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**Village HopeCore International’s Award Winning Child and Maternal Health Program**

***A sixteen-year history***



Figure 1: A loan client, a health baby, and a dairy cow, summarizing HopeCore with one photo

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# Executive Summary

Village HopeCore International (HopeCore) is a small, innovative 501(c)(3) non-profit organization, registered as a non-governmental organization (NGO) in both Kenya and the United States. Village HopeCore International (HopeCore) has been an active NGO for over 15 years, has grown significantly during this time, and continues to identify gaps in programming and expand.

HopeCore focuses on poverty eradication through micro enterprise, health, and education. This report aims to give the reader a clear understanding of our ground-breaking Child and Maternal Health Program, provide context with regard to our community, the history of the program, and every programmatic component contributing to our great success in building a healthier community in Maara Sub-County.

Throughout this report, we will continually return to our organizational development philosophy of integrating income generation, health interventions, and capacity building or education as a means of poverty eradication.

Furthermore, it is important to highlight at the outset the degree to which our programs are integrated, comprehensive, and community-based. Very few organizations can say these adjectives truly describe their work, and we are proud to be one of the few.

This paper will walk the reader through the organizational history, our Child and Maternal Health Program, other supporting health programs and initiatives, and finally briefly touch on our Micro Enterprise program.

Additional data, programmatic results, photos, and suggestions for the future of Global Health are forthcoming and will be incorporated into this paper by the beginning of 2017.

# Introduction

Village HopeCore International (HopeCore) is a small, innovative 501(c)(3) non-profit organization, registered as a non-governmental organization (NGO) in both Kenya and the United States. Through microenterprise projects, clinical health services, and health education interventions, HopeCore is empowering people and improving the health of Chogoria and the rest of the Maara Sub-County. The project site is on the equator at 5,000 feet elevation and is a three and half hour drive north of Nairobi, Kenya’s capital.

HopeCore is dedicated to fostering integrated social and economic development in rural communities in Kenya and Africa. Our work falls within the framework of the United Nations Millennium Development Goals and Kenya’s Vision 2030. Our development philosophy is based on the belief that money alone cannot end the cycle of poverty.

Our **mission** is: Transforming lives through enterprise, health, and education. We promote the alleviation of poverty in Kenya, East Africa, by providing micro loans, business education, health education, and health support with an emphasis on HIV/AIDS, malaria, and mother/child wellness programs.

Our **vision** is a transformed, enabled, and empowered people of Kenya and the rest of Africa who can respond to their personal, social, and economic challenges effectively.

## Organizational History

HopeCore is a registered NGO with a mission to eradicate poverty and improve health in communities of rural Kenya.

Dr. Kajira “K.K.” Mugambi, HopeCore’s Founder and President/CEO, was born in a small village in Chogoria where he personally experienced hardships and the effects of poverty and disease as he saw children in his community, including his own family, die of clearly preventable diseases, such as malaria, diarrhea, and typhoid. He had to drop out of elementary school at nine years old because he could not afford the $8.00 annual school fee. He overcame these challenges and was able to travel to the United States for high school, earn a Doctorate in Law from the University of California, Los Angeles, become a member of the California State Bar Association, and become an Assistant Dean at the University of California, Los Angeles.

By founding HopeCore, Dr. Mugambi realized his dream of making a difference in the community of his birth and beyond. In 1993, he transitioned from practicing law in California to full-time management of HopeCore, with a firm determination to successfully eradicate poverty and improve health in Kenya’s rural communities through microenterprise for poverty eradication, public health, and capacity building beginning in Chogoria, his place of birth, with plans to expand to the rest of Tharaka Nithi County, Kenya, and Africa.

In 2000, HopeCore began an integrated development program in Chogoria and the surrounding villages. The program includes a Grameen-style village bank and a comprehensive village public health program. Dr. Mugambi now permanently resides in Chogoria and oversees HopeCore activities.

Dr. Philip Rasori has been a key part of HopeCore since his visit to Chogoria in 1987 and has been HopeCore’s medical director since the inception of HopeCore’s health program. Dr. Rasori teaches and consults in the field of global health, and for 17 years, taught global health and travel medicine as part of a program at the University of California, San Francisco School of Medicine. He continues to travel widely for his global health work and volunteers his services to HopeCore.

Dr. Rasori and HopeCore’s Board of Directors are based in the United States, while all programs operate from the Chogoria office. HopeCore differentiates itself from other organizations operating on a similar model because out of every $1 USD donated 99 cents is spent in Africa. All of the accounting and Board participation in the United States is done on a voluntary basis. The Board does not take advantage of travel expenses or other benefits as they continue to support HopeCore’s work in Chogoria.

HopeCore has been active in the Chogoria community and the surrounding villages for 16 years. While many non-profits cease operations after five to ten years, HopeCore continues to grow. HopeCore enjoys significant community support because of this lengthy relationship with Chogoria town and the surrounding villages.

The entire budget of our U.S.-based operations is underwritten by generous donors on our Board of Directors, which permits 99 cents of every $1 raised from our grants or other donors to be spent in Kenya. HopeCore continues to strengthen and expand its programs thanks to the grants and support offered by individual donors and grant-making foundations.

## Organizational Philosophy & Approach to Development

HopeCore has a multi-faceted philosophy it uses to approach development. The first facet is that poverty eradication should be approached as a “three-legs of the African stool.” These legs represent: **income generation**, **health intervention**, and **education**. All of the three ‘legs’ of the stool are necessary for poverty alleviation efforts to be successful, and attempts to achieve this goal that do not address all three legs will fail, just like a stool cannot stand with only two legs. Kofi Annan said,

“We shall not fully defeat AIDS, tuberculosis, malaria, or any other infectious disease that plague the developing world until we have also won the battle for safe drinking water, sanitation, and basic health care…The best cure for all these ills is economic growth and broad-based development.”[[1]](#footnote-1)

These three “legs” also directly affect the health of both mothers and children in communities. Mothers with increased income are better able to provide for the health and educational needs of their children. Furthermore, as will be discussed in later sections, educated mothers and communities are better able to support their children.

Building HopeCore’s development philosophy, it is imperative to describe our services. Our services, no matter which HopeCore “department” they are in, are **integrative, comprehensive, and community-based**. To read more about the integration, comprehensiveness, a degree to which we are in the community, review our health program section.

Both the development philosophy and approach to services will be discussed throughout this paper.

## Awards & Recognitions

Over the course of our 16-year history, HopeCore has received various awards and recognitions. We have included a brief outline of a selection of these awards to demonstrate both our local and international support.

In 2012, Dr. Mugambi received recognition from the Sub-County Ministry of Education as the Best Supporting Citizen in the Sub-County based on HopeCore’s contribution to the health of children, teachers, and staff in the Maara Sub-County. This award was given again in 2013 and 2014.

Additionally, in 2013, HopeCore received recognition from the Sub-County Ministry of Education as the Best Supporting Organization for the same reason listed above. This award was repeated in 2014.

Due to the belief that HopeCore has contributed and continues to contribute substantially to the realization of Kenya’s Vision 2030 in Maara Sub-County, HopeCore was made a member of the Maara Sub-County Government Development Council (MSDC).

Also in 2013, Dr. Mugambi received an award as a County Mushujaa (Hero) due to the work of HopeCore in the Maara Sub-County schools, health, and other areas of development.

In 2014, Dr. Mugambi was appointed as a County member of the National Council of Kenya NGOs due to HopeCore’s place in the community and its contribution to development.

On World Malaria Day, April 25, 2014, HopeCore was invited by the district hospital, Magutuni Hospital, and the Ministry of Health to attend an event supporting the eradication of malaria. This invitation recognizes HopeCore’s involvement and impact on malaria in Chogoria and the surrounding communities.

Finally, October 15, 2014 marked Global Hand Washing Day. The Maara Sub-County Ministry of Health hosted an event for invited community members, several government officials and over 200 school children from the surrounded communities. This event was held at Muthambi Field, and HopeCore was recognized as a guest of honor. HopeCore was presented with a certificate of recognition and appreciation for supporting good hygiene by providing clean drinking water and hand washing tanks to all 180 schools in the sub-county through our WASH program.

In late 2014, HopeCore participated in the IDEO.org challenge and was selected as one of three top ideas out of 441 submissions as being one of the most innovative ideas submitted. We will go into this recognition in significant detail later in this paper.

It was an honor to be invited to participate and be awarded certificates at these events. We appreciate the ongoing support and recognition by the various Sub-County Ministries and community members.

# Public Health Program

HopeCore’s school-based health program currently operates throughout the Maara Sub-County, Tharaka Nithi County, in Kenya, which is largely made up of young and impoverished people.

The number of school-aged population is likely to continue to increase in the future. The Ministry of Devolution and Planning (2013) reported that in 2009, 39% of populations were below 15 years old, and 26.7% were in the age group of 15–29 years old. The Ministry projects a steady increase of the county population from 365,330 in 2009 to 478,568 in 2017 at a steady growth rate of about 3%.

In addition to the high rate of growth Kenya, two-thirds of the population in Tharaka Nithi County are currently living under the poverty line. As stated by a doctor: “In lower-income communities (in Kenya), we find that life is hard. People do not have money to buy drugs, to see the doctor, to get their tests done.”[[2]](#footnote-2)

HopeCore’s health program has an expansive reach. With each of the programs operating in either the entirety of Maara Sub-County or some sub-section, we reach all 516 villages. Throughout the following sections, we aim to provide a sixteen-year history of how we have arrived to our award-winning child and maternal health program, outline the program design and approach to allow others to replicate the model in its entirety, or piece by piece, and demonstrate the impact we have seen so far. We have also outlined programs that support our Child and Maternal health program, each of these programs is integrated into our Child and Maternal Health support but for ease of reference we have separated them from the larger program.

## Public Health Programs History

HopeCore’s health program has been in existence since 2007 and focuses on an integrated, comprehensive, preventative approach to health.

HopeCore’s health care component first focused on providing good nutrition, clean water, and proper sanitation to HopeCore loan recipients and their families. After ten years, the program has helped to provide a renewable source of protein on each of its member’s farms in the way of either milk cows, milk goats and/or laying chickens.

In 2007, HopeCore initiated an HIV prevention and treatment program and was one of the first micro enterprise village banks to provide loans and HIV medications to HIV-positive individuals.

In 2008, a survey conducted by Stanford Medical students found that out of 1,000 individuals surveyed in HopeCore's program, 90% had had malaria and that 82% had recurrent malaria.

In response to this survey, in 2009, HopeCore began an aggressive malaria eradication project in our target area with the support from a Giving Hands grant. The campaign consisted of malaria prevention and treatment education to loan clients and distribution of long-lasting insecticide-treated nets to primary school students.

HopeCore’s malaria eradication program focused on prevention of malaria through education and the provision of long lasting insecticide treated mosquito nets. Through school-based distributions, we have reached over 19,200 individuals with mosquito nets, and educated approximately 18,000 parents on the topic. We will elaborate on our malaria prevention program in future sections presented within.

It was out of the HIV and malarial eradication programs that the HopeCore public health department was born. HopeCore began a school-based mobile clinic program in 2011 to provide health education and health services to 24 local primary and secondary schools; by May 2013 the program had expanded operations to 64 partner schools (reaching 19,000 students); by August 2014 to 72; and by June 2016 to 150 primary schools (every primary school in the Sub County) and 15 secondary schools. HopeCore aims to reach all 210 schools, both primary and secondary, with some form of clinical health services, by the middle of 2017. This goal will allow us to provide 45,000 school-going children with health care services three times a year.

In the beginning, each school-based mobile clinic had one nurse treating any pupil or teacher with an illness or health-related question without charge, and a community health educator conducting health education on various age-appropriate topics such as common diseases, proper hygiene and nutrition, adolescent changes, and HIV/AIDS to primary and secondary students separately.

HopeCore identified a gap in programming related to youth as well as mother and child wellness and incorporated new services to address these needs into already existing programs. In September 2014, however, we added a maternal and child health clinic to the two other activities occurring during our school mobile health clinics. Now mothers are invited to come and listen to a health lecture catered to them and their needs. Some of the most popular topics for this lecture include nutrition: what you should feed your child and when to keep them healthy, and family planning: what are the methods of family planning, what are their effects. HopeCore also offers free family planning services to any mother interested. After the lecture, Community Health Workers take children’s height, weight, and head circumference (for under 2 year olds) to measure whether the child is in the ‘normal’ growth category. Special consultations are provided to mother’s whose children fall outside the normal growth range. Mothers are also able to access the free clinical services being offered by our nurses next door.

Beginning in 2016, we are able to consistently provide regular deworming services: Now offering all children under 5 years old preventative dewormers every semester at every primary school in the Maara Sub-County, only made possible by the support of Vitamin Angels.

HopeCore launched a youth-peer provider program, funded through support from Planned Parenthood Global (PPG) in 2012. This program focuses on sexual and reproductive health services and education for both in-school and out-of-school youth (ages 9-24 years). This program is ongoing, and is an important component of the public health department. HopeCore aims to expand the current PPG program to a larger sexual and reproductive health program that will continue to be an integral part of the department.

In addition to the integrated malaria prevention program, mobile health clinics, and the PPG program, in July 2013, HopeCore launched its water, sanitation, and hygiene (WASH) program and began installing clean drinking water and hand washing tanks in schools in the Maara Sub-County. Originally, the schools receiving these tanks were limited, but HopeCore is proud to say that by the end of August 2014, each of the 184 registered schools in the Maara Sub-County had been given a clean drinking water source and hand washing stations. Twenty new schools have been registered since 2014, and HopeCore aims to bring the WASH program to all newly registered schools by the end of 2016. Due to our work, over 45,000 students have access to clean drinking water and hand washing facilities while in school. We continue to monitor all donated tanks to ensure proper use and we are seeing positive results from this process.

In 2015, HopeCore also initiated a self-sustaining soap program, through which we provide soap to schools on an as-needed basis, and they in turn give a small stipend per student.

One of the questions we had received about our WASH Program was: You are providing children with clean drinking water, soap and WaterGuard while at school, but what happens when they go home at night and drink dirty water?

In response to this criticism, and to deepen the impact of our WASH program, the School-to-Community (STC) program was launched in late 2014. The STC program consists of one of our community health workers traveling to a selected number of schools (currently around 38 schools in the Chogoria region) to teach students in their health club on four hygiene specific topics throughout the semester, such as: hygiene and sanitation at home, adolescence, reproduction, STIS, diseases caused by bad hygiene, and the use of WaterGuard. More information is available in the supporting programs section of this report.

HopeCore also piloted a program called: “Mothers 2 Mothers” in the spring of 2016 with help from the grant from Amplify. Mothers 2 Mothers is similar to the School-to-Community program in that it is an answer to the question of how HopeCore attempts to bring health lectures taught at school back to the community. Similar to the previously mentioned programs, more details are available later in this paper.

Spring 2016 also saw the initiation of HopeCore’s Market Outreach Events. A team of HopeCore Community Health Workers and two HopeCore nurses travel to a popular marketplace, set up a tent, and offers the community free HIV, blood glucose, blood pressure testing and many other services.

HopeCore began piloting the free health advice line in the first quarter of 2016. The goal of the free health advice line is similar to many of our other programs, and is to be able to access and give access to health care to those who cannot always afford to seek it out on their own. It is for the mother who stays up late with their child who is feverish, wondering if it is malaria, but waiting to see if it goes down. It she waits too long to seek treatment for her infant or child, it could be too late. Our hotline is available 24/7. A HopeCore nurse is available at all times for community members to discuss symptoms, or just to ask for advice. Help is completely free, and anonymous. The goal is to have our nurses offer the advice and next steps to the mother that can treat her child herself, such as the purchase of Oral Rehydration Therapy to recover from diarrhea, or offer a transport stipend for those who do require a trip to the hospital once all symptoms are revealed. After a route to recovery is suggested, our nurses follow-up in a couple of days to see how effective the treatment suggested was, and make a house visit if necessary. HopeCore has recently also realized that patients often appreciate building a rapport with their nurse. To offer a continued connection between nurse and client, all the nursing staff now have their own phones and can be called directly if any symptoms should occur.

The history of the program is key because each program grew out of an identified need in the community and demonstrates our dedication to an integrated, comprehensive, and community-based program. Now that we have clearly outlined the history and development of the program we will delve into design philosophy.

## Program Design Philosophy

As demonstrated through the history of the program, ultimately our programs are informed by the end user, or community. As an organization, we identify gaps in the current offerings in the community and try to address the need. Whether they are economic empowerment opportunities or health opportunities we aim to help our community members have sustainable livelihoods.

Our health interventions, in particular, are heavily influenced by the three areas we outlined previously: integrated programs, comprehensive programs, and community-based programs.

**Integrated Programs**

HopeCore offers integrative services, in that we offer interventions to prevent disease, curative services, counselling on different chronic health issues, and provide follow-up if it has been deemed necessary by our qualified nursing staff. Through these methods, we cover every stage of health complications experienced by our communities, and prevent them from occurring. The concept of offering integrative health services sounds mundane, but its actual implementation in the field is extremely rare.

Many public health programs around the world offer only preventative services, only curative services, or gloss over the importance of educating the community about health issues. To combine the three is an essential goal of our program, and we are proud to report we are succeeding in achieving said goal.

**Comprehensive Programs**

HopeCore’s health services also aim to be comprehensive by incorporating the 14 maternal and child survival technologies identified by our Medical Director, Dr. Phil Rasori, as absolutely essential for healthy and happy mothers and children.

As HopeCore, we feel that if we are able to educate on the 14 maternal and child survival technologies to the point where clients understand and implement what they are taught, the health of the general community would vastly improve. The 14 technologies include: Consuming only clean drinking water, regular hand washing, staying up-to-date with basic immunizations, basic antibiotics access, oral rehydration therapy to recoup nutrients lost during bouts of diarrhea, Vitamin A supplementation, round worm deworming, growth chart monitoring, prolonged breast feeding, using proper child spacing techniques, all members of the household sleeping under malaria preventing bed nets, HIV testing and counseling, basic prenatal care and follow-up, and finally family planning education and access.[[3]](#footnote-3)

These 14 maternal and child survival technologies have been shown to be the most important points for maintaining good health in village level health care. HopeCore’s approach to combining all these different methods is influenced by the belief that they are equal to greater than the sum of their parts. If you offer basic antibiotics for children when they are sick, but do not teach them about the importance of good hygiene, they can still suffer from life threatening diarrhea. If you teach them about good hygiene, but not to sleep under a malaria bed net, they could still get infected with malaria. All of these points need to be taught together as a package. This is what HopeCore attempts to offer through our health services to the Maara Sub-County.

**Community Based Programs**

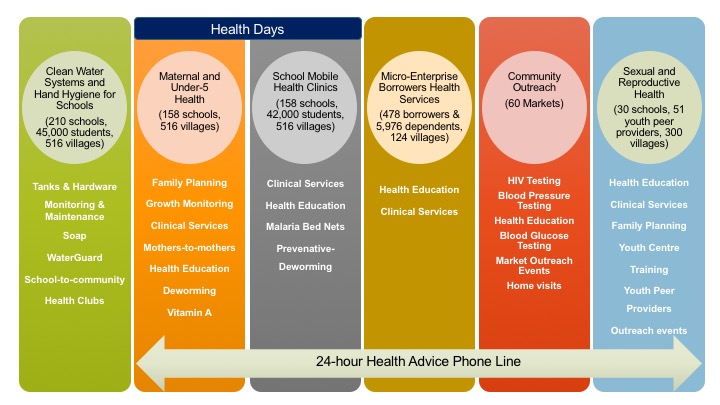
If a program is integrative and comprehensive, but is not implemented at the community level, it often falls short of reaching its goal of having any real impact on the lives of those around them. HopeCore’s programs are implemented on the community level. Every day, our approximately 30 Community Health Workers are in the field, reaching new enclaves within our target population. We visit all the primary schools in the Maara Sub-County with our Maternal and Child Health Clinics/Health Days once a semester, or three times a year. In this way, we reach 516 villages spanning 184+ schools and approximately 45,000 students.

Furthermore, we are not only in the schools, but working in popular, busy markets, and even walking door to door for home visits.

The above Public Health sections have outlined the history of the health program and a brief introduction to the various program components and the design philosophy informing the program. The next sections within this description of our Public Health program will provide a detailed account on how the program fully developed through identifying community needs, gaps in the health services offered, and how we are addressing key health interventions. First we will outline the current programs that contribute to our healthy community, then specifically address our Child and Maternal Health program in detail, followed by supporting programs.

## Program Diagram

As demonstrated through the programmatic history and the design philosophy above, our public health program is comprehensive and integrated; the diagram on the following page demonstrates individual components of the larger program.



We will now walk through each one of the programs above, starting with the Health Days- as represented by the orange *Maternal and Under-5 Health Program* and the grey *School Mobile Health Clinics Program*. We will then walk through the supporting health programs *Health Advice Phone Line,* Clean *Water Systems and Hand Hygiene for Schools, Sexual and Reproductive Health, Community Outreach, and Micro Enterprise Borrowers’ Health Services.* Finally, we will walk through the other supporting health projects that are sub-categories of those outlined above.

## Child & Maternal Health Program – Health Days

Through the health days, we provide health services and treatment. These treatment services are provided at no cost to the mothers and children. The treatment services are brought to the women who need them, rather than waiting for the women to come to our clinic.

Our free health services and treatment services go beyond treatment of visible illnesses and cross over into the modalities of prevention and advising.

The health days are an essential component of the public health activities, with a goal to improve the health of children, aged zero to eighteen, and mothers, by preventing disease and detecting and treating health problems early. By working with all of the schools in the Maara Sub-County, we effectively and efficiently reach approximately 45,000 children, often reaching those whose parents might not otherwise seek out treatment, and reaching their mothers and siblings who are not yet attending school.

As previously stated, HopeCore’s child and maternal health program is based on the theory that if we are able to spread awareness about and offer preventative services for 14 maternal and child survival technologies, we can heavily decrease the number of children dying before they turn five of mostly preventable illnesses, and empower women to be informed about how to keep their children healthy and be in control of their own sexual and reproductive health.

### Problem Statement

While the neonatal mortality rate declined 47% between 1990 and 2015, from 36 to 19 deaths per 1,000 live births (or 5.1 to 2.7 million), there is still much to be done in this area[[4]](#footnote-4). Neonatal mortality still accounts for 35 per cent of all under 5 deaths in Sub-Saharan Africa[[5]](#footnote-5), and over 7 million children worldwide every year. These deaths are due to mainly preventable and treatable illnesses, including pneumonia, diarrhea, malaria, and undernutrition (1/3 of all deaths)[[6]](#footnote-6). Furthermore, the death risk is nearly entirely centralized in the developing world, as “ninety-nine percent of maternal and newborn mortality occurs (there)”.[[7]](#footnote-7)

More specifically, Kenya currently ranks 39th globally in under 5 deaths; with a 52 deaths per 1,000 under 5s down from 74 in 2008[[8]](#footnote-8). The Kenyan Bureau of Statistics attributes this decrease to the use of mosquito nets, and an increased number of births being assisted by a skilled provider.

The fact that “socioeconomic status is a key determinant of survival, with children in the lowest wealth quintile 44% more likely to die before age 5 than those in the highest quintile…(with) the richest families 3 times more likely to receive care than the poorest families” is not a reality HopeCore will accept[[9]](#footnote-9). As outlined above, our community based programs aim to bring our services to the community rather than waiting for them to come to us. We offer preventative services, and our priority population is the lowest wealth quintile. We hope to lift the quality of health services our community recieves and to bring the services to the beneficiaries.

Due to the fact that improving the health of mothers and providing quality reproductive health services lowers the incidence of child morbidity and mortality,[[10]](#footnote-10) and the fact that the education level of the mother is directly linked to the health of the child and child mortality rates,[[11]](#footnote-11) HopeCore realizes that in order to tackle child health problems in a comprehensive and holistic manner, the health of mothers must also be improved.

In Kenya, the maternal mortality rate remains high at 488 maternal deaths per 100,000 live births. While this is lower than the regional average of 640 deaths per 100,000 births, Kenya continues to improve more slowly than hoped.[[12]](#footnote-12)

92% of women receive some form of antenatal care during their pregnancy in Kenya, but only 47% follow recommended visit schedules.[[13]](#footnote-13) Disappointingly, “the rates of antenatal care and skilled birth attendance have even declined over the past 10 years, particularly among the poor.” Similarly, to children in the lowest wealth quintiles being more heavily hit by health issues than their wealthier counterparts, “women with (lower incomes) and no education are much less likely to receive antenatal care.”[[14]](#footnote-14)

### Program Evolution

Although we have already gone through the overarching history of the program, we feel it is important to emphasize the history of our Child and Maternal Health Program. The HopeCore health program started through partnerships with the schools because it was the most direct and consistent point of access to the largest numbers of people in the community.

HopeCore’s Health Day began with a HopeCore staff providing health education and health services to 24 primary and secondary schools in 2011. Today, only five years later, this program now reaches the entirety of the Maara Sub-County. The idea behind the initiation of HopeCore’s Health Day was to go to the community instead of waiting for them to come to the clinic, or a hospital. We briefly described this program in the introduction, but will take the time now to flesh out the methodology and logic behind the creation of the program.

HopeCore’s school-based mobile health clinics, focusing on school-children, had been very successful and had a great impact on the health of the children in the Maara Sub-County. But we began to recognize that there was a gap in our programming. Mothers had no source of adequate information to help their children stay healthy, and furthermore, there were many children who arrived at school (age 4 or 5) who already showed signs of long-term complications due to recurrent childhood illnesses.

HopeCore began inviting parents to come to the schools for specific lectures on malaria prevention. The turnout for these singular events was always very high, indicating to our team there was a desire for more health information in the community.

Due to this show of interest, we made the decision to move from only treating school children during our school mobile health clinics, to treating their mothers and children under five years of age.

By educating mothers, we have a significant impact on the health of their children. As Kenya’s Bureau of Statistics found: “the biggest differential in the under-5 mortality ratio in Kenya is related to mother’s education. Children whose mothers are not educated are 46% more likely to die before age 5.”[[15]](#footnote-15) Furthermore, studies have actually shown that “mother’s health knowledge is the main pathway through with mother’s education affects child health outcomes.”[[16]](#footnote-16)

By providing clinical services to children under 5 years old, HopeCore hopes to see healthier children entering school at age 4.

Through our Maternal and Child Health program, we transitioned from treating and educating school children alone to treating and educating whole communities. As outlined above, this program has been informed by 15 years of experience in the village working with schools, loan clients, and the larger community. We have continually received awards from the Sub-County Government recognizing our contribution to the school system and the health of the children.

In September 2014, to address the aforementioned gap, HopeCore launched a pilot mother and child wellness clinic. By working through pre-existing relationships with primary schools, HopeCore was able to access mothers and under-five children. By addressing health questions and concerns the mothers have, we are contributing to their health, as well as the health of their families. Additionally, by treating children under five years of age, we are contributing to the life-long health of the child as child health is critically important to the health of the whole community. “Proper nutrition during the first two years of life is crucial for child health, physical growth, and mental development. Poor nutrition…can lead to poor schooling outcomes, adversely affecting productivity later in life, which results in low economic growth.”[[17]](#footnote-17)

The first two clinics, held at Munga Primary School and Iruma Primary School were great successes. Approximately 225 mothers and 1 father received health education on hygiene, nutrition, breastfeeding, immunizations, and family planning. Additionally, 116 under-5-year-old children were seen, and those who required it received Vitamin A doses and/or deworming medication. Seventeen (17) mothers received family planning methods.

Before the clinic, we communicated to mothers that they should bring their growth charts and immunization cards from the Ministry of Health. With that background information on hand, HopeCore clinicians were able to counsel mothers more effectively.

Though the clinic was done through the school, women from the community were invited to come as well, and women who did not have children at the school attended. This demonstrated to our team the great desire for a program of this sort in these rural communities.

Additionally, after gathering input from community members, designing the program, and piloting the program, we received confirmation of a grant from Children’s Hunger Relief fund in December 2014 to launch the MCH workshop program in March 2015.

HopeCore also participated in an online challenge via IDEO.org, and sponsored by the Department for International Development (DFiD) which asked the question: “How might parents in low-income communities ensure children thrive in their first five years?” The competition was rigorous. It began with 441 ideas. After the first round of selections, only 31 organizations moved forward. As we were given the opportunity to pilot our projects and refine our ideas, 10 projects were selected to continue on as finalists.

In the end was are proud to say that HopeCore’s Maternal and Child Health Program concept was funded with only two other projects. Our project was selected because judges of the contest saw this program as one of the most innovative and creative solutions to the problem facing Sub-Saharan Africa today of Maternal and Child Health. In the next section, we will outline the theory behind the structure of the program, and continue to demonstrate why it was selected by IDEO.org for funding.

### Child Health Survival Technologies

The 14 child health survival technologies outlined below inform and guide our whole maternal and child health programs and approach. Each decision we make tries to incorporate, in an integrated way, the 14 approaches below.

When we discuss the logistics of the program, we will address how each step of the process connects back to the child health survival technologies.

#### Basic Immunizations

One of the first steps of our basic form is to review the Maternal and Child Health Booklet that every mother gets when her child is born. We request that mothers bring these booklets to our workshops, but they do not always come prepared. Therefore, we also ask about basic immunizations directly to demonstrate the importance of these immunizations to each mother.

If our CHWs discover, while filling out the standard form with a mother, that her child is not up-to-date on their immunizations, they inform them further about the importance of this and counsel them on how they can update these, usually referring to them to the Ministry of Public Health, where immunizations are offered for free. The immunization rate in our Sub-County is relatively high, at 81.8% in the most recent data report from the Kenya Bureau of Statistics.

#### Basic Antibiotics

“*Since their discovery in the early 20th century, antibiotics and related medicinal drugs have substantially reduced the threat posed by infectious diseases…Antimicrobials have saved the lives and eased the suffering of millions of people, especially in developing countries…even in conditions of abject poverty and poor infrastructure, antibiotics have worked wonders*.”[[18]](#footnote-18)

If children or mothers attending our clinic are in need of basic antibiotics, they are referred to the nurses in our mobile clinic, who provide them with the medicines and information they need to fight off the infection.

If it is determined through review of clinical guidelines that a less common antibiotic is required, our nurses source the antibiotic and conduct a follow up visit to the patient in the following days to deliver the medication and to confirm the clinical diagnosis.

#### Breast Feeding

HopeCore promotes children always being exclusively breastfed for a minimum of six months. Only after this period, should food be slowly introduced into their diet. This is due to the fact that babies stomachs are not always developed enough to digest certain foods. We teach mothers about which foods can be introduced at what age and emphasize the importance of continuing to breastfeed until the child is at least 12 months whether other foods are being introduced or not.

The necessity of continued breastfeeding through *at least* one year is due to the fact that mother’s milk has many vitamins and minerals which babies need to grow. UNICEF has found that “an exclusively breastfed child is 14 times less likely to die in the first six months…and breastfeeding drastically reduces deaths from acute respiratory infection and diarrhea two major child killers.” [[19]](#footnote-19) Furthermore, breastfeeding is seen as the foundation for good nutrition, it improves immune system functioning, and assists in “healthy brain development, improves cognitive performance and is associate with better educational achievement at age 5.” In other words, it assists the child in becoming the best happy, healthy, and thriving version of themselves possible. It is believed that if women around the world would persist in breastfeeding children under 2 more often, 800,000 lives could be saved (13% of all child deaths under 5 in the developing world).[[20]](#footnote-20)

For this reason, HopeCore makes sure to consult with all the women who visit our clinic about the importance of breastfeeding. In addition to teaching mother why is it so important to breastfeed, we teach them how to breastfeed if they are having any difficulties in this area, which are more common than one would think.

While this topic is covered briefly with all mothers, in our nutrition presentation, we take more time to discuss additional details and information about breastfeeding. We take the time to debunk common myths about breastfeeding, such as a breastfeeding baby needs extra water in hot weather, that breast milk alone is not sufficient enough for a baby’s growth, that formula or cow’s milk is better than breast milk, or that HIV positive women should not breastfeed. We then inform the attending mothers how an HIV positive mom can safely breastfeed while taking antiretroviral medication.

#### Clean Water

As 50% of undernutrition is associated with repeated diarrhea or intestinal worm infections caused by unsafe and inadequate water, sanitation and hygiene, we go over some simple rules for mothers to improve the hygiene and sanitation within their own home to prevent illness.

Contaminated water can transmit diseases such as diarrhea, cholera, dysentery, typhoid and polio and is estimated to cause 502,000 diarrheal deaths each year.[[21]](#footnote-21) For this reason, feeding a child only boiled or treated water is extremely important, and we emphasize this to the mothers who attend our lectures. It is also important to cook food thoroughly (make sure juices are clear instead of pink), not leave food out for more than two hours, to keep raw fish and meat separate from cooked food and use different utensils to prepare them, and cover food if exposed to bugs to avoid it from becoming contaminated.

We inform mothers that they should make sure fresh milk has been boiled or pasteurized, and to wash fruits and vegetables with water before preparing. With these seemingly simple, but not well observed, rules mothers can have a positive impact on the health of their children and other member of the family within the home.

#### Hand Washing

We take time to teach mothers about the importance of regular handwashing and demonstrate proper handwashing techniques. We inform attendees that in order to stay healthy, one should always wash their hands after using the toilet, while preparing food, and before eating to protect from diseases being spread by germs. Handwashing with soap has been “cited as one of the most cost-effective interventions to prevent diarrhoeal related disease,” and has been shown that it can reduce diarrhea rates by more than 40 per cent.[[22]](#footnote-22) For this reason, we make sure to describe the consequences for failing to wash hands, and demonstrate proper handwashing techniques (during the nutrition lecture).

#### Growth Chart Monitoring

In addition to teaching mothers about the importance of keep their children healthy by feeding them diverse and nutrient-rich foods, as we will discuss later, we monitor the growth of each child under 5 years old attending the Maternal and Child Health Clinic. The goal of the growth monitoring activity is to determine whether a child is healthy and growing and developing at a normal rate.

Growth monitoring is directly connected to a discussion around nutrition and represents good nutrition in the list of our 14 child health survival and maternal well-being technologies list. In our educate section below, we will share the content of our nutritional lectures. Educating mothers on nutrition is an essential part of our Child and Maternal Health program.

If a child differentiates too greatly from the normal ‘z score’ of their peer of the same sex as established by the WHO (or are 2 measurements above - Microcephaly or below - Macrocephaly) our Community Health Workers note this information and pull the mother aside to speak with her further about her child’s nutrition and growth. If our Community Health Workers feel there is a serious issue with the nutrition or obesity of the child, we refer them to a dietician. Luckily, of the 1,711 children we have monitored for growth since the beginning of 2016, we have only felt the need to refer 74 to a dietician, or just 4% of the total monitored.[[23]](#footnote-23)

We hope in the future that we will be able strengthen our nutritional program by giving nutritional supplements to children who have been identified as malnourished per the growth monitoring findings.

#### Vitamin A Supplementation

Vitamin A is extremely important to the healthy development of children. Many ignore the fact, however, that the intake of Vitamin A is important for pregnant women, even before a child is born. When children do not receive a sufficient amount of Vitamin A, their immune system is weakened, making them more likely to experience night blindness, and less capable of resisting diarrhea, measles and acute respiratory infections. Getting the proper amount of Vitamin A has been found to reduce childhood mortality by 23 per cent.

Infants do naturally receive an acceptable amount of Vitamin A purely from their mother’s milk, which again reiterates that breastfeeding is extremely important for the health of every child. UNICEF stated: “At just a few cents a capsule, Vitamin A is an extremely cost-effective, efficient method for addressing Vitamin A Deficiency (VAD).”[[24]](#footnote-24)

For this reason, we inform the attending mothers that Vitamin A is important for bone growth, can prevent eye problems, keeps your skin looking healthy, and helps boost children’s immune system. We recommend children receive Vitamin A supplements every 6 months, and provide a supplement to all children under 5 who have not received one within that time period at our clinics.

When educating mothers, we use graphics and photos to show what types of foods they can feed their children in order to offer Vitamin A. Some locally grown foods that we direct them to include, carrots, avocado, melon, peppers, eggs, fish, meat, papaya, squash, and sweet potato.

Currently, our Vitamin A supplements are provided by Vitamin Angels. We hope in the future that we will be able expand our Vitamin A program to also provide supplements to pregnant and breastfeeding women, as the Kenya Bureau of Statistics and the UN Children’s Fund reported that: “giving Vitamin A to new mothers who are breastfeeding helps protect their children during the first months of life and helps to replenish the mother’s stores of Vitamin A, which are depleted during pregnancy and lactation.”[[25]](#footnote-25)

#### Child Spacing

Family planning, will be defined and elaborated on in another one of the technologies. Family planning is important as it helps to properly space the time between which women have children (*child spacing*), and allows the family to determine exactly how many dependents they can afford. As many of HopeCore’s clients are subsistence farmers, it is often the case that their small farms will produce the exact same amount of food no matter how many mouths it must feed, decreasing the amount of food with every additional mouth. Large numbers of people sharing the same space also increases chances of spreading infection and home accidents. All in all, less children enable parents to: “better feed, clothe and educate” each child, which makes them into more productive members of society.[[26]](#footnote-26)

Child spacing is important to all those involved: the child who is already born, the mother and the fetus.

While a woman is pregnant, she utilizes a good amount of her naturally produced nutrients. She needs: “not only a good diet but also adequate time in between pregnancies to regain these nutrients.” If she becomes pregnant again too quickly, she may not have enough nutrients for the newly developing fetus, increasing the neonatal and infant mortality rates. The longer she waits between having children (2-3 years is best), the more likely it is that her child will survive.[[27]](#footnote-27)

“Pregnancies not properly spaced not only weaken the growing fetus but also the mother. Her immune system can become weakened, making her more susceptible to infections and disease, as well as bouts of lethargy, being unable to work hard and care for her children.[[28]](#footnote-28)

The infant child, who will be forced, inevitably, to be weaned too soon from breastfeeding once their younger sibling is born, can often result in the malnutrition of the older child as well.[[29]](#footnote-29)

For all these reasons, we teach mothers about the importance of child spacing to ensure mother, and all children involved stay as healthy as possible.

#### HIV Testing and Counseling

It is important that sexually active adults understand the role HIV could have when they are trying to plan a family.

Approximately 1.6 million individuals, or 6% of the Kenyan population is infected with HIV, making it one of six HIV ‘high burden’ countries in Africa. While the rate in Tharaka Nithi County, where HopeCore operates, is slightly lower, at 4.3%, it is important to note that the highest rate of transmission occurs in, “heterosexual sex within union.” This type of transmission accounts for 44% of all transmissions. This means that many people are going outside the home, becoming infected with HIV, and giving it to their spouse when they return home. We try to sensitize the community to these complexities and misunderstandings surrounding transmission.

On a positive note, “90% of people who tested positive for HIV in Sub-Saharan Africa went on to access antiretroviral therapy (ART), and 76% of these have achieved viral suppression, whereby they are unlikely to transmit the virus to their sexual partners.”[[30]](#footnote-30) The report found a 1% decrease in newly-diagnosed HIV infections for every 10% coverage of ART, and have promised the supply of ART available will cover over the number of people who need to take the drugs.

HopeCore informs those attending our workshops that condoms are the ONLY form of birth control which can prevent HIV positive people from transmitting the disease to others, and that it is true, as stated above, that antiretroviral therapy (ART) can decrease the chance of infecting your partner. We suggest that couples attend a clinic and get tested together in support of one another and to know one another status. HopeCore can provide HIV testing and referrals to anyone who receives a positive result.

For pregnant women or those considering getting pregnant, it is absolutely essential she know her status to prevent, in all ways possible, the transmission to the fetus while in utero or after being born via breast feeding. We inform women that as long as they are taking their antiretroviral medication (ARV), that the chance they can give HIV to their breastfeeding infant is very low, and has been found in one study to be as low as 1.8%. Furthermore, a WHO-led study concluded that: “giving HIV-positive mothers a combination of antiretroviral medication during pregnancy, delivery and breastfeeding reduced the risk of HIV transmission to infants by 42%.[[31]](#footnote-31)

#### Family Planning Access

***“When a couple or individual intentionally decide when to start and stop having children, how many children to have, and how often to have children.”***

The importance of child spacing was already outlined, one aspect of this could be access to family planning. One survey conducted found that 100 million women (that is 10 to 40 percent) in developing countries would prefer to limit family size or increase spacing between births but lack access to family planning most likely due to either a lack of knowledge about contraceptive methods and availability, and concern of the health effects of contraception. This, coupled with the fact that family planning is widely recognized as “one of the most cost-effective health interventions,”

By teaching women who attend our Maternal and Child Health Clinics about how they can access family planning methods, the different methods available, how to correctly use contraceptives, and the low health risks associated with contraceptives, HopeCore is reaching more of this group of women every day.

Maintaining high birth rates in developing countries impedes economic development, increases health risks for women and children, reduces access to education, nutrition, employment, and stretches scarce resources every thinner.[[32]](#footnote-32) Alternatively, family planning contributes to:

“better nutritional status...larger incomes, greater accumulation of wealth, higher levels of education…(women) are more likely to have had antenatal care and optimal spacing between births, and a lower risk of dying from pregnancy-related complications…children were more likely to be immunized…child mortality (deaths before age 5) decreased by at least 20 percent…improved access to water.”

In the end, it is safe to say families utilizing family planning enjoy a higher standard of living than those who do not. For all of these reasons, family planning is now seen and is an essential component of sustainable development and poverty alleviation, with women opting, when given the opportunity to have fewer children and invest more in their families.[[33]](#footnote-33)

At the Maternal and Child Health Clinics, we often present all family planning methods available to attendees. The family planning methods presented are broken down into three categories: short-acting methods, long-acting methods, and permanent methods. Short-acting methods include: the pill, condoms, Depo Provera shots, moon beads, and breastfeeding; long-acting methods include: Implants and IUDs; and permanent methods include: Tubal ligation and Vasectomy.

We inform women that condoms are the *only* effective method for preventing the transmission of STIs and HIV. In this way, they are the safest method of birth control. However, condoms are only as effective if you use them every time. We take time to dispel the fear that condoms can become stuck in a women’s body, and that the pill will make women barren. Finally, we close by offering anyone interested further counseling and assistance, and answering any questions the mothers may have.

#### Basic Prenatal Care and Follow Up

As a mother’s nutrients are essential to a fetus in vitro, ensuring a mother remains healthy throughout her pregnancy can be just as or even more important than after she gives birth.

Currently we focus on educating mothers on the need for basic prenatal care and follow up. We encourage all mothers to seek out this type of care from their area dispensaries and identify possible places to refer them if they do not already have access to this resource.

To expand the program, we have received pre-natal vitamins to begin giving out to women who are pregnant at our Maternal and Child Health Clinics from Vitamin Angels. We will begin distribution of these vitamins in the first quarter of 2017.

When our nurses identify high risk pregnant women, e.g., they are young, have had multiple children without practicing spacing, they conduct individual follow ups to ensure the mothers are accessing the care and follow up they require.

Finally, after our high risk pregnant women have had their children, our nurses continue to conduct follow ups to ensure that mothers are bringing their children for initial visits, and accessing family planning if they so desire.

#### Malaria Bed Nets

Due to the fact that 28 million Kenyans live in an area where they are at risk for contracting malaria (3 out of every 4 Kenyans), and 20% of deaths among children under 5 are caused by malaria (or 3,000 yearly), this is a very disease to cover with mothers of children under 5. As malaria is a preventable disease, we teach mothers about how it is transmitted, about those most vulnerable to the diseases, and some techniques they can use to avoid themselves or their children suffering from this illness.

One such technique is to ensure that everyone in their household sleeps under a treated anti-malarial net every night while the mosquitoes are most active. We also teach them about the most common symptoms of malaria including headache, fever, chills, sweating, dry cough, and nausea, so that if their child falls ill they take them to a doctor right away.

HopeCore’s malaria program is expanded upon in the supporting program section below and includes:

* Malaria trainings about preventing, testing, and treatment
* Community outreach events at churches, schools and barazas
* Distribution of long-lasting insecticide treated mosquito nets
* Home health visits
* Community education through photos and murals

Since HopeCore began our anti-malarial program in the Chogoria area in 2010, the incidence of malaria has decreased by 40%. When they are available, we distribute one net to mothers per child under five. HopeCore has distributed a total of approximately 19,200 nets and educated over 5,000 parents on malaria prevention since the inception of this program, as detailed in later sections.

#### Oral Rehydration Therapy

Diarrhea is the second most common illness afflicting children under 5 in the Maara Sub-County (8.1%), and also in the developing world more generally, where it kills 760,000 every year and causes morbidity in 1.7 billion. It has also been shown that repeated diarrhea is the number one cause of malnutrition for children under five.

Despite these facts, diarrhea should never be deadly, as it is both preventable and treatable. It can be prevented by drinking clean, treated, or boiled water and maintaining proper hygiene and sanitation. It can be treated by using Oral Rehydration Therapy (ORT). For this reason, HopeCore teaches mothers about proper hygiene, about how diarrhea causes children to lose necessary vitamins and liquids which, if not recuperated via feeding them ORT, can lead to malnutrition and dehydration, and about where they can buy ORT at a very reasonable rate.

We encourage mothers to make use of our health advice line if they have any questions or suspect dehydration and can also remind them of the importance and ease of use of ORT.

We work to education the mothers to identify danger signs of dehydration in their infant, describe how and when ORT should be used, and when to seek help from medical professionals.

Oral Rehydration Therapy is also extremely easy to make. In the future we hope to incorporate sharing a recipe for ORT with our mothers and teaching them how to make their own ORT at home for even less than they are purchasing it for at market rates.

#### Round Worm Deworming

There are 2 billion people infected worldwide with worms, including 870 million children. Worms are parasitic in nature and are normally spread through poor sanitation and hygiene, traveling from dirt to skin, mouth, and then ingested. They are more commonly found in warm, tropical climates and crowded areas, such as a Kenyan primary or secondary school.

When a child becomes infected with worms, the worm consumes their normal nutrients, leading to children suffering from serious fatigue, and lacking the energy to take part in everyday activities, such as attending school. The importance and utility of deworming is well illustrated by a study of the International Epidemiological Association of school-based deworming in Kenya which found that[[34]](#footnote-34) deworming programs: “reduce school absenteeism…by one-quarter, are cheaper than alternative methods for increasing school participation, an (also) appear to improve school attendance in schools where no children were treated.”

Worms can infect someone for their whole lives unless treated, and can cause long-term conditions such as intestinal obstruction, inflammation of the intestines, gall bladder, pancreas, or sack around the liver (perintonitis), kidney disease, pus accumulation in the liver, appendicitis, encephalopathy (a brain disorder), cardiomyopathy (disease of the heart muscle), and blindness. Most often, HopeCore identifies short-term symptoms of worms, such as abnormal growth on the skin and malnutrition.[[35]](#footnote-35) Malnutrition is not only a symptom of worms but also a cause, as getting enough nutrients and staying healthy is a doctor prescribed prevention and treatment method to avoid worms.

Due to the affordability and effectiveness of this simple health intervention, HopeCore is committed to preventatively deworming all children under 5 in Maara Sub-County two times every year with the help and support of Vitamin Angels. We also provide deworming medication to primary school children in cases where we have reason to believe they are currently infected by worms.

We include a short synopsis on this topic for mothers attending our clinic, including information about how people are infected with worms, how proper hygienic behavior can prevent the spread of worms, and on describe different types and symptoms, as well as treatment of worms.

Now that the 14 child health survival and maternal well-being technologies have been outlined and explained in detail, this report will walk through the methodology of the day, the modalities of the program, and finally, the logistics of the health day.

### Methodology of Health Day

*Why does HopeCore visit schools to bring medical services via Health Days?*

The necessity of HopeCore traveling with our nurses, staff, and medications into rural communities, often cut off by bad roads and the cost of transportation to hospitals, and offering services is best understood within the larger context of the relationship poor rural populations have with health care facilities.

“*Dying for Change: Poor People’s Experience of Health and Ill-Health*,” a joint publication from the World Bank and World Health Organization, describes the heartbreaking journey of a poor person seeking health care in the developing world. Disappointments include the high cost of doctor’s fees, bribes and medications, or alternatively, the lack of medications and equipment available, the cost or difficulty of transport to health services due to bad roads and time lost waiting for treatment (as time away from work often means lost income). Finally, many people complain they are disrespected, even humiliated by medical staff, told they smell bad, are lazy, and demeaned in other ways, until they feel: “worse than dogs.”[[36]](#footnote-36)

In fact, one study found: “Patients’ perceptions of quality can be more important determinants of utilization than prices or other dimensions of access.”[[37]](#footnote-37)

All of these complaints combined create a reality where the many poor people only visit hospitals when it is absolutely necessary, and sometimes not even then. One study found that failure to seek care is a factor in 6-70% of child deaths.[[38]](#footnote-38) Amazingly, ‘’child deaths could be cut by 63% if coverage rates of effective prevention and treatment interventions were to increase from current levels to 99%”.[[39]](#footnote-39) Furthermore, “raising coverage rates of maternal health interventions (the most important of which is essential obstetric care)…would reduce maternal deaths by three-fourths.”[[40]](#footnote-40)

To meet these challenges head-on as only a truly community-based organization could, HopeCore refuses to wait for people to come to us in our office clinic, but go out into their communities, seek them out, be comprehensive and integrative by asking them what they need. We provide them with integrative services by giving supplements and vitamins they may not even know they needed for preventative purposes, providing curative medications, referrals, and counselling to those already suffering from an illness, and health education for the future, to prevent such illnesses for recurring.

### Modalities of the program

The HopeCore Child and Maternal Health Program works through four modalities: *Educate, Prevent, Treat, and Advise* in order to address the 14 child health survival technologies*.* When discussing the 14 child health survival and maternal well-being technologies above, we began to introduce various aspects of each of these four modalities.

#### Educate

The first modality of the program is education. Providing education for mothers on various health topics related to themselves and to their children is essential for a sustainable health intervention. Arming women with the knowledge to make informed decisions empowers them to provide quality care for their children. “Improvements in the health of pregnant women and new mothers will play an important role in generating further reductions in child mortality.”[[41]](#footnote-41)

Through the health days, mothers gain access to regular (3 times per year) educational discussions right in their own communities on various health topics. The topics covered through the education sessions with the mothers on the health days incorporate each of the 14 child health survival and maternal well-being technologies.

#### Prevent

As stated above, education will help prevent common illnesses in mothers and children. Through increased knowledge, mothers will be able to change their behaviors and the behaviors of their children in order to prevent many illnesses, for example, enteric infections due to improper hand hygiene. Prevention has time and again proven to be less expensive than treatment, and in a low-resource community, like Maara Sub-County, providing the least expensive option is very attractive.

Furthermore, looking beyond the cost-benefit analysis it is essential that we prevent recurring illnesses in children. Recurrent illnesses have long last effects on children and their development in the future, and increases the likelihood of malnutrition, stunted growth, delays in development, and life-long struggles with health.[[42]](#footnote-42)

Therefore, if we are able to prevent some illness in childhood, we are creating a healthier community in the long-term. The easiest way to do this is through educating the mothers in our community and equipping them with knowledge surrounding our 14 child health survival and maternal well-being technologies.

#### Treat

While we recognize the importance of education and prevention, we also realize that treatment is often necessary. Children and mothers present with a range of illnesses and complaints that need to be treated by clinical staff. We have a nurse at each of our health days to treat mothers and children.

We carry a variety of medicines for both mothers and children to each of the health days, record all illnesses, and prescribe medicine to treat these illnesses. Additionally, our nurse follows-up to track the progress of any severe illnesses.

*Vitamin A supplement* and *deworming* medication is also easily procured by attending mothers and children by visiting our nurses in the clinic taking place next door to the educational sessions. As previously mentioned Vitamin A supplementation and deworming are 2 of the 14 child health survival and maternal well-being technologies.

#### Advise

Advising mothers is a key aspect of our program. Traditionally, information flows by word of mouth from neighbor to neighbor, or mother to daughter. The information that is passed is not always accurate, and can easily be misunderstood and misconstrued as it is passed. By adding a new source of information, and contributing to the flow of information, we hope to spread knowledge related to positive behavior change and good health. Through our health days, we will advise mothers on how to approach various illnesses. These mothers can then take this information and share it with others. For instance, rather than ignoring danger signs of dehydration, women are now equipped to take action on behalf of their children.

All of the advice given comes from a recognized health professional, and will continued to be shared with neighbors and daughters, contributing to more accurate information being passed through traditional paths of information flow.

Now that we have outlined the modalities of our health days, we can move onto giving a detailed description of exactly how we run our health days and how we ensure their effectiveness in our communities.

### Program logistics

#### Arrival

The HopeCore Health Day begins with a team of staff, including Nurses, Community Health Workers, and Health Educators, arriving at the school scheduled for that day. The Head Teacher has been forewarned and approved of our visit the week before, but usually comes out to greet the team, welcome them to the school, and designates the three classrooms the schools is making available for our use for the day. One classroom is to be set up as a mobile clinic, the second, for the Health Educator to lecture upper and lower primary school students on various topics, and the third is for our maternal and child health education and workshop.

Each health day includes the following,

**Health education lectures** for school children, as described in more detail in a following section;

**Health education lectures** specific to mothers and fathers and under-5 children on topics, as outlined in the 14 child health survival and maternal well-being technologies, such as: breast feeding, early childhood nutrition, family planning, child spacing, oral rehydration therapy, danger signs of malaria, clean water in the homes, and hygiene;

**Clinical services for children**, including growth monitoring, malnutrition screenings, immunization checks, and more, from our community health nurse, as well as volunteer partner professionals who specialize in the fields of pediatrics and female health;

**Clinical services for mothers**, including family planning modalities, HIV testing and counseling, the importance of pre-natal vitamins, and screening for iron deficiencies.

#### Marketing the clinics

We will notify the parents and schools of an upcoming clinic through word-of-mouth leveraging our previous relationships with the schools and local churches to communicate with parents.

One of our Community Health Workers (CHW) reaches out to the Head Teacher at the school, either in person or over the phone, one week in advance to let them know we will be visiting their school and request that they tell their student body to spread the word, we also give them a poster to hang on their announcement board. To maximize our mobilization, we send a letter to all the local churches near the school we are to visit the Sunday before, and request that the Pastor announce our clinic to his congregation. One day in advance of the clinic, a CHW again reminds the Head Teacher HopeCore will be coming the next day.

If we arrive at a school, and the turn-out of mothers is low, some of our CHW walk around the community near the school and visit people’s homes, inform them of our clinic, and request they join us, engaging in an activity we refer to as mobilization. Once we have a sufficient number of mothers join us, we begin.

#### Mothers and children under 5-years

##### Initial consultation with mothers & record keeping

We have survey mothers individually to gather personal information about themselves and their children’s health status. The questions on this form address all of 14 points of HopeCore’s Child Survival and Maternal Well-Being Technologies list, as outlined in a previous section. As a reminder, these 14 points encompass, in HopeCore’s philosophy, the most important points for maintaining the health of children and mothers in the developing world.

The 14 Child Health Survival and Maternal Well-Being Technologies include:

1. Basic Immunizations
2. Basic Antibiotics
3. Breast Feeding
4. Clean Water
5. Hand Washing
6. Growth Chart Monitoring
7. Vitamin A Supplementation
8. Child Spacing
9. HIV Testing and Counseling
10. Family Planning Access
11. Basic Prenatal Care and Follow Up
12. Malaria Bed Nets
13. Oral Rehydration Therapy
14. Round Worm Deworming

The form begins by gathering general information such as name of mother and child, contact information so that we can contact them later in case follow-up is necessary, and the age and gender of the child.

Our CHWs go over the form with each person attending to ensure they are understanding everything completely, and answering questions correctly. We also use the survey to determine which topics the majority of attendees would like to learn about during our health lecture that day, from family planning, to nutrition, malaria and other topics.

Please refer back to the detailed description of the 14 child health survival and maternal well-being technologies list presented earlier for more information on the reasoning behind each item on the technologies list.

##### Growth Monitoring

After the CHWs have met individually with each mother, the move on to the growth monitoring portion of the workshop. As previously referenced, CHWs take children’s height, weight, and head circumference (only for children under 2 years old) to measure whether the child is in the ‘normal’ growth category. Special consultations are provided to mother’s whose children fall outside the normal growth range.

In special cases whereby a child is outside of the +3 or -3 z-score, we immediately refer that child to our nurses to determine if the child should be transported to a medical facility for an immediate medical intervention.

##### Education

Following the conclusion of the growth monitoring, we move on to educating mothers on many of the 14 child health survival and maternal well-being technologies. We have already walked through many of these above but would like to highlight the detail of one of the more comprehensive topics here to give our readers a better understanding of what we are teaching the mothers who attend our health days.

###### Nutrition

It is important for mothers to understand the importance of feeding their child a good diet, as 30% of children in our Maara Sub-County are stunted, and 1 in 6 children in Kenya is underweight or too thin for their age.[[43]](#footnote-43)

We define what ‘stunting’ is: when a child or person’s height is less than what has been deemed ‘normal’ or ‘healthy’ for children in their age group, and inform the mothers about the different types of malnutrition (Kwashiorkor and Marasmus). We tell emphasize the importance of nutrition by informing them that:

“Undernutrition is…responsible for the highest mortality rate in children and has long-lasting physiologic effects, including…insulin resistance in adulthood, hypertension, a reduced capacity for manual work…and has been linked to poor mental development and school achievement as well as behavioral abnormalities (Long-Lasting Effects of Undernutrition, Vinicius J.B. Martins, Telma M. M. Toledo Florencio, Luciane P. Grillo, Maria do Carmo P. Franco, Paula A. Martins, Ana Paula G. Clemente, Carla D.L. Santos, Maria de Fatima A. Vieira, and Ana Lydia Sawaya. Int J Environ Res Public Health. 2011 Jun; 8 (6): 1817-1846. Published online 2011 May 26. Doi: 10.339/ijerph8061817, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3137999/>)

Once they understand the gravity of the issue, we then arm attendees with the knowledge necessary to prevent their own children from becoming stunted by outlining healthy food choices.

We outline food groups, and what is available in the markets here, such as rice, ugali and bread for carbohydrates; sukuma wiki, spinach, and managu leaves for vegetables; and mangoes, bananas and oranges for fruit. See *Appendix B* for actual images from our nutrition presentation.

In addition to outlining all the food groups, we inform mothers how much of each group they are supposed to include in their daily diet as a proportion to the whole of what we consume.

Eating unhealthy food too often can lead to obesity, which leaves one at a greater risk for many health complications, such as hypertension and diabetes.

Diabetes is becoming a large health issue within the Kenyan population. While only 1% of deaths have been directly related to diabetes, in reality this number is much higher as, as “most people with diabetes do not die of causes uniquely related to diabetes, but of associated cardiovascular complications, like a heart attack.”[[44]](#footnote-44) The WHO has recognized that diabetes is a growing problem in developing countries in general, and in Kenya in particular, where more than 80% of global diabetes deaths took place in 2012 (approximately 1.5 million deaths).

Those at a higher risk for contracting diabetes include the obese population, which is growing steadily in Kenya, as reported by the Global Nutrition Report for 2016, which estimated levels of obesity approaching 50% for Kenyan women in urban areas.[[45]](#footnote-45) Our lecture on nutrition aims to help women feed themselves and their children in a healthy way with the goal of avoiding the unhealthy eating habits which lead to these kinds of health issues.

Additionally, demonstrating the integration of our educational topics, in both our nutrition lecture and breastfeeding lecture we touch on the importance of breast feeding. In addition to teaching mothers about the reasons behind the importance of breastfeeding, how long to breastfeed for, and how to breastfeed, we also teach them about nutrition and how important it is to provide their children with a healthy well-rounded diet while weaning them off breastmilk.

##### Treatment & prevention

Following the mothers’ participation in the education portion of the health day, we move the mothers to accessing clinical services. When the mothers seek treatment, they are able to seek treatment for themselves or for their children. As stated above, we offer basic antibiotic access for both mothers and children. The illnesses seen in the clinic are typically fungal infections, bacterial infections, respiratory infections, and rashes.

Mothers are also able to have one-on-one consultations with our nurses at this point in order to gain more information on various family planning methods. We are able to offer condoms, combined oral contraceptives, Depo Provera, and Implants while we are in the field. If the mother would like an inter-uterine device, we have to refer her to our office-based clinic.

#### School Pupils

During each mobile clinic, the pupils divide themselves into upper primary and lower primary. One group attends the health education lecture, while the others are given the opportunity to see the nurse for any health concerns, after which point the two groups switch. The pupils can self-select to be seen by the nurse, or in the case of the younger students, teachers sometimes refer children they know are ill. Each pupil sees a community health worker, for triage services, then waits to be seen by a HopeCore nurse. The nurse sees each patient individually to ensure confidentiality and that each pupil gets the attention they deserve.

##### Treatment

We begin the day by having our nurses set up stations in the mobile clinic with medications and notebooks. A Community Health Worker assists them by excusing the ‘baby class,’ or under 5s and lining them up outside the clinic to receive their deworming medication. The government of Kenya has recommended that all children be preventatively dewormed twice a year, but HopeCore is able to do so every semester, or three times a year, with the generous help of Vitamin Angels, who donates the deworming medication to us.

The benefits of deworming pupils have been regularly outlined by various health sources. Moreover, approximately 400 million students suffer from worm infections in developing countries.[[46]](#footnote-46) One study from Western Province, Kenya came to the conclusion that “with hundreds of millions of children still at risk of worm infection worldwide, providing free school-based deworming treatment is an easy policy ‘win’ for health, education, and development.”[[47]](#footnote-47) The same study continued and outlined four specific outcomes from school-based deworming:

“Deworming treatment improves health and reduces absenteeism. Even untreated children benefited from deworming. Deworming improved cognitive outcomes for infants who were not directly treated. Treated students continued to benefit a decade after the program.”[[48]](#footnote-48)

Deworming benefits not only school attendance for treated students, but also positively impacts untreated students in close proximity, an impact that is also known as “herd immunity.” Another school-based deworming program in Busia, Kenya reported a

“7.5 percentage point average gain in primary school participation in treatment schools, reducing overall absenteeism by at least one quarter. Treatment created positive health and school participation externalities for untreated students.”[[49]](#footnote-49)

In the past, HopeCore has received some assistance with our deworming program from the County Health Ministry, which donated 5,000 Albendazole tablets from the County pharmacy. The deworming pills we received from the County is part of the public/private partnership between HopeCore and the Sub County Ministry of Health. Between January 2014 and October 2016, HopeCore has given 24,116 doses of deworming medication to pupils in the Maara Sub-County in this manner.

Typically, due to financial constraints, those students receiving deworming medication over the age of 5 are limited to those who are presenting symptoms. However, in the future when increased support is available, every student will be given a dose of deworming two times per year, unless they are receiving it from another source. Through regular deworming, we will be contributing to prevention of many common illnesses in Kenya.

Once the Community Health Workers have distributed deworming medication to all the under 5s, and watched as their faces grimaced and the little pill dissolved, they carefully examine the rest of the students in groups by class.

Signs or symptoms of common illness are identified and questions are asked to determine if children need to see the nurses, some common examples being headache, sore throat, tonsillitis, back pain, fever, etc. Once students are chosen to be sent to the nurses, they are seen one by one.

When the nurse is visiting with a patient, she takes the time to ask them questions, get the full context about their illness. She may test the blood glucose level, take the blood pressure, or give the patient an eye test. Once she has made a diagnosis, she can prescribe them medications, refer them to another doctor, or add them to her list to follow-up with at a later time to ensure the mediation prescribed and the diagnosis given was correct.

Some of the illnesses our nurses are able to treat from the clinic include: Conjunctivitis, scabies, urinary tract infections, amoebiasis, viral upper respiratory tract infection, tinea, intestinal worms, gastritis, sinitititis, and many more.

Once the nurses have finished seeing all the primary students, they can begin treating any mothers, or children under five years of age, who have come to attend HopeCore’s Maternal and Child Health Clinic.

While the nurses see patients with different health concerns, the upper and lower primary school students are receiving lectures on different health topics. The health education lectures are discussed in the next section.

In 2014, HopeCore clinically treated (excluding deworming) over 3,300 pupils and 300 teachers, and conducted health education for an average of 3,200 pupils per month. In 2015, 2,831 pupils (excluding deworming) and 115 teachers were treated, and we conducted health education for an average of 2,800 pupils per month. Finally, it 2016, HopeCore clinically treated approximately 6,900 pupils (excluding deworming) and 288 teachers. Additionally, our health educators were able to reach an average of 4,500 pupils per month.

##### Education

HopeCore’s trained health educator conducts health education lectures during school mobile clinic visits to our partner schools. Students are organized by classes into lower primary, upper primary, and secondary students so that each lecture is age-appropriate and targeted to a specific audience to maximize understanding and comprehension. The wide-ranging health curriculum includes hygiene and sanitation, nutrition, common diseases, malaria, and adolescence and sexuality.

If HopeCore only offered treatment services, we would continue to see the same illnesses and complaints every term, by offering to routine educational sessions, we have seen a decrease in common, preventable illnesses. We lecture students in three different age groups: lower primary, and upper primary, and secondary school students. The topics covered for each group is different and age-appropriate.

For the youngest groups of students, classes one through four, we cover topics including: good nutrition, the importance of maintaining good general and dental hygiene, how to properly wash your hands, road, fire and water safety, HIV/AIDS, common diseases, and worms and fungus. The relevance of some of these topics to child health has been outlined through our 14 child survival and maternal well-being technologies list, and the additional topics have either been requested by teachers or suggested by our staff members.

By teaching children how to prevent the spread of water and air-borne diseases, to not drink contaminated water, and symptoms of common diseases, we hope to promote both the *prevention* and *education* modules of our Health Days. To give an idea of the impact this program is making on the young children in the Maara Sub-County, 19,819 lower primary students have been lectured in 2016 alone. By our estimates based on data pulled from a report published by Maara Sub-County in 2009, we are currently educating reaching close to all students in this age group in our Sub-County on these health topics.

For students in classes five through eight, we continue to cover topics such as common illnesses, worms and fungus, hygiene and sanitation, HIV/AIDS and good nutrition maintain. However, we also add topics appropriate to the changes that this age group experiencing along with adolescence such as: Reproduction, STIs, adolescence development and sexuality, malaria, and recreational drugs.

Teaching adolescents on these topics is more important today than ever, as one study found that only 48% of boys and 42% of girls in Kenya have ever heard about contraception/family planning, and some do not know how children are conceived.[[50]](#footnote-50) According to the National Aids Control Council, AIDS has now taken its place as the “leading cause of death and morbidity among adolescent and young people in Kenya,”[[51]](#footnote-51) with 29 per cent of all new HIV infections accounted for in this group. Not only that, but many young girls are forced to drop out of school due to teen pregnancy, from 3 of every 100 under 15 up to 40 out of 100 at 19.[[52]](#footnote-52)

Not only are adolescence at a higher risk of illness or death from pregnancy, HIV, and other STIs, but it is a common misconception in Kenya that “girls and boys under 15 are ‘too young’ to need this type of training.”[[53]](#footnote-53) Nothing will change these opinions other than continued education and awareness raising. HopeCore has worked towards this goal by educating 20,777 upper primary students since the beginning of 2016 on the previously outlines health related topics.

In secondary schools, there is much greater support for sexual and reproductive health topics to be covered from parents. In one study, 97% of guardians wanted sexual and reproductive health information to be offered at school.[[54]](#footnote-54) Though young people would often prefer to learn about these topics from their parents, parents often feel uncomfortable, leaving this task to teachers at school. This is where HopeCore comes in. We have focused on the sexual and reproductive health topics of HIV/AIDS, adolescence, reproduction, sexuality and safe sex, contraceptives, and STIs in lectures for 5,001 secondary school students since the beginning of 2016.

By teaching adolescents about how STIs and HIVs are transmitted, how one gets pregnant, and on other SRH topics, we promote both the *prevention* and *education* modules of our Health Days during our upper primary and secondary school lectures. And finally, as a Segway into our next section outlining the third and final component of the Health Day, the Maternal and Child Health Clinic, we leave you with a quote from Dr. George Kamau, Director of Deutsche Stiftung Weltbevoelkerung Kenya:

“Investment in youth-friendly sexual and reproductive health services will not only help in reducing teenage pregnancy and HIV infection rates, it will also contribute to improving maternal and newborn health as well as reducing the need for procuring unsafe abortions.”[[55]](#footnote-55)

Our school mobile clinics are a critical health intervention in the Maara Sub-County, and we are proud to have continued, strengthened, and expanded this program over the last three years.

### Implications of the Health Days

Through this program, we hope see an increase in the demand for family planning, an increase in the number of mothers and under-5's seen in our office-based clinic, and a reduction in basic, preventable illnesses in our nursery and baby class pupils.

Additionally, over time, through growth chart monitoring, we would like to see a high percent of the children under 5 years tracking on target, with a reduction in malnutrition and stunted growth. Another important indicator is monitoring the number of children who are up-to-date with their immunizations, and making sure the percentage of children up-to-date continues to grow over the course of the program.

By creating health days in conjunction with our already developed school-mobile clinics, we were able to minimize the disruptions to the schools (only once per term), minimize travel costs by visiting neighboring schools with the three teams, and maximize the benefits for the community.

Furthermore, by pairing our maternal and under-5 clinics with our mobile health clinics we are maximizing the benefits of our current relationships with the schools, and we will be able to track children over long periods of time. We will also be able to trace the effects of the program over a few years if we see improved health in the school children as well as the under-5-year-old children.

This project is distinct from other programs in the developing world for a number of reasons. HopeCore already has a relationship with the schools, and the Sub-County Ministry of Health and the Sub-County Ministry of Education have repeatedly recognized us for our contribution to the community. Additionally, by working through the schools, we have a communication mechanism that attracts high numbers of mothers to our clinics. We will now be able to track children from when they are infants through secondary school. By engaging with children and families so deeply, we continue to strengthen our relationship with the community.

By working toward prevention from an earlier age, parents will have fewer health concerns and expenses related to their children, thus allowing them to focus on their economic productivity. Furthermore, by focusing on mothers’ access to family planning, we are allowing women to make informed choices on their health and therefore they will be more economically productive, and the overall communities will benefit.

## Supporting Health Programs

As outlined above, HopeCore’s program is holistic and integrated. Above we have discussed, at great length, the core components of our Child and Maternal Health Program. The following sections outline additional supporting programs that are integrated into and help to support the health of children, mothers, and communities.

These supporting programs are shown in our program diagram as other major programs within our Health Program.

### Health Advice Line

The health hotline is a free phone number that will be open for community members to call 24 hours a day, 7 days a week. This hotline is a resource for all families in the community. A nurse is “on call” to answer the phone at any time of the day. Whoever answers the phone will provide information for the caller. If the caller is looking for information, we can provide the information immediately. If they have a sick family member, the nurse will take down the name of the caller, a contact number, the area where the caller is calling from, and the complaint of the caller. If the case is serious enough, HopeCore will ensure the caller receives transportation to a hospital. If only medication is necessary, the patient will be told to stop by our clinic or other area dispensary to pick up the free medication, or one of our nurses will make a home visit to deliver the needed medication. If only verbal advice is necessary to cure the ailment, a follow-up call or follow-up visit can be conducted so the nurse can and provide care. The method of treatment will be decided after consultation by our qualified nursing staff.

This aspect of the overall program continues to address our *advise* modality, as we are bringing good, accurate information directly into homes. The information flow in rural communities is not always reliable or accurate information. Through the health hotline, we are providing a new source of good information directly into the homes of families.

This health hotline serves as a constant, reliable, resource for families to access health information. Similarly, the hotline fits within the general principle of HopeCore health programming being community based, in that we want to bring healthcare into the people’s homes and villages. We are not waiting for clients and mothers to come to us we are going to them. Mothers are calling to access information and ask for advice on the health of their children.

In combination with the education the mothers receive three times per year through the Health Day, they now have access to information on demand. The health advice line allows us to move beyond the 3 visits per year to having the ability to communicate 365 days per year.

### WASH (Water, Sanitation, and Hygiene)

2.5 billion people in the world (approximately one in three of the world’s total population) do not have access to adequate sanitation, and 748 million people (approximately one in ten of the world’s population) do not have access to safe water.[[56]](#footnote-56) About 500,000 children die annually from diarrhea caused by unsafe water and poor sanitation.[[57]](#footnote-57) In Sub-Saharan Africa specifically, diarrhea is the most common killer of children under five years old.[[58]](#footnote-58) Diarrheal diseases, for instance, deteriorate students’ health conditions and have resulted in the annual loss of 272 million days for school attendance globally.[[59]](#footnote-59)

From a survey conducted in Chogoria of 1,055 individuals of all ages, it was found that only 62% of households boil their water for drinking. HopeCore’s WASH program was initiated in response to the urgent need for clean water and proper hand hygiene that HopeCore staff witnessed in schools during school mobile health clinics, a need manifested by the amount of diarrheal and other water-related diseases.

When our WASH Program was initiated in 2012, HopeCore chose to install clean drinking water and hand washing tanks in the neediest, registered (based on the Sub-County Ministry of Education list) schools that were in the educational zone in closest proximity to HopeCore offices, Chogoria Zone. Since then, we have expanded to all five zones in the Maara Sub-County.

In July 2014, HopeCore met with the Sub-County Education Officer and the head teachers from all of the schools in the sub-county to sign a Memorandum of Understanding outlining the expectations, roles, and responsibilities of the three stakeholders involved in the project. This MOU solidified the partnership between HopeCore, the Sub-County Ministry of Education, and each of the 180 existing schools.

HopeCore’s WASH program made East African history, by installing clean drinking water and hand washing tanks in each of the schools in the entire Maara Sub-County. HopeCore has now installed tanks in 180 schools in the Sub-County. As confirmed by the Sub-County Education Officer, no other Sub-County in the country has provided clean drinking water and hand-washing stations to every school.

This program, concentrating on clean water and hand hygiene, contributes to preventing common intestinal illnesses, as outlined in our 14 child health survival and maternal well being technologies’ description. Furthermore, when pupils are healthy they are more likely to be in school. HopeCore employs a community health worker (CHW), to monitor each of the tanks installed in the schools. The CHW visits each school every other month to ensure the proper use of WaterGuard, the sodium hypochlorite product that HopeCore provides schools with to treat their water, as well as, the presence of soap for hand washing. Additionally, the CHW assesses whether or not students are using the clean drinking water and hand washing tanks correctly and remains in close contact with all school head teachers as a resource point for any WASH-related question or need that may arise.

After the tanks are inspected, the CHW meets with the Head Teacher or Deputy Head Teacher to deliver his findings and give appropriate advice. For all seriously non-compliant schools, the CHW arranges to for a follow-up visit with the teacher, which is typically conducted at the end of each week.

#### Soap partnership and program

Previously, continuously providing hand-washing soap at all hand-washing stations was a major problem facing schools. Many schools report not being able to afford to always make soap available as they have witnessed the soap running out too quickly due to: (1) students using more than necessary, or (2) students stealing soap to bring it to their homes. HopeCore worked with representatives from the Sub-County Ministry of Education and Sub-County Ministry of Health to help give schools a cost-effective option that allows them to provide hand washing soap for their pupils: A HopeCore run self-sustaining soap program.

HopeCore, in partnership with the Ministry of Health and the Ministry of Education worked tirelessly over approximately 12 months to formulate a solution to the above mentioned challenge. In January 2016, the first meeting of the Maara Sub-County Hygiene and Sanitation Committee was held. This committee is comprised of the Sub-County Education Officer, the Sub-County Public Health Officer, Village HopeCore International, the Sub-County head of the Kenya Primary School Head Teachers Association, and the Sub-County head of the Kenya Secondary School Head Teachers Association.

After working with this committee of stakeholders to address this serious issue, HopeCore created an action plan approved by the County for the first term of the year. Each pupil is required to pay 10 Kenyan shillings (10 cents USD). This fee is intended to cover the costs of the soap and delivery to every school in the Maara Sub-County, creating a reliable and effective manner for providing and financing the continual provision of soap in all schools. The funds are collected and deposited into a joint bank account between the various stakeholders.

HopeCore is proud to say that within the first month of the term, every school, approximately 200 in total, had 20 litres of hand washing soap available for their students.

The establishment of the committee, the follow through on setting up the bank account, and the collection of funds is a major step in the success of this program. Furthermore, both the Public Health Officer and Education Officer have stated they have never heard of a public-private partnership like this anywhere else in Kenya. It was through this partnership that we were able to provide hand washing soap for all students in the Maara Sub-County.

Moving beyond the success of providing soap to school children, this is an incredible success and demonstration of HopeCore’s influence in the community. See below a graphic depicting how HopeCore’s Soap program is meant to function:

HopeCore compensates a vendor who produces liquid soap for us that is cheaper than other options available at market with the money paid by parents for each student. In this way, this process is cyclical.

Some challenges have arisen related to the collection of funds, but we were prepared to not reach a sustainable revolving fund in the first year. Furthermore, there are questions surrounding if schools are allowed to collect additional fees outside of what is defined at a National level. As with all new initiatives, we are growing and adapting and we are working to clarify this national policy by working closely with the Ministry of Education of Maara Sub-County, and seeing what our next steps will be.

#### School-to-Community

The “School-to-Community” WASH program component was initiated in 2014. Through this program component, school children are trained to be junior community health workers in their communities and positive agents of change in their families. In October 2014, the pilot program started with five primary schools. HopeCore spoke with their health clubs about the benefits of drinking clean water and practicing good hand hygiene, as well as answering any questions students may have.

A HopeCore CHW, is in charge of visiting primary schools and speaking with their health clubs about the benefits of drinking clean water and practicing good hand hygiene, as well as answering any questions that students may have. If a school lacks a health club, HopeCore assists the school in forming one, and then continues to teach the children in the health club on different hygienic topics.

The students engaged with this program are encouraged to bring the knowledge gained back to their families and communities. One of the benefits for each student participating in the program is that they receive a bottle of WaterGuard and hand washing soap to serve as physical teaching aids when they go into their community.

Once a health club has been taught on all School to Community topics (hygiene at home, sanitation, diseases caused by bad hygiene, and uses of Water Guard) they receive a certificate stating that they have completed the program, and are now a qualified *HopeCore Hygiene Ambassador*.

Starting in May 2015, the school-to-community program was extended to reach 15 primary schools, reaching over 600 health club members and educating them to be junior community health workers and educators throughout their communities.

Health club patrons and head teachers of the schools participating in the school-to-community program report better cognizance of hygienic behaviors among their health club students, as well as more instances of peer-to-peer education concerning good hygiene and health during school hours.

This initiative will continue utilizing school health clubs to train health club members to be “Junior Community Health Workers” that will educate their peers, families, and neighbors. While visiting community members in their homes, and surveying them about the School-to-Community program, this also gives CHWs a chance to confirm that proper water purifying and hand washing practices are being used, and if not, to take the opportunity to teach the community on these topics.

The 30 schools currently being trained in our School-to-Community program represent approximately 1,000 students, along with their parents, siblings and community members, at an average of 6 a child, will reach approximately 6,000 community members in the Maara Sub-County, in addition to the 45,000 students already impacted by HopeCore’s WASH Program. HopeCore aims to eventually be able to successfully implement and monitor this program and extend our impact on the entire sub-county, bringing improved health and hygiene to an even larger population.

Through this program, students are leveraged as fonts of information about HopeCore’s various other programs, such as the HopeCore health advise line and HopeCore Health Days. It is our hope to continue expanding this program to positively influence all the communities that HopeCore works in. The junior community health workers support the 14 child survival and maternal well-being technologies by continuing to reinforce the same messages the mothers receive at the clinics they attend.

### Sexual and Reproductive Health Program

#### Problem Statement

Reproductive health has far reaching impacts on countries and communities, from affecting the economy, to influencing population growth and social development. Reproductive health includes: family planning, sexual health, mortality rates, and gender violence. Reproductive health does not only apply to women; male adolescents, vulnerable populations and displaced populations all have distinct reproductive health needs. In Kenya, reproductive health is an issue that has been at the forefront of policy for 15 years. Kenya is a Millennium Development Goals signatory, and made the commitment to increase family planning and reduce the maternal mortality ratio by 75% by the year 2015. It has become clear that Kenya is not going to reach its targets; but HopeCore, with support from Planned Parenthood Global (PPG) funding, continues to spread information on reproductive health and family planning. [[60]](#footnote-60)

Over 90% of all teen pregnancies occur in developing countries.[[61]](#footnote-61) Sub-Saharan Africa has one of the highest rates of teen pregnancy out of any other region in the world.[[62]](#footnote-62) Unwanted pregnancy still persists among the youth of Kenya. Since 1998, unmet need has plateau around 24%, though slightly rising each year, reaching 25.6% in 2008-09.[[63]](#footnote-63)

The trend of disparity between levels of wealth becomes clear when looking at unmet need. There is a drastic difference between the lowest wealth quintile and the highest.[[64]](#footnote-64) The community HopeCore targets through the Sexual and Reproductive Health (SRH) program is in the lower wealth quintiles in Kenya, and therefore we are targeting a key population. Similarly, Chogoria and the surrounding villages are rural areas; the current fertility rate of the urban population is 2.9 while the rural population has a fertility rate of 5.2.[[65]](#footnote-65)

The lack of family planning options is directly linked to the high maternal mortality rate. In 2002, 612,940 women were admitted to the hospital for post-abortion complications in East Africa.[[66]](#footnote-66) This number does not include those women who fear going to the clinic, and therefore treat themselves at home, or die. At Kenyatta National Hospital 10 patients per day are seen with post abortion complications.[[67]](#footnote-67) On average, in Kenya, the desired fertility rate is 3.7, and the actual fertility rate is 4.7.[[68]](#footnote-68)

In some districts of the Mt Kenya region of eastern Kenya, the rate of school dropouts due to unwanted teen pregnancy is as high as 24% among in-school, female youth.[[69]](#footnote-69) Teenage mothers are often forced to drop out of school for a period of time whereby the likelihood of returning to primary, secondary, or higher-level schooling is very low. Not only do unwanted pregnancies jeopardize the education of young women, they often result in a scenario where the teen mother is left to raise the child on her own, out of wedlock and highly reliant upon her own mother and father, who are often struggling for resources and financial support. As previously mentioned, the unmet need is highest among the lower wealth quintiles, demonstrating the lack of financial resources the family has to support this new teenage mother and child. If a young mother does not have the support of her family and is not well educated, as is common in rural areas of Kenya, the likelihood of her finding a good job to provide for herself and the care of her child are very slim. This scenario perpetuates the cycle of poverty and unwanted pregnancies. HopeCore staff members have observed a high number of commercial sex workers in the area and feel this is associated with the level of poverty among young women in the community. Children born under these circumstances are at a disadvantage from the time of birth.

For all of the reasons outlined above, it is clear that our sexual and reproductive health program is supporting our Child and Maternal Health Program through equipping women with the information they need regarding family planning and their own general health.

The persistence of myths, lack of educational opportunities and sexual health education, lack of information on contraceptives, barriers to access, and the limited availability or lack of quality of modern contraceptives in this region are all significant factors perpetuating high incidence of unwanted pregnancy among school age youth.

A survey looking at the views of Kenyan students on the adequacy of sexual health education they receive from parents and relatives shows that the majority of students feel the breadth and quality of information provided out of school is not sufficient. Many students reported they felt school curriculums should fill this void.[[70]](#footnote-70) Students are taught in a classroom setting but currently are not receiving adequate support or necessary information from parents, family, or teachers to allow them to lead healthy sexual lives. The Ministry of Education in Kenya and other collaborators currently recognize this as an important issue and are looking for ways to improve integration of sexual and reproductive health (SRH) education into the regular curriculum.[[71]](#footnote-71) Contraceptive distribution and counseling in schools is not widely available.[[72]](#footnote-72) Many youth may not have the knowledge or resources to advocate for their own SRH. Youth, both sexually active and not, are not well informed on the available options for family planning and/or the importance of using protection when engaging in sexual activity.[[73]](#footnote-73) HopeCore’s Youth Peer Provider (YPP) program aims at using youth to educate, provide information, provide contraceptives, support youth, and more importantly support and empower other youth to advance their own sexual and reproductive health.

Our program seeks to fill gaps in SRH education and services in the community and school system. This program has many components, including SRH education in schools, providing SRH services to out-of-school youth, community outreach and sensitization, youth peer providers, and a youth center. Our office-based clinic also helps to support our SRH program by providing free sexual and reproductive health services to youth.

The primary goal of this program is to build our own capacity as an organization to improve the SRH of the community through educational, psychological, and medical services. Other goals include increasing awareness of SRH in the community, especially among the youth, and lastly empowering youth and other members of the community (through awareness building, education, etc.) to advocate for their own SRH by seeking advice from trained experts, utilizing services, and ultimately translating that knowledge into positive behavior change and healthy sexual and reproductive lifestyle practices. In the first cycle of funding received from Planned Parenthood Global (PPG) from 2012-2013, the concept of the health club in 12 schools as a medium of information transfer from YPPs to their peers, was established. This model was successful in the dissemination of SRH information and information about contraceptives. HopeCore felt a more significant impact would be realized by using the informal structure of the health club allowing students and peer providers the opportunity to take ownership of their own learning and health.

From November 2013-October 2014, we engaged our community-based YPPs (ages 18-24) as community health workers. Community-based YPPs travelled to twenty-five (10 Secondary and 15 Primary) of our SRH partner schools and conducted health education topics such as HIV/AIDS, STIs, contraceptives, reproduction, and adolescents and sexuality. We found that by lecturing school-wide, members of the health clubs, who meet weekly, had more targeted discussions. Additionally, these community-based YPPs were used as examples to the newly trained school-based YPPs to show how they could effectively communicate messages to their peers. Through feedback meetings with school-based and community-based YPPs, we found this to be an effective method of information exchange.

Starting September 2014, each of our 12 community-based YPPs was assigned a specific number of schools they visited and supported a minimum of two times per month. By engaging the health clubs in a targeted way, HopeCore continued to build the capacity of YPPs to share sexual and reproductive health information with their peers.

In addition to the responsibilities of visiting school health clubs, community-based YPPs are also responsible for reaching out-of-school youth. The community-based YPPs distribute contraceptives, offer SRH information, and offer counseling services to youth in the community who are not in school. While this has been ongoing in the first two years of funding, HopeCore plans to strengthen this program to reach more out-of-school youth in a targeted way.

In 2015, HopeCore established new linkages, and strengthened and expanded current relationships with organizations and leaders in the community. Through 2014 and into 2015, we strengthened our bond with tea­­­­chers, head teachers, and principals. HopeCore is dedicated to establishing new relationships with the Ministry of Health and church leaders. HopeCore holds community outreach events alongside youth gatherings in the churches.

Currently we have 42 youth peer providers: 27 school-based and 15 community-based. Each youth peer provider is trained in SRH per Planned Parenthood Global’s standards, and we hold regular feedback meetings with them (once per term with the school-based YPPs and monthly with the community-based YPPs) to ensure we as HopeCore staff are providing them with enough support and knowledge to make the greatest impact among their peers.

The school-based YPPs are all active members of the health clubs at their schools, and therefore we are working closely with the health club to introduce other health topics and program components, such as the “school-to-community” component of our WASH program.

Our office-based clinic is available for youth to access for free reproductive and sexual health counseling or services from our nurse.

The youth center, which was launched in December 2013, has been a great addition to the HopeCore youth program. Each month we have an average of 300 visits to the youth centre. In the center we provide information on sexual and reproductive health, career resources, and other health education materials. The youth can access free Wi-Fi, as well as watch TV. The youth accessing the center also have a WhatsApp text messaging group through which they network with each other, share information, and encourage other youth in Chogoria to visit the center.

### Community Outreach

Our community outreach program continues to support HopeCore’s dedication to being a community-based health program. Throughout our history, we have held various health outreach events, supported the Ministry of Health and other NGOs in their outreach events, worked with our Micro Enterprise clients, and done home visits.

Over the course of 2016, we introduced regular *Market Outreach Events* as a way to formalize our outreach events. First we will discuss some of the historical events.

Our community outreach program has always been multi-faceted and integrated into our other programs. Our sexual and reproductive health and youth program has long been conducting youth-focused outreach events.

Example reports of the youth-focused events are included below.

“*On Sunday August 17th, 2014, our youth peer providers (YPPs) held a talent show in Chogoria as an outreach event. After struggling for a long time to fully engage our YPPs, we were very impressed by their dedication to the event and their hard work that contributed to making it successful. The YPPs were asked to write a proposal for their idea, draft a budget for projected expenses, and find the DJ, MC, judges, and motivation speaker. All of this was done to help build the event planning skills of our YPPs. The YPPs also went to meet with Wanja, Member of County Assembly, to ask her to open the event.   
The event was held in the conference hall at Chogoria Boys High School from 12:00pm to 7:00 pm. Different categories of talents included storytelling, single dance, group dance, eating competition, and chair dancing. We had at least six people or groups participating in each competition. There were over 600 youths in attendance.*

Figure 26: Youth participating in our International Peace Day walk

*The YPPs marketed the talent show to the community through word of mouth, hanging of posters, distribution of flyers, and use of various social media outlets. There were a number of primary school students, secondary school students, and out of school youths Most of our school-based YPPs were in attendance, in support of the event, as well.   
At the event we had our nurse and a nurse from the Ministry of Health conducting HIV testing, family planning counseling, and answering general health questions. Two of our YPPs spoke throughout the event: one female YPP about contraceptives, and one male YPP about the Youth Centre at the HopeCore office and other HopeCore youth services. The event was very popular in the community, and we think it did a lot to market HopeCore and our SRH program positively.”*

*“On 21 September 2014, we held a walk and dance in honor of International Peace Day. Throughout the walk, the YPPs were available to answer questions and share information on sexual and reproductive health. HopeCore staff and the YPPs reported having ample opportunity to share information throughout the day. Immediately following the walk, we held a dance for the youth that was primarily planned by the community-based YPPs. Teachers also attended the event, and the YPPs were given an opportunity to talk on the importance of learning about sexual and reproductive health. Again, our nurse was on site offering counseling, HIV testing, and contraceptives.”*

*“In November 2014, the YPPs planned a small outreach event at the Kalewa chief’s camp. 64 youth attended the event and learned about HIV/AIDS, contraceptives, and safe sex. The YPPs organized the event and all attended; HopeCore staff also supported in the planning and implementation of the event.”*

As previously mentioned, a major part of our community outreach program as of 2016 is the *Market Outreach Event*. These events have evolved and will continue to grow as demand increases.

The approach to the market outreach event is relatively simple, yet innovative. Shortly after arriving at the market, our CHWs roam around the area, telling people about our event and to come to be treated. Treatment, like everywhere else, is free and our qualified nursing staff offer whatever services or counselling necessary. These service aims to reach populations at high risk for diabetes, HIV, hypertension, and other common illnesses. We currently offer Outreaches at 60 different marketplaces around the Maara Sub-County. Through our outreaches in 2016, we informed 3,249 members of the community about HopeCore’s health services, conducted 1,265 blood pressure tests, 515 blood glucose tests, and 778 HIV tests. In this way, we are offering the community services they would not typically have access to.

The market outreach events are only one component of our overall community outreach program.

#### Home visits

We will describe the evolution of the home visit in the section touching on malaria, but briefly describe it here. When conducting net monitoring (discussed later), staff members recognized a missed opportunity for discussing health issues with individual community members. Therefore, after this concern was raised, staff began asking questions related to access to immunizations, clean water, and many of the other 14 child health survival and maternal well-being technologies.

We work one on one with each community member and ask questions pertaining to woman’s sexual and reproductive health and the health of children under 5 years of age, in addition to the net monitoring and WASH questions that were previously being asked. The added questions include:

1. Is respondent pregnant, or has she referred a pregnant woman for HopeCore services?
2. Has she been counseled on family planning options?
3. Is she currently using any methods of family planning? If so, how has she accessed FP?
4. Does she breastfeed, and for how long?
5. Are all children under 5 up-to-date on all their immunizations?
6. Have any under 5s been dewormed within the last 3 months?
7. Are any of her children exhibiting signs of malnutrition?
8. Does her family suffer from any known chronic illnesses?

With the addition of these topics, HopeCore CHWs have still been able to reach the targeted 25% of homes that received nets through school based distribution. By using these home visits to educate on the 14 child health survival and maternal well-being technologies, while measuring impact, HopeCore is more efficiently using time and resources.

### Microenterprise Borrowers’ Health Services

While so far this paper has focused on the public health department activities separately from the Micro Enterprise activities, the two departments are actually very connected. As outlined in the introduction to this paper, HopeCore’s services are integrated and comprehensive and furthermore, because HopeCore operates on the premise that loan clients cannot be successful unless they are healthy, the borrowers’ health services are an important part of our organizational activities, and more specifically public health’s activities.

The HopeCore clinic, located at the HopeCore offices continues to be a service delivery point for loan clients. When the loan clients access our clinic they receive services as a subsidized rate, thus making it a popular place to go. The clinic is open Monday through Friday from 8:30-10:00 am, for a total of 12.5 hours per week.

The HopeCore clinic is registered with the Ministry of Health and we aim to begin offering laboratory services by 2018. Through the inclusion of a laboratory, our nursing staff will be able to self-refer from our Health Days, and offer a more diverse range of services to our clients.

Additionally, when requested, our nurses and community health workers travel with the Micro Enterprise team to treat loan clients in the field at loan collection meetings, as well as offer health education appropriate for the group they are meeting with. Often times the health education connects back to the 14 child survival and maternal well-being technologies or might focus on non-communicable diseases such as hypertension, arthritis, diabetes.

In August 2014, the Public Health Department conducted a survey of 100 loan clients on various health issues. We asked the loan clients questions related to diet, malaria, water, hygiene, non-communicable diseases, and exercise.

Below are the some of the results from this survey.

Figure 27: ME Loan Client Health Survey Data

Figure 28: Health services requested by ME loan clients

Our public health program was developed under the belief that if our loan clients and their families are not healthy they will not be successful. Measuring empowerment is not only through health or money, but the combination of these two ideas and many more (e.g., skills building). HopeCore continues to strive to integrate the public health and microenterprise department in a more strategic way; this will be a focus area and strategic initiative as we look to the future.

## Other Supporting Health Projects

The projects outlined below are integrated into one of the seven major programs within the health department of the organization. Many of this initiatives are cross cutting across many of the major programs.

### Malaria Eradication

Our malaria eradication efforts can be found in our health days, through our connection with Micro Enterprise clients, and through our community outreach efforts, as demonstrated above. Malaria prevention is extremely important to our program.

#### Problem Statement

Malaria is a mosquito-borne illness affecting half of the world’s population. People living in the poorest countries are most susceptible to malaria, in 2015, 91% of all malaria deaths occurred in Africa.[[74]](#footnote-74) In 2015, 305,000 African children died before their fifth birthday.[[75]](#footnote-75)

Malaria is transmitted by female anopheles mosquitoes whose peak biting time is from midnight to 3AM resulting in the majority of infections being transmitted in the early morning hours. Many studies in Africa have documented that the single most effective malaria prevention measure is to ensure that those at risk sleep under insecticide treated bed nets. With the standard older nets, the insecticide lost its potency after six months requiring a re-treatment of the nets every six months, something that historically few villagers did. In the last five years bed nets have been developed that do not require re-treating for five years. This has markedly improved the efficacy of bed nets in the prevention of malaria.

Malaria has been linked to trapping “families and communities in a downward spiral of poverty, disproportionately affecting marginalized and poor people who cannot afford treatment or who have limited access to health care.”[[76]](#footnote-76)

HopeCore’s malaria prevention and eradication program started in 2009. Through a grant from Giving Hands, HopeCore initiated a net distribution program coupled with health education for pupils and parents. Long-lasting insecticide treated mosquito nets are distributed to community members, loan clients, and school children, accompanied each time with health education related to malaria prevention. HopeCore then targets 25% of the pupils who received nets to conduct follow up home visits to ensure proper use of the nets.

Insecticide-treated nets reduce child mortality by an average of 18%, and reduce clinical episodes of malaria by 50% on average.[[77]](#footnote-77) Another added benefit of insecticide treated nets is related to the protection they provide against head lice and bedbugs.

The WHO Global Malaria Programme asks all national malaria control programme partners to include the following in their net interventions:

* Purchase only long-lasting insecticidal nets;
* Distribute free or highly subsidized LLINs, either directly or through voucher/coupon schemes;
* Achieve full LLIN coverage, including in high-transmission areas, by distributing LLINs through existing public health services;
* Develop and implement locally appropriate communication and advocacy strategies to promote effective use of LLINs; and
* Implement strategies to sustain high levels of LLIN coverage in parallel with strategies for achieving rapid scale-up.

Our malaria eradication program effectively responds to each component of the WHO recommendations.

HopeCore’s malaria eradication programs have been very successful over the years through our community distributions, loan client distribution, and school distributions.

#### Net distribution and monitoring

HopeCore continued the regularly planned malaria eradication program by distributing nets to primary schools in the Maara Sub-County. HopeCore has distributed approximately 19,200 anti-malarial nets to the community since the initiations of this project.

While HopeCore is proud of the increasing number of pupils receiving education and nets, there is a recognition that improvements can still be made. In September 2014, we began only distributing nets pupils class 1 and below, thus reaching the key under-5 years’ population. HopeCore adjusted whom the nets are given to for financial reasons, as well as recognizing that children of specific ages can be targeted for more impact. Children five years and under are more susceptible to malaria than other age groups, and therefore net distributions will specifically target these children. By giving the nets to the first class entering each primary school, HopeCore will cover more schools per year. Furthermore, because CHWs have observed that many children share beds, HopeCore feels that more children than only those directly receiving nets will be covered, and children across the entire sub-county will be covered with nets, rather than only those attending specific schools. Additionally, according to the CDC, having an insecticide-treated mosquito net in the household can contribute to less mosquitoes in the house as a whole, thus offering benefit to individuals sleeping under the treated net, as well as those who are not sleeping under a treated net.

On a yearly basis, HopeCore visits each primary school in the Sub-County (150 schools) and give the entering class mosquito nets. The nets are long-lasting and insecticide-treated, and they will have coverage for five years.

According to the WHO, 5.5 lives can be saved every year for every 1,000 children under 5 years of age protected. Therefore, HopeCore’s malaria prevention program alone has saved 105 lives since its inception.

As outlined above, malaria prevention education is a significant part of our Health Days and more specifically our Child and Maternal Health Program. What is outlined here is a supporting aspect of the program.

#### Net sales to community-based organizations

HopeCore has continued to be a distributor of insecticide-treated mosquito nets to local community based organizations and individual loan clients.

Through the current model, HopeCore makes a small profit on each net sold as per the pricing determined by the overarching distributor. This profit then supports the payment for the nets donated to the school-children. Therefore, the mosquito nets are purchased with revolving funds leading to more sustainable programming.

#### Challenges

The biggest challenge the malaria eradication program faced in 2014 was the increase in the cost of mosquito nets. The distributor, Population Services Kenya increased the net price from approximately KSH 35 ($0.41 USD) to KSH 95 ($1.11 USD) in July 2014. This put a significant strain on our budget, as we were not expecting to have such high upfront costs. From the sales of the nets over the subsequent months we were able to purchase additional nets. As previously mentioned, while we can still sell the nets to community-based organizations as a way to cover the cost of the nets we donate, many community-based organizations reduced their orders, or stopped ordering completely, as they were also struggling to pay the difference. This situation normalized in the first quarter of 2015.

The biggest problem facing the malaria eradication program in 2015 and 2016 was a shortage in mosquito nets. The distributor, Population Services Kenya, has told HopeCore repeatedly that they are low on stock and cannot send any nets to HopeCore. Even upon reaching out to other donors, such as UNICEF, they have all referred us back to Population Services Kenya as the main distributor here and so we are waiting to hear back from them about when we will be able to procure more nets to distribute to the community.

#### Monitoring

In addition to the distribution of nets, HopeCore conducts home visits to ensure the nets are being used properly. Households from all of the schools that have received nets have been visited, reaching, on average, 30% of the pupils from each school who received nets. The tracking for these home visits has evolved over the course of the sixteen-year history ensure more accurate data for reporting and program improvement. When new reporting forms were introduced, the rate of properly hung nets is lower than previously reported, but valuable information on why nets are not hung properly was collected. The average percentage of nets being hung properly, across all of the schools, is 90%.

Since the initiation of collecting information on why nets are not being hung, the most common reason was that the children share a bed. Two children in the same school are both given a net, but when the get home, they share a bed, and therefore only one net is hung, and the other is saved in case the family needs another net in the future. As previously mentioned, it was in part for this reason, we adjusted our distribution. Since the change in distribution, we have not heard this reason for not hanging the nets.

Other common reasons for not hanging the nets include: the house being under construction, grandparents being too old or arthritic to hang the nets for the pupils, or general indifference to hanging (though this is uncommon). When nets are not hung, our staff members assist with opening the nets and allow them to hang outside to air out as recommended, so that the family can then hang the net the next day. Similarly, when nets are not hung properly, our CHWs help the family to adjust the net for maximum impact. Families have reported a decrease in the incidence of malaria in their households since receiving the nets and are all very grateful for the nets.

As outlined above, HopeCore improved the net monitoring home visits to include questions on clean drinking water and hand hygiene because HopeCore staff recognized we were missing an important opportunity to engage with community members at their homes, collect information on drinking water and hygiene, and educate them on these issues.

### Mothers-to-mothers program

Our Mothers-to-mothers program developed to support our larger, overarching Child and Maternal Health Program. As stated early, through our advise modality we are disrupting the traditional flow of information. By increasing the knowledge in the community, supporting advocates of health, and providing a resource in the community for health information we are improving the health information being shared.

The premise behind this program ties back into HopeCore’s approach to being community-based. As an organization covering and entire Sub-County we realize that we may not always be available. Additionally, many women feel more comfortable talking to community members in their village. Therefore, our approach is to train mothers to be peer educators and continuous resources for health information in their community.

To launch the program, we had community members and chiefs nominate a group of around 30 women who were seen as leaders in their community, and invited them to a weeklong training event, where we covered all women-specific topics as they were covered in our Maternal and Child Health clinics, including family planning, pregnancy, breastfeeding, nutrition, child growth and development, Vitamin A, immunizations, and child health.

Each participant took a pre-test so that the facilitators could understand the level of current knowledge. At the end of the training, the mothers took a final assessment. The mothers had to receive a passing score on the final assessment in order to receive a HopeCore tee-shirt and receive a certificate.

We then requested that these women go back to their communities and stand-in as HopeCore volunteers and ambassadors, so that women would feel comfortable coming to them with questions and issues. Since the training, our ‘Mothers’ have spoken with over 700 women in their community on topics such as nutrition, family planning and breastfeeding, and referred women to our clinic or hotline when they needed more specialized information than they could offer. This project is a reflection of HopeCore attempting to utilize the true definition of a Community Health Workers. That is:

“trusted, knowledgeable frontline health personnel who typically come from the communities they serve. CHWs bridge cultural and linguistic barriers, expand access to coverage and care, and improve health outcomes. As critical links between their communities and the health care system, CHWs reduce health disparities; boost health care quality, cultural competence and affordability; and empower individuals and communities for better health.[[78]](#footnote-78)”

By engaging these women as health ambassadors for HopeCore, we hope to be on the front lines of 21st century medicine, and gain access to communities that we would never have been able to reach before. We have already witnessed some proof of the power of community members to mobilize the population. We invited one of our mothers to host a Maternal and Child Health Clinic in her area. Over 50 mothers attended with children came and the Mother even lectured on the pertinent health topics.

## Measured Impact

### MCH clinics

With the full launch of the clinics in April 2014 we conducted baseline surveys to gain a better understanding of the behaviors of mothers before our health interventions. The survey questions are below.

1. Do you currently drink **clean** (treated or boiled) water in your home?

Yes No Sometimes

1. Do you currently have soap in your home that is used for **hand washing**?

Yes No

1. Do you currently use a family planning method?

Yes No Sometimes

If you responded yes above, which method\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

If you responded no above, do you want to use a family planning method? Yes No

1. To your knowledge, are your child’s immunizations up-to-date?

Yes No I don’t know

1. Do you and your family sleep under treated mosquito nets?

Yes No Some members do

1. Do you feel that you and your family are currently eating a balanced diet?

Yes No Sometimes

1. With your most recent child, at what age did you

Start weaning \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_?

Stop breastfeeding\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_?

Not applicable

1. Are you currently pregnant?

Yes No I don’t know

1. Have you or any family members had diarrhoea in the past 30 days?

Yes No I don’t know

This survey was translated to Kiswahili before being distributed to the mothers, and at each clinic our community health workers work with the mothers to ensure they fully understand the question and accurate answers are recorded. We had 213 mothers fill out surveys and have learned on which topics we should be focusing our health education.

When asked about clean drinking water in the home, 25% of mothers reported not having clean drinking water. Similarly, 44% of mothers reported not having soap in their homes for hand washing. Both of these indicators clearly demonstrated the need to focus on clean drinking water and hand hygiene with the mothers.

Additionally, 20% of mothers reported not using any method of family planning, and 36% of those mothers reported a desire to use family planning. Note, when we collected the surveys at the clinics, we have been trying to find these women immediately so as to provide them with family planning counseling.

Twenty-three percent (23%) of women reported that they or their families do not sleep under treated mosquito nets.

When looking at nutritional indicators, while we do not know what the mothers consider a balanced diet, we found that 34% of mothers reported that their families do not eat a balanced diet or they do not know if their families eat balanced diets.

Results from the subsequent surveys are forthcoming.

### School-based activities

In Summer 2014, a former Global Fellow, Mitsuaki Hirai, MPH, conducted the methodology and completed an impact assessment to examine how these health interventions have contributed to improving students’ health status and educational outcomes. The following sections, *Results* and *Qualitative Findings*, are an excerpt from the impact report written by Mitsuaki.

The program evaluation employed a mixed-methods approach to examine how HopeCore’s school-based health program made progress to achieve its goal and objectives. Quantitative data were collected through document review and questionnaires filled out by students, while qualitative data were obtained through in-depth interviews with teachers. Baseline data for key behavioral indicators and health outcomes were collected from Mbogori and Makuri Primary schools in 2012, and post-tests were conducted in 2014. Students from upper primary classes were requested to participate in the pre- and post-test. In order to assess the educational outcome, the public health department obtained data on the average score of Kenya Certificate of Primary Education (KCPE) exam for every school in the sub-county from the year 2008 to 2013.

#### Results

The results of student questionnaire for behavioral indicators and health outcomes are summarized in Figure 17 and 18. At Mbogori primary school, 30 male and 43 female students participated in the pre-test in June 2012, and their mean age was 11.7 years.

For the post-test conducted in 2014, 8 male and 30 female students answered the questionnaire, and their mean age was 11.8 years. The results suggest that all the students are drinking clean water at school, and the proportion of students who drink clean water in their households also increased by 75%. The proportion of students who had malaria in the past 30 days declined by 41.8%. The number of students who had diarrhea in the past 7 days increased from 6 students in the pre-test to 7 students in the post-test.

****

**(%)**

Figure 34: Pre-test (June 2012) and post-test (June 2014, September 2015, and September 2016) data summary at Mbogori Primary School

Based on the limited data availability, data from students from Class 5 through 8 were analyzed for Makuri primary school. At the pre-test, 25 male and 32 female students provided their answers while 39 male and 50 female students responded to the questionnaire at the post-test. The mean age of respondents for the pre-test and the post-test was 12.47 and 12.33 respectively. As with Mbogori, a large proportion of students (87.6%) drink clean water at school while it did not increase in the household. The proportion of students with diarrhea and malaria declined by 23.5% and 43.3%, respectively.



**(%)**

Figure 35: Pre-test (July 2012) and post-test (July 2014) data summary at Makuri Primary



Figure 36: KCPE exam results in Maara Sub-County

In regards to the educational outcome, the original mobile clinic partner schools (n = 18) significantly improved the school average of KCPE exam score between 2008 and 2013. The trend of KCPE exam results was compared with that of other public primary schools without mobile clinics (n = 82). As indicated in Figure 5, the school average score for mobile clinic schools significantly increased after 2011 and has been higher than other public primary schools for the past two years. The exam scores are summarized in Table 4.

Table 4 Average Score of KCPE exams from 2008 to 2013

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| KCPE Exam Results from 2008 to 2013 | | | | | | |
|  | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
| MC Public Schools\* | 232.02 | 232.57 | 238.96 | 232.41 | 256.31 | 253.58 |
| Non-MC Public Schools | 237.67 | 232.90 | 235.54 | 235.95 | 251.04 | 248.32 |
| All Public Schools | 236.68 | 232.84 | 236.15 | 235.33 | 251.99 | 249.27 |

\*MC = mobile clinic partner schools

#### Qualitative Findings

By conducting in-depth interviews with teachers at 9 schools, the public health team learned that schools are satisfied with HopeCore’s health education and health services overall. All the teachers similarly reported that students used to be absent from schools to visit health facilities, but they recognized the reduction in school absenteeism after their schools began to participate in mobile clinics and WASH activities (e.g., drinking clean water, washing hands with soap). The importance of HopeCore’s health program was also highlighted by the following quote:

*“The parents that we have around this place, many of them are not well financially. So, you find that sometimes when children get sick, they cannot access medicine easily, but since HopeCore got us into this program, we found that even the pupils who went out of school so that they can access health facilities, these days they are fewer. Again, you see that the ringworms that they used to get on the head…we don’t have them. In fact, if you see their heads, they are sort of clean.”*

*—Teacher at Mobile Clinic School—*

### WASH Results

In January 2015 and September-October 2016, HopeCore’s WASH Team conducted post-surveys to measure the impact on behavior and health of students in schools with our water tanks. Once again, as was the goal with the initial baseline surveys, HopeCore aimed to reach 25% of the schools’ students. Data was analyzed to assess the impact the WASH Program had on health and hygiene behaviors in school children.

HopeCore collected post-assessment survey data in 2015 from 16 of the 34 target schools (510 school children), and in 2016 from 66 schools (803 school children) and results showed that healthy behaviors in terms of hygiene increased and indicators of unhygienic behaviors decreased, compared to survey results from the baseline survey.

Of the 10 “Yes or No” questions that students are asked in the assessment surveys, 4 of these questions are classified as “negative indicator questions,” negative (i.e. “No”) answers to which will show that indicators of unhygienic behaviors are decreasing. These questions are:

Q1: Do you have a stomachache now?

Q2: Did you have a stomachache in the last 7 days?

Q5: Did you have diarrhea within the last 7 days?

Q10: Did you have malaria within the last month? (only confirmed cases at clinics/hospitals)

As the results graph below shows, the percentage of respondents that answered “No” for these negative indicator questions has increased.

As you can see in the graph above, for Question 1, 2 and 5, the responses for 2016 remained stable with the responses for 2015. The one large advance between 2015 and 2016 was Question 10, or “Did you have malaria within the last month?” which increased by almost 10% from 74 % to 82 % confirming they had not experienced any symptoms of malaria. This confirms HopeCore’s findings elsewhere, that the major push to increase usage of malaria treated sleeping nets, and raising awareness has really brought the incidence of malaria in the Maara Sub-County down, apparently to below 20% for children within the past month.

Of the 10 “Yes or No” questions in these surveys, 6 of these are classified as “positive indicator questions,” positive (i.e. “Yes”) answers to which will indicate an increase in healthy behavior. These questions are:

Q3: Do you drink clean (boiled or treated) water at school?  
Q4: Do you drink clean (boiled or treated) water at home?

Q6: Do you wash your hands with soap before eating food?

Q7: Did you wash your hands with soap before eating food yesterday?

Q8: Do you wash your hands after going to the toilet?

Q9: Did you wash your hands after going to the toilet yesterday?

The results in the graph above are interesting. The largest decrease we see from the post-assessment 2015 to the post-assessment 2016 is on Question 3: “Do you drink clean (boiled or treated) water at school?” The positive ‘yes’ answers dropped from 60% in 2015 by 15% to just 44%, or less than half, drinking clean water while at school. This is concerning, considering HopeCore provides all of our WASH schools with Water Guard and a large ‘drinking water’ tank for students so that they can always have treated water to consume at school. We are currently investigating this issue closer to find out why schools are not utilizing the Water Guard or drinking water tanks HopeCore is providing, or if they are, why students are not drinking the correct water, or are not aware of which tank to get the clean water from.

Alternatively, Question 4: “Do you drink clean (boiled or treated) water at home?” has jumped up from 60% to 77% positive responses. We hope that HopeCore’s WASH program and School-to-Community programs are helping to work towards this change having a positive effect of the behavior of people within their own homes in the Maara Sub-County.

Students’ answers for questions: 6 and 7, and 8 and 9 reveal that they are learning what proper hygienic behavior is, and aim to achieve it, but have not completely integrated these behaviors into their lives as habit just yet. This can be seen by the higher % of positive answers for the general questions 6 and 8 of: “Do you wash your hands with soap before eating food?” with 71% reporting that they do and, “Do you wash your hands with soap before eating food?” with 81% reporting that they do. In this way, when students think about the behavior they would like to be reflected, their answer is in the positive – yes I wash my hands.

But when the question is more specific, about a certain time that they did or did not wash their hands, such as question 7 of: “Did you wash your hands with soap before eating food yesterday?” and question 9: “Did you wash your hands after going to the toilet yesterday?” the students must think back on what they had done in reality, and answer honestly, that they only did so 44% and 70% of the time, respectively. This is a good thing, as it reflects that students would ideally choose to maintain proper hygienic behaviors, are aware of its importance, and if given the opportunity and they can remember, will choose to practice it.  
We conduct these surveys on a yearly basis to gauge the health and behavior of the children. Furthermore, we are seeing a close in the gap between the reality of hygienic behavior and the aspirational hygienic behavior of the students in our WASH programs.

### School-to-Community Results

We use pre- and post-surveys to determine the extent to which the school children have educated others outside of school and the impact this program has on the school children’s families’ and communities’ health and hygiene behaviors. The first pre- assessment surveys were completed during the school break in August 2016.

The surveys are conducted with community members in the areas whereby the School-to-Community program is implemented.

Of the 8 “Yes, No or Sometimes” questions that respondents are asked in the School-to-Community pre-assessment surveys, all of these questions are classified as “positive indicator questions,” positive (i.e. “Yes”) answers to which will indicate an increase in healthy behavior. As there are no negative indicator questions, all answers can be portrayed in one graph.

The questions are as follows:

1. Do you and your family always wash your hands with soap before eating?
2. Do you and your family always wash your hands with soap after using the toilet? (if no or sometimes explain why)
3. Has your child talked to you about good hygiene in the home? (if no or sometimes explain why)
4. Has anyone other than your child talked to you about good hygiene in the home?
5. Do you and your family always drink clean boiled or treated water? (If no or sometimes explain why)
6. Did you receive Water Guard from your child?
7. Did you use the Water Guard to treat your drinking water? (if no or sometimes explain why)
8. Can you explain to me how you use Water Guard to treat water?

The survey results for the pre-assessment are as follows:

As you can see outlined in the graphs above, the health club members scored higher than the non-health club members in every category. As the CHW specifically works with each schools’ health club for our School-to-Community Program. For instance, while the health club members were 25% ahead of non-health club members on Question 7 (34% compared to 60%): “Did you use Water Guard to treat your drinking water?” and 29% ahead of non-health club members on Question 6 (43% compared to 71%): “Did you receive Water Guard from your child?” these questions are entirely focused on Water Guard, which HopeCore gives out to health club members.

The fact that only 53% of non-health club members claim to consume only boiled or treated water is certainly alarming, and demonstrates the impact of the school-to-community program clearly.

# Microenterprise Department

As mentioned during our Introduction, HopeCore operates with the idea of the three-legged stool at all times. Therefore, we have addressed our health interventions, and one aspect of education we provide. Now we will move on to discuss the income generation aspect of our program.

Income generation is important to our program because it reduces poverty and provides families with an opportunity to improve their standard of living. Furthermore, if incomes are higher, then in the case of education and health, families are more able to pay. While income generation is not essential to child and maternal health, we see it as an integral part of our entire organization, and more specifically of our approach to child and maternal health.

## Program History & Evolution

The HopeCore Micro Enterprise Department has seen tremendous successes over the course of its 16-year history. Our poverty eradication program continues to witness encouraging growth. With very limited resources, we have funded a total of 95 self-help groups in the history of HopeCore for a total of 1,140 family-based income-generating micro enterprises. These family-based businesses have generated average monthly income increases of about 165% over their first 2-year loan cycles. At an average of 6 dependents per family, this program has so far benefits approximately 6,840 people in terms of better nutrition, greater ability to pay children’s school fees, to pay hospital and other health/medical related expenses, better clothing, and even bringing electricity and water to their homes.

## Program design

Our Micro Enterprise program is not strictly a microfinance institution, but a poverty reduction and sustainable livelihoods program. Our goal is to eradicate poverty in Tharaka Nithi County, and eventually throughout all of Kenya. Our micro enterprise services, provided to each of our twelve-member self-help groups include business, health, and financial literacy training; small savings schemes for self-loaning, e.g., table banking and merry-go-rounds; a soft loan cycle of $300 given to the whole group; a “normal” monetary loan of between $300 and $600 USD per person over 2 years; business monitoring and mentoring; and leadership training.

The process for each self-help group is similar. First, the groups register with HopeCore and visit the offices to introduce HopeCore staff and our mission. Then, typically, the groups participate in a merry-go-round savings scheme. Through this merry-go-round, the group members commit to contributing a set amount of money each month, week, or specified time period. Every time the contributions are made, one group member receives the entire sum of money. This process continues until the group has completed the fully merry-go-round and every group member has collected the entire sum of money one time. This savings scheme works to demonstrate the group cohesiveness and support as well as contributes to individual livelihoods because a large sum of money is often more useful than smaller amounts.

HopeCore does an income assessment for all group members that are registered with HopeCore. Through this income assessment, we can determine the level of need as well as if we think groups will be successful in the repayment of their loans.

After the completion of the merry-go-round phase, the group is then asked to participate in what we refer to as a *Soft Loan*. The soft loan process is either KES 30,000 or KES 60,000 per group, dependent on a number of criteria. The soft loan repayment period is six months at the interest rate of 4.5%. HopeCore encourages its self help groups to lend the money to individuals in the group at a 10% interest rate in order to save the 5.5% as additional money for the group’s table banking (savings), the remaining 4.5% is paid back to HopeCore.

When the soft loan is successfully repaid, often sooner than the 6-month deadline, the group is eligible to participate in the *Normal Loan*. Before being given the normal loan, a pre-funding questionnaire is completed at each of the homes to collect baseline data on the clients and their businesses. By conducting the pre-funding questionnaire it allows us to measure the impact we are having on poverty in the community. When a group receives the normal loan, each member of the group is given a tiered amount of either KES 30,000, KES 45,000, or KES 60,000 ($300, $450, and $600 USD respectively). There is a two-month grace period involved in the repayment process, and then the loan is expected to be repaid over the next 22 months. The interest rate for the normal loan is also an annual rate of 9%.

If individuals and groups are successful with the repayment of their first normal loan, they can apply to receive a second round of funding. If the HopeCore staff determines that their needs are sufficient and they have proven themselves trustworthy, they will receive a second round of funding at the same interest rate as the first.

Throughout all of these phases of loaning, business training is ongoing. The business training consists of business plan drafting, savings advice, and networking and communication support. Additionally, there is business monitoring and mentoring throughout both normal loan cycles. Our team travels to individual members’ businesses to confirm whether they have invested money as per the business plan and to offer business support and advice. Finally, leadership training is provided for the chairperson, secretary, and treasurer of each group.

At the end of both normal loan cycles, HopeCore conducts a two-year and four-year follow-up assessment. The results of these assessments are compared to the pre-funding questionnaire to measure the success of the project.

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