their diabetes under control (Oti, van de Vijver, Agyemang and Kyobutungi 2013).

Comorbidities between infectious and noncommunicable diseases have become a topic of particular interest for health professionals in recent years. For example, susceptibility for diabetes has been linked to both tuberculosis and HIV/AIDS. Given the high prevalence of HIV in Kenya, especially among the urban poor, the rise in diabetes cases in developing countries should be of high concern for people living in informal settlements. For the urban poor in slum areas, low access and awareness of noncommunicable diseases such as diabetes and hypertension pose a great risk towards sustaining good health (Ayah et al., 2013). Similarly in Gichagi, hypertension screenings have become a significant component of the Community Health Strategy. However, poor nutrition, low access to quality foods and inadequate knowledge of noncommunicable diseases, such as cancer and diabetes, pose significant risks for Gichagi residents.

Community Health Workers

From the United States to Uganda, poor areas around the globe experience shortages in qualified and willing healthcare professionals (Willcox et al., 2015). According to a study by Breiman et al. (2011), in Nairobi's Kibera slum the most frequently reported reason for not

seeking healthcare was expense. For those who did seek care, over a third visited non-licensed providers the first or only time they sought services. By delaying care or seeking illegitimate care, people risked further complications from incorrect or untimely diagnosis and treatment (Breiman et al., 2011). To fill gaps in healthcare, community health workers (CHWs) have been utilized in communities worldwide to address primary healthcare needs. CHWs can perform broad tasks or be assigned to more specific functions, such as blood pressure screening (WHO, 2007). As members of their community themselves, CHWs often share beliefs and health-seeking behaviors with their fellow community members (Neupane et al., 2015). They understand and share community norms, which allows them to connect with community members and deliver culturally-sensitive health messages, thus allowing community members to make informed decisions about their health (Neupane et al., 2015; Vareilles, et al., 2015).

CHW Retention

Given the low-resources of their host communities and the voluntary nature of CHWs, retention is a major issue for programs that utilize them. Common barriers CHWs face include financial hardship, community or family disapproval, few opportunities for advancement, heavy workload, poor management and support, lack of identification within the community, transportation issues, poor pay or incentives, supply shortages, inadequate training, and lack of community education and awareness of health issues (Alam & Oliveras, 2014; Bhattacharyya, Winch, LeBan & Tien, 2001; Brunie et al., 2014; Kimbugwe et al., 2014; Neupane et al., 2015). By removing obstacles to access experienced by community members, barriers are often shifted to the CHWs. This is especially true for transportation, for which many CHWs may not receive compensation or assistance (Brunie et al., 2014). According to a study of 1,788 active CHWs,

their supervisors and 2,560 mothers of children aged between 12 and 23 months in Nyanza Province in Western Kenya, factors related to CHWs' performance were their education level, work experience, personal sanitation practices, marital status, household size, number of supervisors and supervisors' knowledge of health (Kawakatsu et al., 2015).

In Uganda, CHWs reported heavy workloads and long commutes of two to three kilometers to their assigned households. The majority of CHWs reported walking to their clients' households. CHWs overwhelmingly desired bicycles to travel to their assigned households (Kimbugwe et al., 2014). Stock-outs of materials are another barrier faced by CHWs, while erratic, delayed or suspended payment are common issued for volunteer CHWs (Brunie et al., 2014; Kimbugwe et al., 2014). For CHWs, not having identification materials, such as uniforms or badges, reveals gaps in support by their supervisor (Kimbugwe et al., 2014). Similarly in Gichagi, CHWs shared that identification materials could also serve to boost CHWs' recognition in the community.

Personal financial constraints also contribute to CHW attrition. While some CHWs may receive a small stipend for their work, many do not benefit from any form of monetary incentive, yet they are held accountable for their duties and treated as if they were employees of their supporting organization (Bhattacharyya et al., 2001). According to Bhattacharyya et al. (2001), CHWs who rely on communities to finance their activities have twice the attrition rate of CHWs who receive government salaries. Retention is also a significant issue for the Community Health Strategy in Gichagi. As slum residents themselves, CHWs experienced financial constraints that negatively affected their ability and motivation to perform their duties, especially without the benefit of a stipend to incentivize their involvement.

Program organization plays a key role in CHWs' success. Program managers are responsible for not only overseeing the CHWs, but also motivating their workers. Management that promotes capacity-building among CHWs helps boost CHW performance, satisfaction and retention. These include supervision that supports CHW autonomy, provides for knowledge and skills growth, encourages individual choices, and involves CHWs in program planning and decision-making (Vareilles, et al., 2015). Lack of trust, differing expectations, poor communication and inadequate support systems can lead to poor relationships between CHWs, their supporting organization and the community they serve. Clearly defining roles, duties and expectations through continued communication helps to alleviate these issues and provide a space for CHWs to air their grievances. Standardized monitoring, supervision and training are also important components of effective management of volunteer-based community health programs (Kok et al., 2015).

CHW attrition also threatens the success and sustainability of community health programs. As attrition rates increase, so do program costs related to training and supplying CHWs. Likewise, high turnover rates can harm the relationships CHWs build with the people and communities they serve (Bhattacharyya et al., 2001). One common cause of attrition is job competition, especially in urban areas with more diverse labor markets (Alam & Oliveras, 2014). Supporting organizations and programs invest a substantial amount of money to train and equip each CHW. However, once this initial investment has been made, CHWs may leave for other opportunities that offer larger payments, thus jeopardizing the trust they had built with their communities (Bhattacharyya et al., 2001).

Motivation and Incentives

Due to the need to retain CHWs, motivation of CHWs is a key component of any community health program. Recognition, feelings of belonging, material support, and opportunities for networking with other volunteers have been shown to promote CHWs' motivation and engagement (Vareilles, et al., 2015). Positive aspects of being a CHW encompass a mix of intrinsic and extrinsic factors, including perceived impact in the community, increased social status, helping community members, gaining new knowledge and skills, and opportunities gained from working with health care professionals (Alam & Oliveras, 2014; Brunie et al., 2014). For those who participate for intrinsic reasons, positive health results among the community are often important for CHW satisfaction. By seeing a difference in the lives of their fellow community members, intrinsically motivated CHWs may extract more enjoyment in performing their activities than their counterparts (Vareilles, et al., 2015). For those attracted by extrinsic motivation, CHWs expect to benefit through gaining education, potential job opportunities and increased social capital (i.e., community recognition and respect) (Brunie et al., 2014; Vareilles, 2015). However, these forms of motivation are not mutually exclusive. In a study with Red Cross volunteers in Uganda, extrinsically motivated volunteers who experienced a strong connection with the program experienced a shift to intrinsic motivation for their work (Vareilles, et al., 2015). This finding is indicative of the significant role that administrative and community support play in CHW motivation and retention.

Supporting organizations often use incentives to keep their CHWs engaged and committed. Incentives come in two forms: monetary and non-monetary. Examples of monetary incentives include salaries, stipends and other financial payments. While monetary incentives are the most direct form of motivation, some argue that incentives threaten the spirit of volunteerism

inherent in community health programs. CHWs that receive financial payments may see themselves as employees of their supporting organization, not volunteers serving the community. This can also affect the community's perception and expectation of CHWs. Community members may expect more time and resources, such as money for medicine, from their CHWs. Alternatively, in communities where mistrust for the supporting organization, especially the government, is high, community members also mistrust the CHWs who they believe are part of the system. Monetary incentives also raise issues regarding sustainability and inequity between CHWs' salaries (Bhattacharyya et al., 2001).

In contrast, non-monetary incentives are any personal or professional in-kind or material enticement used to motivate CHWs. These can range from housing and childcare services to supplies for CHW duties to preferential treatment for health postings. Professional incentives, such as bicycles, notebooks and first aid kits, are beneficial to both the community and CHW because they aid CHWs in their tasks, which in turn serve to improve their job performance and self-esteem. Other incentives like t-shirts with their organization's logo or identification cards can boost CHWs' status within the community, demonstrate legitimacy and promote solidarity between CHWs (Bhattacharyya et al., 2001). In a study of CHWs in Ethiopia, future training was identified as the primary non-financial incentive to continue work as a CHW. Training is a crucial because it serves to increase CHWs' skills and knowledge, and it can help to sustain the spirit of volunteerism (Haile, Yemane & Gebreslassie, 2014). Other prominent reasons to continue work as a CHW include community recognition, free medical care and the expectation of future employment due to increased knowledge (Brunie et al., 2014; Haile, Yemane & Gebreslassie, 2014). Being selected by community members or with criteria approved by the community are key to maintain community buy-in and support (Haile, Yemane & Gebreslassie,

2014). Likewise, desire for public recognition can be used to promote positive CHW traits and commitment. In Ethiopia, CHWs derived pride from being known as *musawo*, or health professionals. CHWs have access to information unavailable to the general public and, due to their elevated status, are often consulted on a wide range of issues not confined to health (Brunie et al., 2014). This is similar to what I found in Gichagi, where CHWs shared that they were known as the doctors in their community due to their increased health knowledge and were very proud of this specialized status within their community.

Incentivization and payment of volunteers are complex processes for supporting organizations. CHWs are motivated by a range of factors that can change over time, so no one form of payment may be appropriate for all CHWs in a given program (Alam & Oliveras, 2014; Singh, Negin, Otim, Orach & Cumming, 2015). Likewise, many programs claim that paying CHWs for their work may remove the spirit of volunteerism that community health programs are based on (Singh et al., 2015). However, what this argument does not take into account is that many CHWs use their payment to assist in their duties as CHWs, such as purchasing supplies or traveling to community members' households (Alam, Tasneem & Huq, 2014). Additionally, incentives that are perceived to be too little or are given erratically may serve to de-motivate CHWs (Singh et al., 2015). Financial incentives should be based on workers' qualifications and the relative value of the incentive in order to sustain high performing and motivated workers (Alam, Tasneem & Huq, 2014). Without adequate support, community health programs must rely on CHWs' spirit of volunteerism and duty to share their knowledge in order to continue their work (Kimbugwe et al., 2014). Given that many volunteer CHWs are themselves members of poor communities, this is neither fair, practical nor sustainable for future improvements in community health.

Chapter 3: Study Method

Study Site

Ngong is located in Kajiado County at the base of Ngong Hills, approximately 20 kilometers from Nairobi. It is a well-developed area, with many residents commuting to Nairobi for work. Gichagi slum is situated on a hill near the government offices and the subcounty hospital in Ngong. Per the Ministry of Health Community Health Strategy Coordinator, Gichagi has a population of approximately 10,000 people divided into 2,000 households. The Gichagi community is split into seven zones with a total of 542 plots. Each plot typically contains four to five households. The most common tribal group in the area is Kikuyu, but there are many other tribes represented in Gichagi.

Study Design

The study used a survey research approach (see Appendix I) supplemented by one focus group discussion (FGD) and a brief questionnaire for CHWs (see Appendices II and III). Throughout the project, I worked with a collaborator from Emory University's Rollins School of Public Health, and together we comprised the research team. The cross-sectional community survey was created with input from the Community Health Strategy Coordinator in Ngong. The research team aimed to collect between 15 and 17 surveys in each of Gichagi's seven zones for a total of 120 completed surveys. The team utilized convenience sampling to recruit community participants. The inclusion criteria were heads of households over the age of 18. The team specifically sought to survey mothers, caretakers of young children and the elderly as they would be the most likely to use community health services. People under the age of 18 years and/or people who lived in compounds where a CHW also resided were excluded from participating in

the survey. The rationale behind this exclusion was that neighbors of CHWs may benefit more than other community members due to their close proximity to a CHW. Additionally, the team was concerned that the presence of a neighboring CHW during the survey could influence the participant's answers.

The FGD guide and questionnaire for the CHWs were created by my collaborator with input from the Community Health Strategy Coordinator and me. The purpose of this FGD was to corroborate findings from the primary survey data collected in the community. The leader of the CHW group recruited 10 CHWs to participate in the FGD. Inclusion criteria included the ability to understand and speak English.

Procedures

The Community Health Strategy Coordinator in Ngong connected the research team with two youth leaders, who served as translators and research assistants, and the head of the CHC. On Monday July 6, 2015, the research team met with the Community Health Strategy Coordinator, youth leaders and CHC head to ensure group understanding of the survey questions and properly translate questions into Kiswahili and Kikuyu, a common indigenous language spoken amongst residents in Gichagi. The research assistants and CHC head received a stipend of 2,000 shillings, or approximately $20, each for their contribution to the work.

The research team administered the community survey in paper form. Each member of the team was accompanied by one research assistant and the CHC head, who introduced the project to potential participants and obtained consent before introducing the research group. Before beginning the survey, the research assistant introduced her/himself and the research partner, repeated the purpose of the survey and confirmed oral consent. The research assistants

conducted the survey in Kiswahili to participating heads of households. After each survey, the research assistant debriefed her/his respective team member on key takeaways from the survey. The team conducted the survey from Tuesday, July 7 to Thursday, July 9, 2015.

The focus group discussion was held on August 7, 2015 in a church located in Gichagi. My collaborator facilitated the FGD, and I recorded the discussion and took notes. Before the FGD began, the 10 participating CHWs filled out the brief questionnaire with questions from the FGD to enable them to form their thoughts and translate them into English. The FGD lasted for approximately 45 minutes.

Data Analysis

Quantitative data from the community survey was analyzed using Epi Info 7. The FREQ command was used to analyze all categorical variables, and the MEANS command was used to the find the average of the one numerical variable. For the qualitative data, thematic content analysis was used to corroborate the survey results. Responses from the pre-FGD questionnaire were collated into one document, and the FGD was transcribed into bullet points.

IRB Approval

This project was deemed exempt from review by Emory University's Institutional Review Board because it did not match the definition of human subjects research or clinical investigation, nor was any identifying information collected.

Limitations

There are some limitations to this study. For the community survey, the sampling method was the foremost issue. The team initially planned to use systematic random sampling to select households from a list provided by the head of the CHC. Upon meeting the CHC head, the team learned that no such list existed. Since Gichagi was already divided into zones, the team then decided to use systematic random sampling to select compounds within each zone. However, the team quickly found that many compounds were vacant or contained shops or places of worship instead of homes. Likewise, many compounds were empty as people had gone to work. Given these circumstances, the research team ultimately selected participants through convenience sampling, which could reduce the generalizability of the survey results. Despite this limitation, the team was able to survey a large number of mothers of young children, which was the target population.

Another limitation of the study was the small sample size. Data collection was rushed in order to accommodate the development of a training module for CHWs, so the team was only able to conduct the survey over a three-day period. The financial stipends for the research assistants and CHC head also posed an issue to the research team as we could not afford to continue with data collection longer than the proposed three days. In spite of this limitation, the Community Health Strategy Coordinator was satisfied with the number of people surveyed and believed that it would accurately reflect the Gichagi population as a whole. The FGD was also time-bound, as the team was only able to hold one discussion due to time constraints within the Community Health Strategy Coordinator's schedule and the availability of CHWs to participate.

Chapter 4: Research Findings

The Community Health Strategy in Gichagi seeks to improve the health of the slum's residents by providing basic and preventive care and health education to the community via trained community health workers. In presenting the findings from my assessment, I aim to establish whether the program is meeting its goals and provide insight into the following research questions:

- Are Gichagi residents aware of the community health services offered in Gichagi?
- How do residents of Gichagi view community health services and community health workers?
- Do residents of Gichagi feel that the CHW program has positively impacted their health?
- What benefits and constraints do CHWs experience in fulfilling their roles?

Community Survey

The survey was divided into four sections: demographic information, awareness of available community health services, attitude towards community health providers, and utilization of community health services.

Demographic information indicated that 80.3% of the 120 respondents were female, and the median age was between 30 and 39 years. When asked what languages respondents spoke in their homes, the three most commonly reported languages were Kiswahili, Kikuyu and English (see Table 1). The majority of respondents reported being married at

Table 1: Languages Spoken in the Home

Language	Frequency	Percent
Kiswahili	115	95.8%
Kikuyu	84	70%
English	37	30.8%
Kamba	8	6.7%
Luhya	6	5%
Kisii	4	3.3%
Maasai	2	1.7%
Meru	2	1.7%
Embu	1	0.8%
French	1	0.8%

68.33%, while 16.67% were single, 8.33% were widowed, and 5% were separated. The average number of household members was 4.6, with a range from 1 to 17. Primary school was the most commonly completed level of schooling by 34.17% of respondents, while secondary school was completed by 13.33% of respondents and vocational schooling by 10.83%.

Are Gichagi residents aware of the community health services offered in Gichagi?

Out of 120 respondents, 65.83% said they were aware of community health services in Gichagi. The most commonly reported services of which they were aware were deworming at 58.2%, community level health education at 51.5%, and home-based care at 29.1% (see Table 2). When asked to identify their community health provider, 47.9% of respondents reported being aware of their CHW's name. Respondents offered a variety of names, the most frequently cited being the head of the CHC at 37.74% (n=20/53). Additionally, over half of the 22 names provided were not those of current CHWs. Only 50.83% of respondents considered community health services to be well known within Gichagi. Most respondents reported receiving health information from another health provider (82.5%) and media sources, such as TV and radio (39.17%), over CHWs (10%).

Table 2: Most Commonly Known Services by Respondents

Service	**Frequency**	**Percent**
community level health education	24	51.5%
referral services to the primary (subcounty) hospital	9	11.4%
first aid	1	1.3%
home-based care	23	29.1%
deworming	46	58.2%
information, education and communication materials	1	1.3%
distribution of items such as condoms and water	14	17.7%

treatment tablets		
community integrated management of childhood illnesses and basic maternal care	4	5.1%
other	14	17.7%

How do residents of Gichagi view community health services and community health workers?

When asked what influenced where respondents sought health services the most, the most common answers were the services offered (43.33%), severity of illness (30%), cost of service (29.17%) and distance from home (10%). However, an overwhelming 97.5% of respondents answered that they would be interested in seeking community health services offered by CHWs. Out of 67 respondents, 81.54% reported that they were satisfied with the services offered by CHWs. Of those who answered no, they offered a number of explanations, most notably that the CHWs were not well trained or active. Concerning trust, 85.07% (n=57/67) of respondents stated that they trusted CHWs' health knowledge. Again, responses for why they did not trust CHWs included lack of training, knowledge and equipment. Over half of respondents (51.35%) said that they would like additional services added to CHWs' duties and provided a list of 25 services, including blood pressure screening, environmental clean-up and diabetes testing (see Table 3). Six of the additional services requested were ones that were already included in the CHW program (e.g. first aid, home-based care, water treatment).

Table 3: Additional Services Requested by Respondents

Responses	**Frequency**	**Percent**
Antenatal services	1	1.32%
Blood pressure services/medication	10	13.16%
Bringing qualified doctors like twice a month	1	1.32%
Build local dispensary	1	1.32%

Cancer scanning	4	5.26%
Check ups	5	6.58%
Counseling	3	3.95%
Deworming	3	3.95%
Diabetes Services/Testing	7	9.21%
Environmental clean up, sewerage system	8	10.53%
Family planning	3	3.95%
Financial support	1	1.32%
First Aid	1	1.32%
HIV/AIDS awareness	3	3.95%
Home based-care	6	7.89%
Hypertension	1	1.32%
Medicine for chest	1	1.32%
No idea/Not aware of services	4	5.26%
Post-natal care	1	1.32%
Referral Services	1	1.32%
Regular check up on children	2	2.63%
Treatment and care of people with stroke	1	1.32%
Treatment of arthritis	3	3.95%
Treatment of asthma	2	2.63%
Water treatment services/tablets	2	2.63%
X-rays	1	1.32%
Total	76	100.00%

Do residents of Gichagi feel that the CHW program has positively impacted their health?

Only 34.17% of respondents reported that they benefitted from community health services in Gichagi. This number is very low compared to the 65.83% who reported being aware of services. The most commonly reported services from which respondents benefitted were deworming at 70.7%, distribution of items such as condoms and water treatment tablets at 29.3%, and community level health education at 26.8%. Of those who answered no to the previous question, 83.78% said that they had not benefitted because they had never been visited by a CHW.

When asked to identify where else they seek health services, 80% of respondents reported visiting the subcounty hospital. It is important to note that Gichagi is located within very close proximity of the subcounty hospital, so this could explain why the hospital received such a high percentage of answers. Additionally, the Community Health Strategy Coordinator was surprised to see that no respondents reported visiting a local healer for health services, and suspected that respondents were not truthful regarding this option. When asked how often they sought health services from CHWs, 7.5% of respondents reported often, 29.17% said rarely, and 63.33% answered never. When asked the same question about seeking health services elsewhere (i.e. subcounty hospital, dispensary), 18.33% of respondents said often, 80.83% answered rarely, and only .83% said never.

Among the services offered by CHWs, respondents believed that the most useful services were deworming at 38.33% and home-based care at 13.33% (see Table 4). When asked if respondents had ever sought services from CHWs and not gotten what they needed, 94.02% (n=110/117) answered no. Because a number of people who had never received a household visit answered no to this question, this number does not accurately represent the population. After

stratification of those who had received a visit from a CHW and those who had not, only 13.16% of respondents (n=5/38) answered yes to this question. Of those five respondents, three said that the desired service was unavailable or out of stock, two said that the CHW was not available, and one simply stated that she or he had never been visited.

Table 4: Most Useful Services* Reported by Respondents

Service	**Frequency**	**Percent**
community level health education	7	5.83%
referral services to the primary (subcounty) hospital	4	3.33%
first aid	4	3.33%
home-based care	16	13.33%
deworming	46	38.33%
information, education and communication materials	1	0.83%
distribution of items such as condoms and water treatment tablets	8	6.67%
community integrated management of childhood illnesses and basic maternal care	2	1.67%
Other (blood pressure screening)	7	5.83%

*Some respondents reported multiple services.

Of the 120 survey participants, less than a third (31.67%) reported that they had ever been visited by a CHW in their households. Of those who had been visited, 42.22% received deworming treatment, 26.67% blood pressure screening, and 11.11% water treatment during their last visit. Most reported that the visit occurred within the past two or six months, both at 10.83% (see Table 5). When asked how often respondents would like CHWs to visit them at home, 48.33% of respondents answered once a month, 23.33% said once a week, and 24.17% offered an alterative option (see Table 6). These included every two weeks, every two months and every three months, among others. Only one person stated that he or she would not like to be visited at all.

Table 5: Last Time of Visit by a CHW		
Last visit	**Frequency**	**Percent**
This month	4	3.33%
Past two months	13	10.832%
Past six months	13	10.83%
Last year	1	0.83%
Can't remember	7	5.83%
Never	82	68.33%

Table 6: How Often Respondents Would Like To Be Visited		
How often	**Frequency**	**Percent**
Daily	4	3.33%
Once a week	28	23.33%
Once a month	58	48.33%
Would want no visit at all by CHWs	1	0.83%
Other	29	24.17%

Focus Group Discussion with Community Health Workers

What benefits and constraints do CHWs experience in fulfilling their roles?

Throughout the focus group discussion, the ten participating CHWs expressed great pride in their roles and a desire to help their fellow community members. Overall, they enjoyed visiting their neighbors and sharing health information with them. CHWs felt that the community appreciated them in their health capacity and that the community was pleased with their work. When prompted for the most common activities they performed, most CHWs stated that they visited households often, while one CHW was in charge of going door-to-door and offering hypertension screenings "almost daily."

Despite their positive feelings associated with being CHWs, respondents stated that there were also many challenges to their work. First, CHWs did not have adequate equipment to perform their health duties. Without first aid kits and other commodities, like over-the-counter pain medication and soap, they said they felt ineffective and unable to help clients. They also felt overburdened by the expectations and demands of community members. Because Gichagi is a slum, many people are very poor and suffer from health problems, so they rely on CHWs far

"too much when really they are just supposed to give health education." As residents of the Gichagi community, many of the CHWs do not have stable incomes to support their own households, yet they reported feeling compelled to assist their clients financially. One CHW stated that "sometimes you feel you have to give them the 100 shillings you have in your pocket."

CHWs acknowledged a decrease in their activity, and cited the loss of their stipends as the leading factor. When asked what would motivate them to continue their work as a CHW or become more active, several of the CHWs cited "cash motivation" as a major component to their continued involvement. Training was another source of motivation for CHWs. In addition to contributing to their capacity as a CHW, several of them shared that being a CHW had improved their own health and the health of their families. One participant stated, "In my home I practice hygiene and [it has] change[d] the whole family's attitude towards health." Likewise, CHWs felt that having this health knowledge earned them respect from their fellow community members. CHWs supported this point in a number of ways. One CHW said that the health trainings they received had given them "full respect from our community… With the respect we had a chance to relate fully" to community members, while another stated that the "training gave us a new face in the community." A third CHW believed that she served "as an example for the people in Gichagi" in adopting proper hygiene and other health habits, while a fourth CHW shared that their health trainings had made them "the doctors in the community." By comparing themselves to doctors, CHWs showed that they felt responsible for their fellow community members' health and that their knowledge and skills were necessary for the community. To this point, CHWs were eager for more trainings and offered a variety of topics they wanted to learn, most notably reproductive health and family planning. Additionally, because health resources are limited in

Gichagi, CHWs' possession of such health knowledge increased their opinions of themselves and their perception of how they were viewed by others.

CHWs overwhelmingly desired more support from the Ministry of Health in Ngong. While more connection with the government and priority placement for government employment were mentioned, CHWs also discussed modest non-monetary incentives to aid their work, such as rain boots to help them walk to their assigned households during the rainy season. Because CHWs operate without a central location in Gichagi, they also desired a small facility to meet, store equipment and hold community dialogues on health topics. These dialogues were common tactics used by CHWs and the CHC to share health information. However, they stated that the dialogues were often poorly attended by the community, so they felt that having their own space would encourage community members to gather with them.

Finally, the CHWs wished to be recognized within their community. One suggestion they offered was for the Ministry of Health to prioritize them for participation in health campaigns, such as door-to-door mass immunizations, to increase their presence within the community. These campaigns would also provide small daily stipends to cover transportation and meals, which would satisfy their financial needs. T-shirts were another example CHWs gave of both a non-monetary incentive and a way to increase their visibility within the community. One of the CHWs stated that if she had a t-shirt marking her as a CHW, she "would wear it every day." Another CHW simply stated that she wanted "some materials to note who I am in the community," such as a name badge or certificate noting her position.

Chapter 5: Discussion of Findings, Recommendations for the Community Health Strategy in Gichagi, and Conclusion

Discussion of Findings

The purpose of this study was to determine Gichagi residents' knowledge, attitudes and utilization of community health services, as well as to establish the attitudes of the community health workers regarding the program. The health concerns of Gichagi residents uncovered in the survey echo findings from the literature on slum residents' health. Community members identified services related to sanitation and hygiene, sexual and reproductive health, and non-communicable diseases among the most needed in Gichagi's Community Health Strategy. For example, many Gichagi residents considered their environment unclean and unsafe, and cited it as a source of health issues. For this reason, environmental clean-up was one of the most requested additional services for CHWs to perform. Concern for the environment was also expressed by the CHWs themselves during the focus group discussion. Because they are residents of the Gichagi community, CHWs understand and experience many of the same issues faced by the general population, as supported by the literature. Other services desired by both community members and CHWs included family planning, diabetes testing and HIV counseling, all of which are issues common in informal settlements per the literature.

While the survey revealed that CHWs have not been substantially active in the past year, results indicate that those residents who have benefitted from community health services are interested in receiving community health services, are satisfied with community health services and trust CHWs. Likewise, people who had never been visited answered overwhelmingly positive to the same questions. Among those who had received a household visit by a CHW, 100% were interested in receiving community health services, 94.59% were satisfied with

community health services and 92.11% trusted CHWs. Among those who had not received a household visit by a CHW, 96.34% were interested in receiving community health services, 64.29% were satisfied with community health services and 75.86% trusted CHWs. Although community respondents believed that the CHW program was not functioning particularly well, there is still a great need for health services in the community and community members are eager to take advantage of CHWs for such services. These findings support the important role that CHWs play in bridging the gap between need and care in resource poor slum communities.

In the focus group discussion, CHWs acknowledged their decrease in activity and provided a number of restraints that revealed a chain of blame. While Gichagi community members cited the CHWs' inactivity and lack of knowledge, CHWs in turn pointed to the loss of their stipend, lack of support by the MoH, and need for more trainings to explain their inactivity. Support was identified in the literature as a major component affecting CHW retention. Lack of funding and capacity of the Ministry of Health office to oversee the program negatively affected community health workers' ability and motivation to perform their duties. CHWs felt unsupported by the Ministry of Health, in terms of the loss of their stipend and few opportunities for career advancement. CHWs believed that their involvement with the Community Health Strategy would give them priority in job placement at the government hospital, yet they had not received any such employment opportunities. Without a clear vision of how the program will benefit them in the future, CHWs may feel less motivated to advance their knowledge and skills. Additionally, CHWs felt overburdened by the expectations of the community at large. CHWs reported that community members often asked them for financial support and expected to be given priority over other patients when visiting the sub-county hospital. Without proper understanding of the Community Health Strategy on the part of the community, CHWs will

continue to fall below their expectations, resulting in a poor opinion of the CHWs and their abilities, as well as the Community Health Strategy.

Despite these negative aspects of the program, several positive program outputs were revealed in the FGD. CHWs placed high value on the public recognition they received from their status as a CHW. Having specialized knowledge increased their social standing within the community, and they felt appreciated and respected for having the health knowledge gained from their trainings. For CHWs in Gichagi, this was a major motivator to continue their work, and is supported by the literature on CHW retention. To increase their public standing, training and identification supplies were also identified as primary forms of non-financial incentivization in both the literature and FGD. While additional trainings would increase their health knowledge, identification materials would ensure that their status was publicly known within the community, thus increasing their social status and feelings of support by the Ministry of Health.

There are several limitations to this study related to data collection that may have introduced bias to the results. First, the research team used convenience sampling to select participants for the community survey. Because we spoke to the easiest people to reach, they may not have been the most representative of the Gichagi community. For example, because Gichagi was divided into seven zones, there may be inequality between the zones related to financial resources, social status, or CHW coverage. Likewise, respondents could have been eager to participate in the survey because they had prior interactions with CHWs or were interested in learning more about community health services. The team did not ask how long the respondent had been a resident of Gichagi, which could have negatively skewed awareness and utilization. However, because the research assistants and CHC head were well acquainted with Gichagi residents, the team is confident that they surveyed appropriate participants. Additionally,

the team mostly surveyed female caretakers of children and the elderly. Due to unequal gender dynamics within the home, women may rely on their husbands to make medical decisions for their children and thus be less familiar with CHWs. Despite this concern, the team did not find significant differences between the responses of men and women concerning their awareness, attitudes or utilization of community health services. Given Gichagi's large population, the small sample size could reduce the generalizability of the survey results to the entire Gichagi community. However, the Community Health Strategy Coordinator believed the sample size provided an accurate representation of the Gichagi community's experiences with CHWs.

Although understanding of the English language was a prerequisite to participate in the FGD, the CHW leader recruited one respondent who did not meet this criterion. The respondent was unable to coherently answer the questions in English from the pre-FGD questionnaire and did not participate verbally in the FGD, so her responses from the questionnaire were not included in the thematic content analysis of the discussion.

Despite these limitations, the team collected as much information as possible and worked to resolve issues quickly given their time constraints. The Community Health Strategy Coordinator was satisfied with the number of people surveyed and included in the FGD, as well as the number of FGDs. Results from the quantitative survey were consistent overall and across zones, and the FGD supported many of the findings from the survey.

Recommendations for the Community Health Strategy in Gichagi

Community health workers play a key role in improving health among resource-poor populations. In order to maximize CHW utility in the face of financial constraints, the findings from this assessment suggest that the Ministry strive to maintain retention and motivation among

the CHWs through increased organizational support. The following are recommendations for the Community Health Strategy Coordinator in Ngong to increase motivation among CHWs based on findings from the results from the community survey and CHW FGD. These recommendations are also supported by current literature:

1. Reinstate the stipend for CHWs. Loss of the stipend was the most common reason CHWs provided for why they could not maintain their activity within the community. As members of the Gichagi community, the majority of CHWs come from low-income households and are unable to fund their CHW duties themselves. Without a stable means of income, CHWs rely on small-scale income-generating activities, such as farming, to support their households, which reduces the amount of time they are able to perform their CHW duties. Likewise, without adequate supplies provided by the Community Health Strategy, CHWs felt that they were unable to perform their tasks effectively. Additionally, given their training, CHWs possess specialized health knowledge and skills that are highly marketable. Without a stipend to support themselves and their CHW duties, CHWs may use the skills acquired through the Community Health Strategy to gain salaried employment elsewhere. By investing in the current CHWs with a monthly stipend, the Community Health Strategy can avoid the high costs of training additional CHWs to replace those who leave. Ultimately, re-instating the stipend will enhance the satisfaction of CHWs and the sustainability of the Community Health Strategy in Gichagi by providing CHWs with a steady means of income to perform their tasks. Providing a stipend to community health workers is the first step to achieving the Community Health Strategy's mandate of improving the lives of the community. Additionally, the stipend is important for retaining the CHWs

that the Community Health Strategy has already invested in and trained. By further investing in the current trained CHWs, the Community Health Strategy will enhance CHW retention and the sustainability of the Strategy through the creation of a committed workforce and strong program infrastructure.

2. Setting clear expectations of the role of community health workers, the Community Health Strategy Coordinator and Gichagi community members is among the most important first steps. In the focus group discussion, CHWs revealed that they had different expectations of the program than they had experienced, particularly in relation to future employment with the government. This was a point of contention for CHWs, who felt they had been misled. Clearly communicating the Ministry's expectations of CHWs' involvement is vital in order for CHWs to feel properly supported. As discussed in the literature and the first recommendation, organizational support has a significant impact on CHW motivation and retention. Additionally, the Community Health Strategy Coordinator needs to ensure that the community has a clear understanding of the Community Health Strategy and the role of CHWs. CHWs felt overburdened by the expectations of the community members they visited, and these expectations often did not align with CHWs' prescribed duties. By removing this burden, CHWs can more confidently address community needs, and the community members will have a better understanding and appreciation of the services they receive.
3. Set up a system of surveillance with inbuilt accountability to ensure that the committed CHWs participation in the program can be traced and acknowledged. This will help in identifying which initiatives are working best, what are new or unfulfilled

community needs, and what further support and additional training is required for the CHWs. Near the end of my research, the Community Health Strategy Coordinator had enacted a new system for the CHWs to report their activities. The Coordinator could use this system to track the most active CHWs and popular activities.

   a. One way to increase accountability could be to create a schedule for CHWs to visit their assigned zones. According to the community survey, many community members did not know when to expect CHWs, so a schedule would ensure that community members are able to meet with CHWs in their homes during a designated timeframe. This is a participatory approach that will streamline the accountability process and relieve the Community Health Strategy Coordinator of the sole burden of overseeing CHWs. By working on a set schedule, both the CHWs and community members can participate in the accountability process by ensuring that CHWs are in a designated area at a specific time.

4. Continue to encourage CHWs to perform activities that can be done with minimal supplies or at no cost, such as community level health education. CHWs claimed that they were unable to perform their duties due to supply shortages. Until adequate amounts of materials are made available, CHWs should remain active by focusing on education and demonstrations. Because several community members claimed that the CHWs were inactive, this would help increase their presence and legitimacy within the community. Likewise, community support and buy-in are essential for a successful community health program. If the community believes their CHWs are knowledgeable and competent, they will be more likely to use them in times of need,

which would in turn satisfy CHWs' desire for respect and recognition as the doctors in their community.

5. For many of the CHWs, recognition of their role as a trained health worker served as significant motivation for them to continue their work even after the initial stipend was removed. Given the pride CHWs feel in their status, the MoH should ensure that CHWs feel appreciated by the Ministry and the community at large. Certificates, t-shirts and name badges would serve to motivate and legitimate CHWs among the public. Certificates that the CHWs can display in their homes would make the CHWs feel appreciated. A certificate would be a material representation of the knowledge and skills gained through the community health program, and would increase other community members' confidence that their CHWs had gone through rigorous training and were qualified to advise them on health issues. According to the community survey, several community members were concerned that CHWs were unqualified and had inadequate training. A certificate of accomplishment could serve to alleviate this concern and validate CHWs' health knowledge.
6. Offer trainings that are on topics of interest for CHWs and the community at large. CHWs complained that community members often would not attend their public education events. By choosing a topic in which the public is interested, the CHWs may be able to increase attendance at public education events. Holding trainings that are of interest and value to the CHWs is also important to maintain their satisfaction. If CHWs feel they are learning something useful, they will be more engaged in the learning process and in relaying the information to their fellow community members. Per the focus group discussion, CHWs placed high value on their trainings and

requested more. Similar to increased recognition, trainings serve to boost CHW morale and commitment to the Community Health Strategy and the Gichagi community.

Conclusion

As the number of urban poor continues to grow, people in informal settlements face increased threats to health and social, economic and educational attainment. This is particularly true for women and girls, who are disproportionately affected by social and financial barriers related to gender. Shortages in healthcare workers and accessibility issues exacerbate health conditions common in the urban poor. As indicated in the literature and survey results and given the financial and geographic barriers faced by slum dwellers in obtaining health care, CHWs are an effective and low cost alternative to delivering primary care services to poor and isolated communities.

In Gichagi slum, community health workers are playing an important role in filling the gaps that exist in health care for slum residents. In such a resource poor area as Gichagi, CHWs have significant potential to address health issues and disseminate basic health knowledge at the community level. Retaining this valuable low-cost and sustainable resource is a significant strategic tool in promoting good health practices and providing basic health services for those unable to access care. However, the Community Health Strategy in Gichagi is not without its issues. The CHW program has faced a number of challenges, primarily related to loss of funding for the program. Without financial compensation and adequate supplies, CHWs cannot maintain their activities and this is apparent from their reduced health-promotion activities in the community. This absence was felt by the community members, many of whom claimed to never have been visited by a CHW and questioned the validity of CHW program's approach. Despite

these setbacks, the survey revealed that Gichagi residents had an overwhelming desire to benefit from the services offered through the Community Health Strategy and trusted CHWs as deliverers of basic health care and education. This illustrates that CHWs are highly valued by their fellow community members and have immense potential to promote positive change in the health outcomes of their fellow community members.

The findings from this research study illuminate a number of recommendations for the Ministry of Health in Ngong to maintain CHW retention and increase motivation to perform their work. While the Ministry's Community Health Strategy itself may be short-staffed and underfunded, the changes recommended in this paper are important considerations for the Community Health Strategy Coordinator to make in order to remain effective and accomplish the goals set forth in Kenya Vision2030. For CHWs to be successful, community health programs must provide significant investment and incentives to support, motivate, and retain their CHWs. Creating a strong foundation for the Community Health Strategy through trainings and commitment, particularly through financial compensation, is vital for the sustainability of the program and will help prevent future additional costs related to replacing and re-training CHWs.

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Appendix I

Awareness and Utilization of Community Health Services in Gichagi, Ngong, Kenya
Ministry of Health, Kajiado North Subcounty

SURVEY

Date: ___/___/___

Zone # __

Demographics
1. How old are you? ( ) 18-19 ( ) 20-29 ( ) 30-39 ( ) 40-49 ( ) 50-59 ( ) 60 and over

2. Gender: ( ) Male ( ) Female

3. Marital status: ( ) Single (never married) ( ) Married ( ) Separated
( ) Divorced ( ) Widowed

4. What languages are spoken in your home? ( ) Kiswahili ( ) English ( ) Other: _____

5. What is the highest level of school you have completed?
( ) I studied, but I did not complete primary school.
( ) I finished primary school.
( ) I studied, but I did not complete secondary school.
( ) I finished secondary school.
( ) A-level
( ) College or vocational school
( ) University or higher

6. Number of members in your household: ____

Awareness of available community health services:
1. Are you aware of any community health services in Gichagi? ( ) Yes ( ) No

a. If yes, which services are you aware of?
Choose all that apply:
( ) community level health education
( ) referral services to the primary (subcounty) hospital
( ) first aid ( ) home-based care ( ) deworming
( ) information, education and communication materials
( ) distribution of items such as condoms and water treatment tablets
( ) community integrated management of childhood illnesses and basic maternal care

2. Are you aware of the community health provider in your community? ( ) Yes ( ) No

a. If yes, specify the community health provider (name of the CHW): _____

3. Do you think community health services in Gichagi are well known within the community?
( ) Yes ( ) No

4. Where do you get your health information from?
Choose all that apply:
( ) community health provider ( ) media (TV/radio) ( ) local healer
( ) friends/family ( ) other health provider (e.g. hospital or dispensary)

Attitude towards community health providers:
5. What influences where you seek health services the most?
Choose 1:
( ) severity of illness ( ) distance from home ( ) cost of service
( ) services offered ( ) operating hours ( ) ease of obtaining services
( ) knowledge/expertise of staff ( ) other

6. Would you be interested in seeking community health services offered by CHWs in Gichagi?
( ) Yes ( ) No

7. Are you satisfied with the services offered by CHWs in Gichagi? ( ) Yes ( ) No

a. If no, why? _____

8. Do you trust community health workers' health knowledge? ( ) Yes ( ) No

a. If no, why? _____

9. Would you like any additional community health services than those listed in Question 1a in Gichagi? ( ) Yes ( ) No

a. If yes, what service(s) would you like added: _____

Utilization of community health services:
10. Do you benefit from community health services in Gichagi? ( ) Yes ( ) No

a. If yes, what services do you benefit from?
Choose all that apply:
( ) community level health education
( ) referral services to the primary (subcounty) hospital
( ) first aid ( ) home-based care ( ) deworming
( ) information, education and communication materials
( ) distribution of items such as condoms and water treatment tablets
( ) community integrated management of childhood illnesses and basic maternal care

11. If you answered no to the previous questions,
a. specify why: _____

b. specify where else you seek health services mostly:
Choose 1:
( ) health center ( ) dispensary ( ) clinic ( ) maternity home
( ) primary (subcounty) hospital ( ) secondary hospital ( ) national hospital
( ) local healer

12. How often do you seek community health services from CHWs?
( ) often ( ) rarely ( ) never

13. How often do you seek health services elsewhere (hospital, dispensary, local healer)?
( ) often ( ) rarely ( ) never

14. What is the most useful service offered by CHWs in Gichagi?
Choose 1:
( ) community level health education
( ) referral services to the primary (subcounty) hospital
( ) first aid ( ) home-based care ( ) deworming
( ) information, education and communication materials
( ) distribution of items such as condoms and water treatment tablets
( ) community integrated management of childhood illnesses and basic maternal care

15. Have you ever sought services from CHWs and not gotten what you needed? ( ) Yes ( ) No

a. If yes, what was the reason you could not get that service?
Choose 1:
( ) desired service not offered ( ) CHWs not available
( ) desired service unavailable/out of stock (e.g. water treatment tablets)
( ) other (please explain: _____)

16. Have you ever been visited by a CHW in your household? Yes ( ) No ( )

a. If yes, what health service(s) did they offer? _____

17. When was the last time a CHW visited your household for health purposes?
( ) This month ( ) Past two months ( ) Past six months
( ) Can't remember

18. How often would you like the CHWs to visit your household?
( ) Daily ( ) Once a week ( ) Once a month
( ) Would want no visit at all by CHWs
Other (specify): _____

THIS IS THE END OF THE SURVEY.
THANK YOU VERY MUCH FOR YOUR TIME!

Appendix II

Community Health Volunteers Focus Group Discussion Guide, Ministry of Health, Kajiado North Subcounty

My name is Megan (Maggie) and this Nicole and we are students from Emory University in the United States. We are working on our Masters in Public Health and we are here in Ngong working on a project to identify strengths and challenges of the Community Health Volunteer program that you are all a part of.

The goal of this focus group is identify and understand the community level perceptions of Community Health Volunteers (CHVs), the effectiveness of trainings and preparations, and possible solutions for improving CHV retention and activity. It is our hope that this focus group, as well as results from a community survey completed earlier this month, will help improve the effectiveness of and satisfaction with the CHV program.

You will not receive any personal benefits or compensation but the results should help improve the CHV program all together. The information collected today is completely confidential. The information gathered in today's discussion will not be connected to your name or any personal information.

In order to use the information moving forward I would like to record today's discussion. I will solely use the recording to listen to today's discussion. Is that okay with everyone?

Before we start I want to set some ground rules for the discussion. First, I truly want to gauge everyone's opinions on the topics we discuss, so please do not hesitate to speak whatever is on your mind. There are no right or wrong answers so please be respectful of your colleagues' thoughts. Second, please keep today's conversation in English. My Kiswahili skills are limited and I want to be able to use the discussion for future improvements. Lastly, please avoid speaking over one another. We want to hear everyone's thoughts and we want to be able to hear the discussion clearly on the recording. So please speak loudly, clearly, in English, and one at a time.

Our focus group will last approximately 1 hour. Does anyone have any questions before we begin?

1. First, lets go around the room and introduce ourselves to one another with your name, where you are from, and your favorite part about being a CHV.

Before we move on, I would like to pass around a handout. The handout has many of the questions we will discuss today. I will give you about 10-15 minutes now to answer the questions on the handout. Write down anything and everything that comes to mind. Please write clearly so I can collect these handouts later to compile information. Feel free to write more notes on the paper as we continue with today's discussion.

Okay let's start by talking about the general perceptions and activities of CHVs.

2. What do you think are the community's perceptions about community health volunteers?
    a. Probe: Trust? Satisfied?
3. What are the most common activities carried out by CHVs?
    a. Probe: Are these the activities most desired/requested by the community?
    b. Probe: How often? (How active?)
4. What are the challenges in your work as a CHV?

    a. Probe: What materials would you need to help you perform your work better?

Let's move on now and talk about the CHV training that you have all attended.

5. How does a CHVs' knowledge and skills change as a result of the training and working as a CHV?
6. How does a CHVs' attitudes and behavior change as a result of the training and working as a CHV?
7. What gaps are there in your CHV training that you would like to be addressed?
    a. Probe: What do community members ask you for that you cannot provide?

Our last topic will be motivation to keep you in the program and to increase activity.

8. What causes a volunteer to drop out of the CHV program?
9. What would help prevent volunteers from dropping out of the CHV program or what would motivate you to be more active as a CHV?
    a. Probe: Monetary vs. non-monetary incentives?
10. What are your thoughts on income generating activities for CHVs?
    a. Probe: What would you use the money for?
    b. Probe: Any current IGA activities?
    c. Brainstorm potential feasible and appropriate activities

Appendix III

Community Health Volunteers Focus Group Survey
Ministry of Health, Kajiado North Subcounty

1. What are the most common activities you carry out as a CHV? How often?

2. What are the challenges in your work as a CHV and what materials would help you perform better?

3. How did your CHV training impact your knowledge and skills?

4. How did your CHV training impact your attitudes and behavior?

5. What gaps are in your CHV training or technical trainings that you would like addressed?

6. What factors would motivate you to continue your work or be more active?

7. What are your thoughts on income generating activities for CHVs? What would you use the money for? What are some potential activities?

8. Any other comments or questions?