

2016

Maji Safi Group Report



A Detailed Analysis of Maji Safi Group's
Programs in 2016

Shirati, Rorya, Tanzania

Maji Safi Group Overview

Maji Safi Group (MSG), “Clean Water Group” in Swahili, operates in the Rorya District of Tanzania, an area consisting of farmland and villages on the shores of Lake Victoria in the Mara Region. In the Rorya District, water is taken directly from unprotected sources that are contaminated with human, animal, and industrial waste. As a result, 99% of all drinking water is contaminated with dangerous levels of pathogens, which leads to high levels of water-related diseases and widespread waterborne and water-related outbreaks (Perel-Slater, 2011). According to Dr. Chirangi, Chief Medical Officer at the Shirati KMT District Hospital, 50% of illnesses in the Rorya District come from water-related and waterborne diseases, such as schistosomiasis, cholera, and dysentery. To combat this situation, MSG began as a project under the KMT District Hospital in May 2012 to implement prevention-focused programs that reduce the occurrence of waterborne diseases.

In July 2014, to ensure sustainability within the Tanzanian organization, Maji Safi Group became a Tanzanian Nonprofit Limited Liability Company. MSG builds and trains teams of local, mostly female, Community Health Educators (CHEs), who lead disease prevention outreach and interventions. MSG was founded with the goal of developing and implementing sustainable and effective programs through participatory methods, relying on our CHEs’ expertise, community recommendations, and needs assessments. Currently, MSG effectively runs 14 community programs. Our CHEs engage residents through home visits, hospital-based programs, school groups, singing and dancing groups, sports, and other community events (e.g. the local radio station, places of business, and the local markets). These programs touch a wide spectrum of stakeholders such as parents, teachers, health care providers, government leaders, and youths. Each MSG program was created to reduce the occurrence of preventable diseases that would otherwise continue to paralyze development. MSG does this by empowering women, youths, and vulnerable groups to be change-makers in terms of their community’s public health. To reach this goal, MSG addresses the root causes of recurring preventable diseases through water, sanitation, and hygiene (WASH) and healthy lifestyle education.

MSG’s organizational approach embodies Confucius’ philosophy: “Tell me and I will forget. Show me and I may remember. Involve me and I will understand”. MSG believes that by engaging communities with fun and interactive lessons on disease prevention, participants will have the knowledge and motivation to improve their Water, Sanitation, and Hygiene (WASH) behaviors. Since May 2012, Maji Safi Group has helped local authorities fight four cholera outbreaks and has directly taught approximately 365,000 Rorya District residents WASH lessons and the importance of improving personal and community WASH behaviors.

MSG's IMPACT (2012-2016)

Program/Activity	Number Reached August 2012 – August 2013	Number Reached September 2013 – December 2014	Number Reached January 2015 – December 2015	Number Reached January 2016 – December 2016	Total Number Reached Per Program
Home Visit	1,699 Family Members	1,025 Family Members	2,464 Family Members	1,207 Family Members	6,395 Family Members
After School	3,808 Students	1,243 Students	931 Students	1,588 Students	7,570 Students
Disease Prevention Center (DPC)	791 Visits to DPC	802 Visits to DPC	1,210 Visits to DPC	1,032 Visits to DPC	3,835 Visits to DPC
Singing and Dance Group (including performances)	756 Community Members	1,048 Community Members	1,746 Community Members	3,250 Community Members	6,800 Community Members
Maji Safi Cup	2,032 Participants	1,697 Participants	4,170 Participants	6,936 Participants	14,835 Participants
Outreach (events, market visits, stores and salons, restaurants)	1,907 Community Members	6,521 Community Members	8,827 Community Members	7,699 Community Members	24,954 Community Members
Female Hygiene	-	1,282 Participants	7,890 Participants	2,342 Participants	11,514 Participants
Hotline*	-	1,326 Participants	4,603 Participants	1,467 Participants	7,396 Participants
Radio Show**	-	31,500 Listeners	49,000 Listeners	98,206 Listeners and callers (206 direct callers)	178,706 Listeners and callers
Health Screenings	-	-	3,060 Screened	5,160 Screened	8,220 Screened
Cholera Outreach	-	-	53,237 Participants	41,593 Participants	94,830 Participants
Male Hygiene	-	-	-	348 Participants	348 Participants
Total Reached each year (Excluding Radio Show, but including callers)	10,993 Community Members	14,944 Community Members	88,138 Community Members	72,828 Community Members	Overall: 186,903 Community Members
Total Reached each year (Including Radio Show)	10,993 Community Members	46,444 Community Members	137,138 Community Members	170,828 Community Members	Overall Total: 365,403 Community Members

Notes: *Hotline numbers indicate number of SMS messages sent/received and number of incoming and outgoing calls made.

**Radio Show started in October 2014 and is estimated to reach approximately 3,500 per show. This number may indicate repeat listeners as well.

Maji Safi Group Facts	
Country	Tanzania
Region	Mara
Approximate Population of Mara Region	1,700,000 Residents
Districts MSG Works in and their Approximate Populations	Rorya District = 264,000 Residents Musoma Rural = 178,000 Residents Musoma Town = 134,000 Residents
Year Established	2012
Organization Type	Nonprofit LLC, incorporated in Tanzania July 1, 2014.
“Maji Safi” is Swahili for	“Clean Water”
MSG Mission Statement	To promote health and disease prevention in underserved and impoverished areas through holistic community empowerment and by working predominantly with local women and youth.
Number of Programs	14 Programs
Approximate number of Residents Reached through MSG Programs (2012-2016)	365,000 Residents
Number of Community Health Educators	20

2016 Overview

In 2016, Maji Safi Group Tanzania accomplished many goals with the financial assistance from Maji Safi Group US, First Foundation, the Tanzanian government and other generous donors. MSG was able to focus on growing the Tanzanian staff with the goal of reaching more locations and delivering more impactful lessons in 2017. MSG hired seven new Community Health Educators (CHEs) in October after a six-month training period. Each of the new CHEs was taught about MSG and WASH education by MSG’s current CHEs.

Overall, MSG reached over 170,000 community members when analysis includes listeners to the MSG radio show, event spectators and listeners to announcements. When only looking at the lessons taught directly, CHEs reached over 56,000 Mara Region community members with lifesaving WASH education.

MSG continued to maintain and increase organizational partnerships during the year. Our major partners included TAWASANET (Tanzania Water and Sanitation Network), TAFIRI (Tanzania Fisheries Research Institute), INTERTEAM, the City of Zurich, First Foundation, village and district councils, regional and district level governments, the KMT Hospital, and the WHO.

MSG continued to maintain its existing programs while starting one new program: Male Hygiene (our Female Hygiene Program's counterpart). Additionally, MSG programs are now running more efficiently and effectively with our two newly hired staff members: Female Hygiene Program Manager and Cashier and Monitoring and Evaluation (M&E) Assistant.

Our participatory model has gained acceptance in the community, and our monitoring and evaluation results indicate that Shirati community members are changing their WASH behaviors and becoming healthier. This is seen especially with MSG program participants and participants' families that have worked with MSG throughout the years. To further demonstrate the success of our programs and WASH education, MSG conducted its second year of health screenings of program participants and community members. With help from local health authorities, MSG used blood, urine and stool samples to screen for the occurrence of waterborne and water-related diseases, including malaria, schistosomiasis, amoebas, intestinal worms, and urinary tract infections (UTIs). If the participants tested positive, they received medicine to treat any infections free of charge. Overall, the results indicated that WASH-related disease rates decreased four percent compared to previous years, and MSG program participants have significantly lower disease prevalence rates than community members without MSG education. MSG will continue to screen program participants and community members for one to three more years to further prove MSG's impact.

The rest of this report gives a detailed analysis of each program explaining the program's reach, successes and opportunities for improvement.

1. Community Health Educator Program

Maji Safi Group employs full-time Community Health Educators (CHEs), also known as *Mabalozi wa Maji*, to promote proper Water, Sanitation and Hygiene (WASH) practices. MSG trains and certifies CHEs to teach disease prevention methods, such as correctly filtering and treating water, cleaning and preparing food, thoroughly washing hands, and practicing proper menstrual hygiene management. CHEs are the face of Maji Safi Group in Shirati – they are responsible for facilitating and leading all of MSG's interventions, and, as they speak the local language and understand their community's history and culture, they are a highly effective group in terms of initiating WASH behavior change.

Hiring Shirati residents also provides employment opportunities and builds local capacity. In addition, as women typically are key change-makers in development, 80% of MSG's CHEs are female. Quality employment with social security and health insurance benefits improves the health of their families and ensures that their children can stay in school. When MSG employees invest in healthy practices in their homes and obtain financial stability for their families, they are further empowered to be WASH leaders and role models in their communities.

MSG expanded significantly in 2016. We started the year with 13 CHEs and had hired seven additional CHEs by the end of the year. In April 2016, the CHE leaders started training these

new Jr. CHEs who went through a six-week intensive WASH training program and were subsequently tested in the field for two more months. In September 2016, we tested the seven CHE trainees on their WASH knowledge. Their average WASH test score was 79.6%, and based on this information, we confidently signed contracts with the six trainees who scored 80% or higher on their WASH test. The one remaining trainee who did not perform well on her test will continue to be trained and then tested again in 2017. If she does not pass the second time, she will be asked to leave the organization.

Every year, CHEs go through biannual evaluations where the management is able to retest their WASH knowledge. Of the contracted CHEs, the average WASH test score was 90%, which showed us that our long-time employees truly know the education they teach the community. In 2016, we promoted six CHEs and will reassess the remaining seven veteran CHEs after six months. Due to the successes of the CHEs and Jr. CHEs, we were able to hold a graduation ceremony and end-of-the-year party to celebrate the hard work the staff accomplished in 2016.

2. Learning Tools

MSG spreads WASH and disease prevention awareness through various mediums. Wall murals, painted by local artists, provide a constant reminder of WASH best practices. These paintings visually demonstrate disease prevention techniques such as washing your hands properly, brushing your teeth, and using the toilet. In conjunction with other MSG outreach programs, these murals are easily accessible and long-lasting learning tools for the entire community.

Our skilled Community Arts Coordinator (CAC), Multimedia Coordinator, and INTERTEAM Development Worker were able to accomplish a lot this year. The CAC completed six murals at the KMT Hospital. These murals are located at the entrance of the hospital, and each mural represents a way to prevent diseases. The CAC also painted a mural for MSG's first School Health Club, located at Tina's Education Center. Along with murals, the CAC worked hard throughout the year to help each program complete its goals by creating banners and educational handouts and by teaching the CHEs how to use art in their lessons.

The Multimedia Coordinator (MMC) was able to digitalize work the CAC drew for handouts. The MMC also took pictures and edited pictures throughout the year and designed the Annual Report. The INTERTEAM Development Worker was able to create four new videos for the organization: one representing the cholera outbreak, one for the health screening campaign, and two that were written and acted out by the CHEs with the goal of teaching WASH lessons to the community.

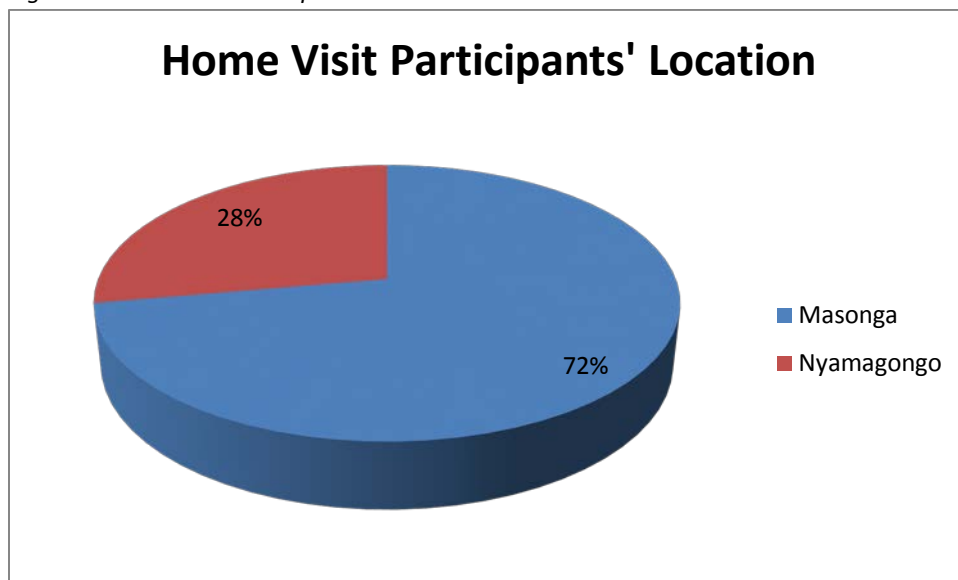
3. Home Visit Program

The Home Visit Program, MSG's first program, started in August 2012. From the beginning, teaching women, families and vulnerable groups about WASH and disease prevention via one-on-one lessons at their homes has been a priority. The goal of this program is to teach

community members how to improve their WASH behaviors in the comfort of their own home. During the non-farming dry season, CHEs conduct home visits with local families. During their first visit, the CHEs conduct intake assessments of the families to assess their current WASH and health situation. Two hour-long WASH lessons are then provided to the families based on their specific WASH needs. The number of visits is also based on these needs. Once the CHEs finish teaching the MSG curriculum, they conduct a post assessment with the families to measure their WASH behavioral changes. Post assessments are conducted within 18 months of the first set of WASH lessons and/or followed up by calling participants on the MSG Hotline.

In 2016, MSG visited 186 families through the Home Visit Program. This information excludes families that were visited during the regional cholera outbreak. During 2016, the Home Visit Program ran for 53 days, reaching approximately 3.5 families per day. MSG focused its home visit education in Nyamagongo and Masonga in 2016. See Figure 1.

Figure 1: Home Visit Participants' Location



While the lessons were taught primarily to female heads of households, the education we provided positively affected entire families. MSG reached 1,207 people in 186 families. We found that the average family has 6.6 members. The average number of people rose from 5.2 to 6.6 since 2015. These families were broken into two groups: 162 that were visited for the first time and received the MSG WASH lessons for the first time and 24 families from 2015-2016 whom MSG revisited to assess if the families were changing their WASH behaviors at home. This year, MSG had several emergency cholera outbreaks that deterred MSG from completing home visit assessments. Nevertheless, we were still able to measure WASH knowledge and behavioral change on a family level.

The 162 families who participated in the MSG Home Visit Program for the first time had 1,046 members. The families consisted of 53% females and 47% males, as shown in Figure 2. The age groups within these families were broken up into 0-3 years, 4-10 years, 11-18 years, and 19

years and older. The age groups are charted below in Figure 3, showing that the 19 years and older age group was the largest. Additionally, data indicated that the majority of those taught were farmers, which means a high percentage of women in this community are tasked with farming duties in addition to caring for their families. Recorded professions are indicated in Figure 4.

Figure 2: Gender Percentage of Home Visit Participants

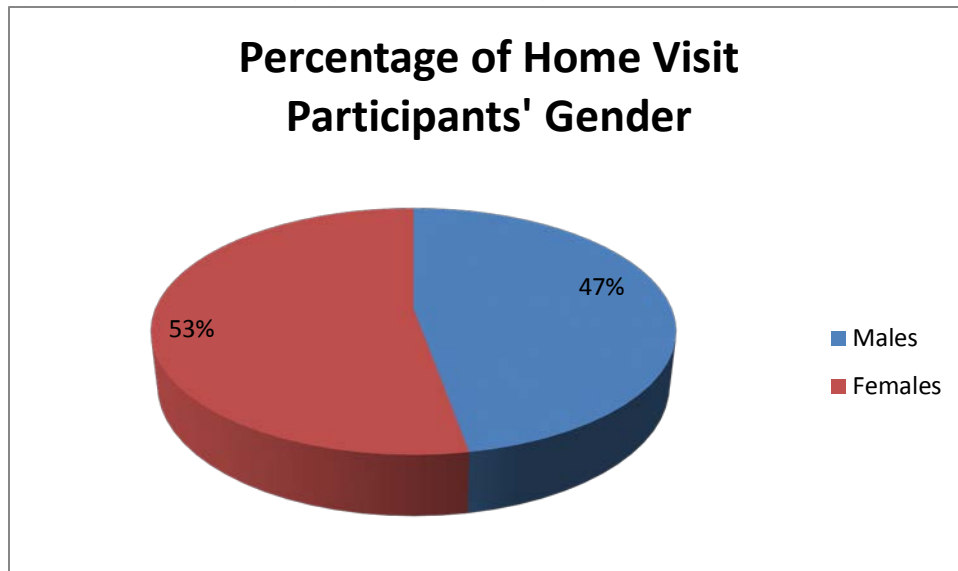


Figure 3: Percent of Home Visit Participants' Ages

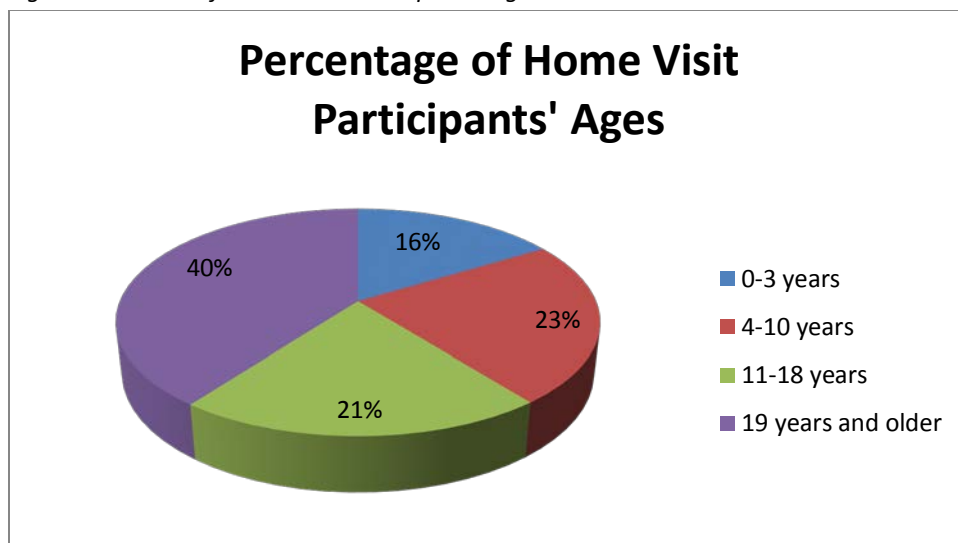
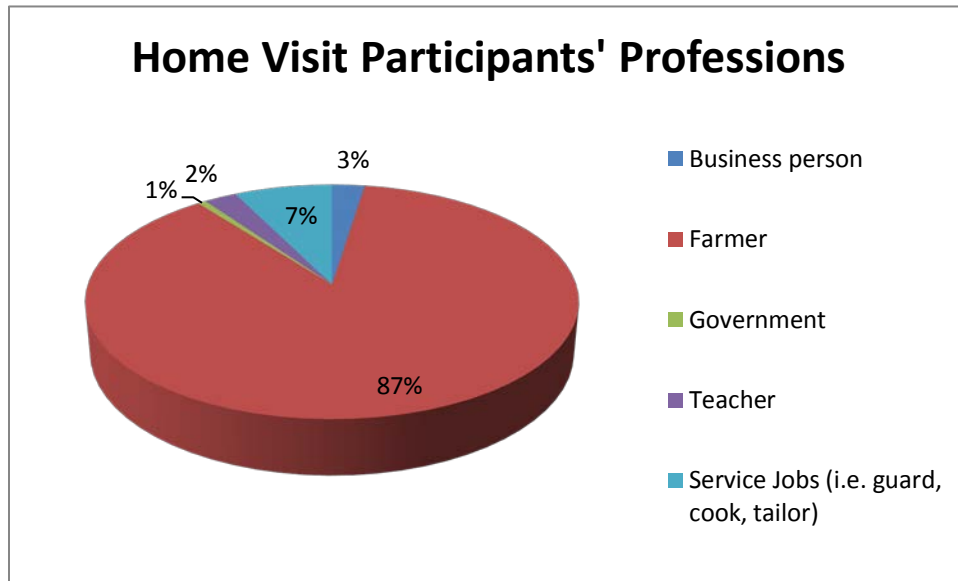
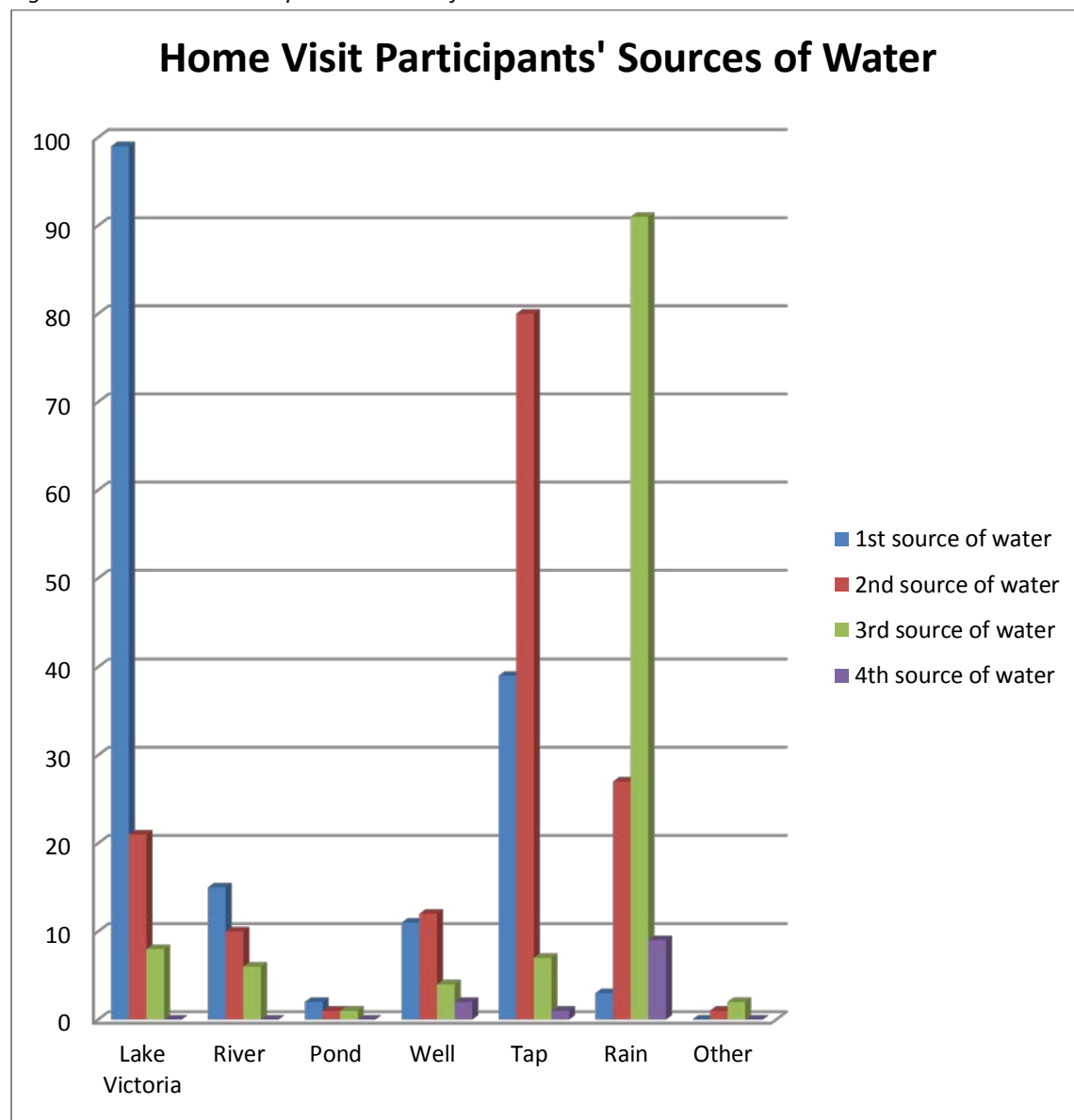


Figure 4: Home Visit Participants' Professions



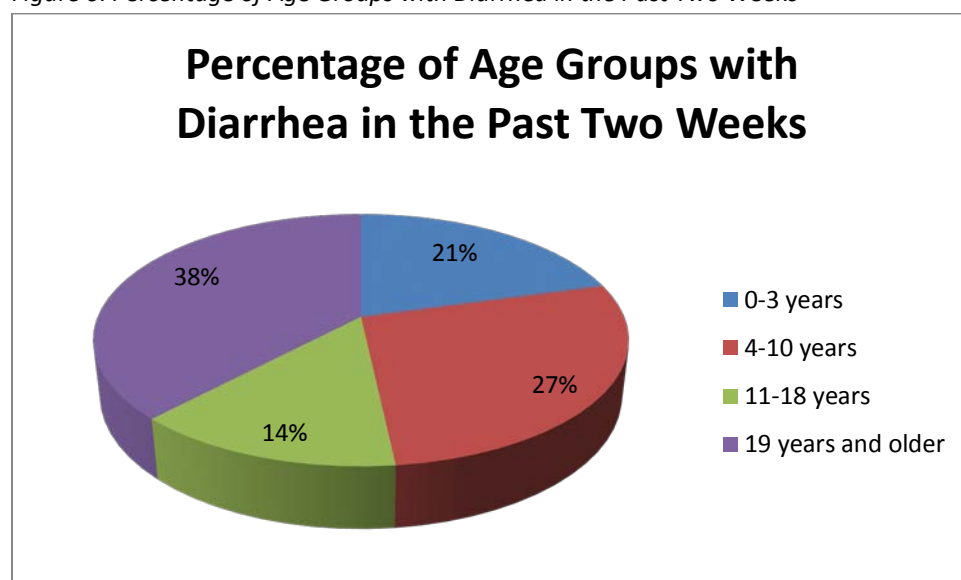
One lesson our CHEs teach is water source evaluation. During the home visit initial assessment, the CHEs evaluate where the participants get their water. Since one water source is not always reliable, the participants indicated their first, second, third and fourth choice of water source. Lake Victoria is the top water source for these program participants. See Figure 5.

Figure 5: Home Visit Participants' Sources of Water



Intake assessments also include how many family members had had diarrhea in the past two weeks. Overall, 3% of family members had had diarrhea in the past two weeks, which is a decrease of 5 percentage points from 2015. This change could be due to seasonal differences and the massive cholera outbreak that affected the region last year. The highest diarrhea rates came from adults ages 19 years and older. The diarrheal rates per age groups are shown below in Figure 6.

Figure 6: Percentage of Age Groups with Diarrhea in the Past Two Weeks



Before the CHEs start their WASH-related lessons, an intake assessment is taken of the family and their home environment. Figure 7 below shows how families answered WASH-related questions about their homes. This information is important to MSG, as it gives a picture of an average family living in the Masonga or Nyamagongo areas. This information helps MSG strengthen its programs and see where MSG education is needed the most.

Figure 7: Intake Assessment Answers

Question Asked	Family Answer	Intake Assessment Percentage
1. Does the family filter their drinking water?	Yes	68%
	No	19%
	Unanswered	13%
2. At which important times does the family wash their hands?	Before food preparation	64%
	Before eating	98%
	Before feeding babies	60%
	After defecation	85%
	After cleaning up babies' feces	50%
	Do not wash their hands	3%
3. Does the family treat their hand-washing water?	Yes	41%
	No	59%
4. Does the family use soap when washing their hands?	Yes	77%
	No	22%
	Unanswered	1%

5. Does the family cover their food?	Yes	99%
	No	1%
6. Does the family use soap and treated water to wash their dishes?	Yes	24%
	No	70%
	Unanswered	6%
7. Does the family have a latrine?	Yes	77%
	No	22%
	Unanswered	1%
8. Does the family use their latrine?	Yes	74%
	No	24%
	Unanswered	2%
9. Type of latrine	Improved pit latrine	37%
	Pit latrine	39%
	Bushes	17%
	Digging hole	6%
	Other	1%
10. How does the family dispose of trash?	No means of disposal	2%
	Burning	46%
	Pit (digging hole)	42%
	Trash pile (no digging)	10%
11. Does the family have good personal hygiene?*	Yes	85%
	No	8%
	Unanswered	7%

*This assessment is subjective, decided by the CHE.

From the intake assessments, we learned that 68% of program participants filter their water (as indicated by Question 1 in Figure 7). We also found out how the program participants treated their water. Prior to MSG education, 24% of program participants did not treat their water, while the majority used boiling and chlorine methods, as indicated in Figure 8. Additionally, Question 8 in Figure 7 indicated that 24% of program participants did not use a latrine, meaning they used open defecation. Some participants were digging shallow holes and covering up their waste; however, this is still considered open defecation. CHEs asked program participants why they were not using the latrine, and their reasons are indicated in Figure 9.

Figure 8: Water Treatment Methods of Home Visit Participants

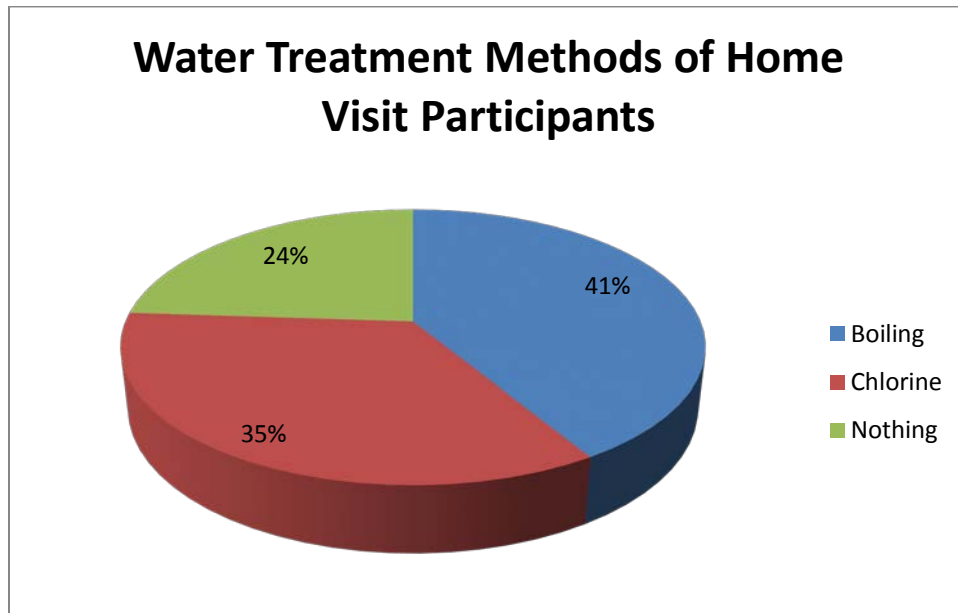
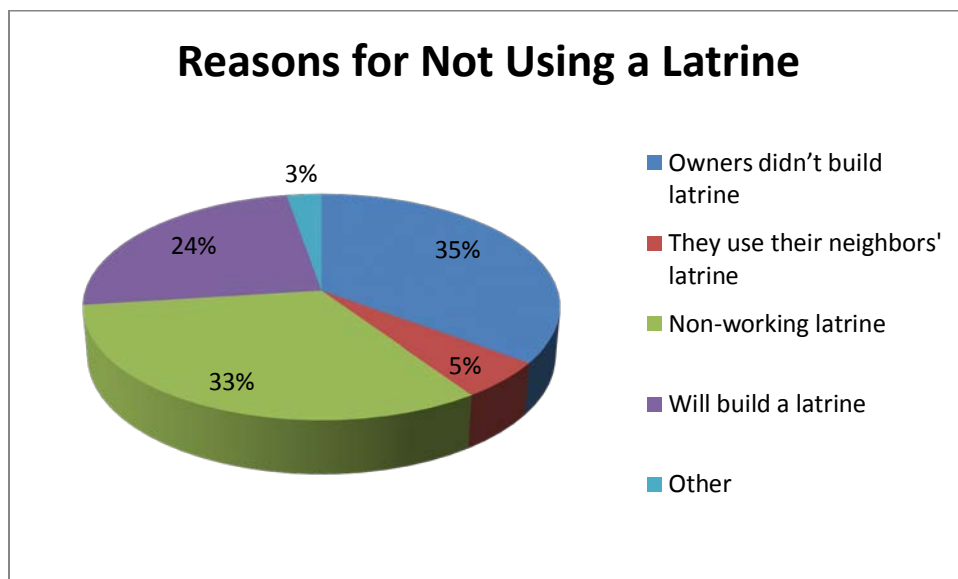


Figure 9: Reasons Home Visit Participants Do Not Use a Latrine



MSG was able to assess the impact of the Home Visit Program by testing behavioral change after MSG had provided WASH education. Twenty-four families were given post assessment evaluations. The fewest number of visits from the CHEs was 2 times, while the greatest number of visits was 6 times. On average, the CHEs visited the families 3.4 times. From these participants, we were able to see that there was an increase in WASH behavioral changes within households that participated in the Home Visit Program. See Figure 10 – Figure 17 to see the WASH behavioral changes made by the families.

Figure 10: Change in Filtering Drinking Water

Question Asked	Type of Change	Count of Home Visit Participants (out of 24 people)	Percentage
Does the family filter their drinking water?	Filtered drinking water prior to MSG lessons and continued filtering drinking water after MSG lessons	14	58%
	Started filtering drinking water after MSG education	9	38%
	Did not change their WASH behavior	0	0%
	Unanswered	1	4%

Figure 11: Change in Hand Washing at Critical Times

Question Asked	Time	Type of Change	Count of Home Visit Participants (out of 24 people)	Percentage
At which critical times does the family wash their hands?	Before food preparation	Washed hands prior to MSG lessons and continued washing hands after lessons	12	50%
		Started washing hands after MSG lessons	9	38%
		Did not change their WASH behavior	0	0%
		Unanswered	3	12%
	Before eating	Washed hands prior to MSG lessons and continued washing hands after lessons	23	96%
		Started washing hands after MSG lessons	1	4%
		Did not change their WASH behavior	0	0%
		Unanswered	0	0%
	Before feeding babies	Washed hands prior to MSG lessons and continued washing hands after lessons	10	42%
		Started washing hands after MSG lessons	7	29%
		Did not change their WASH behavior	2	8%
		Unanswered	5	21%
	After defecation	Washed hands prior to MSG lessons and continued washing hands after lessons	18	75%
		Started washing hands after MSG lessons	5	21%
		Did not change their WASH behavior	0	0%
		Unanswered	1	4%

	After cleaning babies' feces	Washed hands prior to MSG lessons and continued washing hands after lessons	7	29%
		Started washing hands after MSG lessons	10	42%
		Did not change their WASH behavior	4	17%
		Unanswered	3	12%

Figure 12: Change in Treating Hand-Washing Water

Question Asked	Type of Change	Count of Home Visit Participants (out of 24 people)	Percentage
Does the family treat their hand-washing water?	Treated hand-washing water before MSG lessons and continued treating hand-washing water after lessons	8	33%
	Started treating hand-washing water after MSG lessons	9	38%
	Did not change their WASH behavior	7	29%
	Unanswered	0	0%

Figure 13: Change in Using Soap during Hand Washing

Question Asked	Type of Change	Count of Home Visit Participants (out of 24 people)	Percentage
Does the family use soap when washing their hands?	Used soap before MSG lessons and continued using soap after lessons	13	54%
	Started using soap after MSG lessons	7	29%
	Did not change their WASH behavior	4	17%
	Unanswered	0	0%

Figure 14: Change in Using Soap and Treated Water when Washing Dishes

Question Asked	Type of Change	Count of Home Visit Participants (out of 24 people)	Percentage
Does the family use soap and treated water to wash their dishes?	Used soap and treated water for dishes before MSG lessons and continued using soap and treated water for dishes after lessons	6	25%
	Started using soap and treated water for dishes after MSG lessons	9	38%
	Did not change their WASH behavior	9	37%
	Unanswered	0	0%

Figure 15: Change in Latrine Use

Question Asked	Type of Change	Count of Home Visit Participants (out of 24 people)	Percentage
Does the family have a latrine?	Had a latrine before MSG lessons and still has a latrine after lessons	15	63%
	Built a latrine after MSG lessons	7	29%
	Did not change their WASH behavior	2	8%
	Unanswered	0	0%

Figure 16: Change in Latrine Use

Question Asked	Type of Change	Count of Home Visit Participants (out of 24 people)	Percentage
Does the family use their latrine?	Used latrine before MSG lessons and continued using latrine after lessons	14	59%
	Started using latrine after MSG lessons	7	29%
	Did not change their WASH behavior	2	8%
	Unanswered	1	4%

Figure 17: Change in Personal Hygiene

Question Asked	Type of Change	Count of Home Visit Participants (out of 24 people)	Percentage
Does the family have good personal hygiene?*	Had good personal hygiene before MSG lessons and continued having good personal hygiene after lessons	20	83%
	Started having good personal hygiene after MSG lessons	4	17%
	Did not change their WASH behavior	0	0%
	Unanswered	0	0%

*This assessment is subjective, decided by the CHE.

These WASH behavioral changes are key to changing the health of a community. While MSG has seen significant changes in Home Visit Program participants, the true indicator of change is health. Each year, MSG measures the community's health through our Health Screening Program. Below are results from Home Visit Program participants in Figure 18. Data indicate that Home Visit Program participants have a lower disease prevalence rate in most WASH-

related diseases (amoebas, intestinal worms, schistosomiasis in stool and urine, and malaria). However, there is a higher prevalence rate of UTIs.

Figure 18: Home Visit Program Participants' Health Screening Disease Rates

2016 Health Screening Rates	Amoebas	Intestinal worms	Schisto-somiasis in Stool	Schisto-somiasis in Urine	UTIs	Malaria
Overall percentage of health screening participants who tested positive	14%	24%	7%	13%	51%	22%
Home Visit Program Participants	13%	8%	3%	7%	57%	8%
Community members without MSG education	18%	41%	10%	21%	49%	23%

Home Visit Discussion

The Home Visit Program continues to be an important and impactful MSG program. Program participants continuously say that MSG's education has helped their families change their WASH behaviors and protect their families from waterborne and water-related diseases. We saw families start filtering and treating their water, build latrines and stop open defecation, start using soap, and start washing their hands at critical times. The real impact of the Home Visit Program was reflected in the health screening rates, which indicated that those who participated in the Home Visit Program had a lower disease prevalence rate for amoebas, intestinal worms, schistosomiasis and malaria compared to community members without MSG education. It is encouraging to see the data reflect an improvement in the families' WASH behaviors in the core MSG WASH lessons about water treatment, hand washing during critical times, and latrine use.

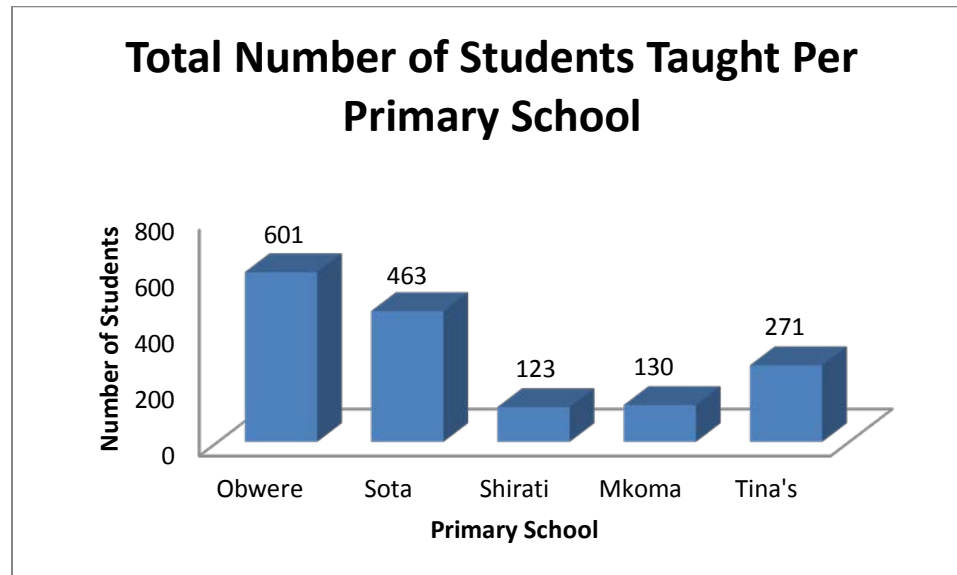
While we continue to strengthen this program via improved WASH lessons and data collection, there are still areas with room for improvement. Firstly, the data clearly illustrate that MSG could improve lessons on how to prevent UTIs. Also, again this year, due to the cholera outbreak, MSG was not able to reach as many families as planned for a post assessment. MSG should use the beginning of 2017 to make post assessments to continue to evaluate the program's impact. Additionally, this program could improve by creating positive incentives for those who build a latrine. Prizes could be a good way to encourage non-latrine users to use a latrine. Lastly, we could improve this program by getting village leaders involved and having Home Visit families in the same neighborhood come together and explain what has or has not worked.

4. After School Program

The After School Program started in 2012 and was one of MSG's original programs. The goal of this program is to teach children about proper WASH behaviors and disease prevention, while also allowing them to have a creative, fun experience. By learning how to care properly for their own health, students stay healthy, remain in school, and can therefore achieve their full potential. Using the students' creative, artistic, and critical thinking skills, CHEs teach disease prevention education about topics such as waterborne and water-related diseases, proper water treatment, sanitation, hygiene practices, and the fecal-oral disease cycle. MSG also donates hand-washing stations and ceramic drinking water filters to enable proper WASH techniques at schools.

Since starting this program in 2012, MSG has had a presence in 13 primary schools, reaching over 7,000 students. In 2015, the District Education Officer granted MSG permission to work in all 126 primary schools in the Rorya District. It is our goal to work in as many primary schools as we can, so we can continue to spread this important, life-changing WASH education. In 2016, MSG focused on providing MSG education to five schools – four government primary schools (Sota Primary School, Obwere Primary School, Shirati Primary School, and Mkoma Primary School) and one private primary school (Tina's Education Center). See Figure 19 to understand the breakdown of the number of students taught per school. MSG also taught in schools throughout the Rorya District when there was a mass cholera outbreak in the area.

Figure 19: Total Number of Students Taught per Primary School



In the five schools we continuously visited, CHEs taught 1,588 students from class 3 to class 7. See Figure 20. The average overall age in primary schools was 12 years, and the gender breakdown was 46% male and 54% female. These results are indicated in Figure 21. CHEs taught 104 lessons in these schools throughout the year. In the five schools, CHEs taught an

average of 63 students per lesson, but the number of students per lesson varied depending on the school. At Obwere, CHEs taught an average of 96 students per lesson. At Sota, CHEs taught an average of 51 students per lesson. Shirati and Mkoma were both added to the program near the end of the year, so little data was recorded for those two schools. However, it was found that Shirati's classroom size averaged 35 students per lesson. Lastly, Tina's student per lesson average was 42 students.

Figure 20: Total Number of Students and Classes Taught at all Five Schools

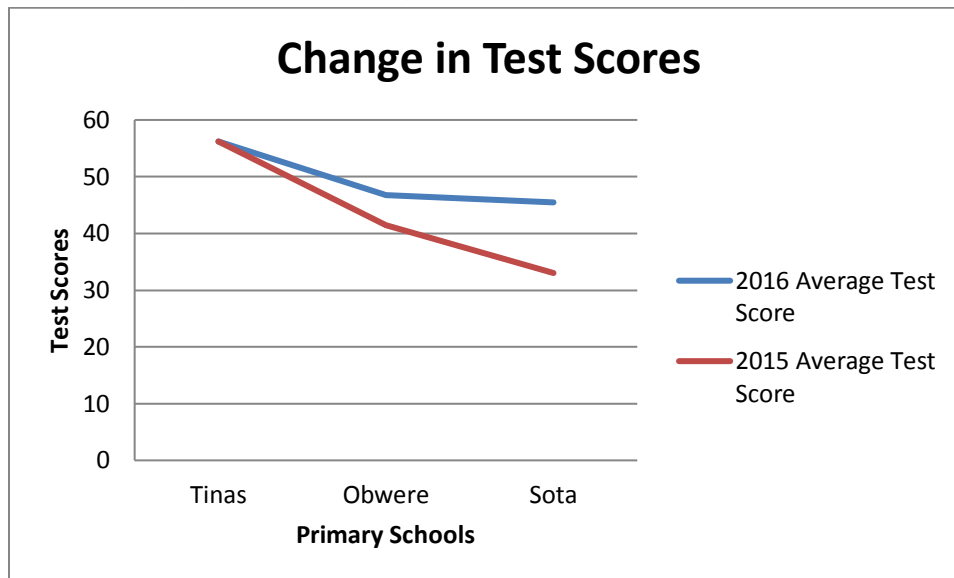
Class Level	Total Number of Students	Total Number of Classes Taught
3	292	22
4	374	27
5	248	20
6	296	21
7	378	14
Total	1,588	104

Figure 21: Participants' Average Age and Gender

School Name	Average Age	Percentage of Males	Percentage of Females
Mkoma Primary School	11	46%	54%
Obwere Primary School	12	45%	55%
Sota Primary School	13	44%	56%
Tina's Education Center	11	48%	52%
Shirati Primary School	12	47%	53%

After each year, students are tested on their WASH knowledge. This year, CHEs tested WASH knowledge at Tina's, Sota, and Obwere since these schools are the ones that were selected to start School Health Clubs. Tina's performed the best, with the highest test score being 100%, followed by Obwere and then Sota. When comparing the schools' test scores to their previous scores, MSG saw an overall increase in the understanding of WASH knowledge. Compared to their first tests, Tina's showed no change in test scores, Obwere increased their test scores by 5%, and Sota increased their test scores by 12%. See Figure 22.

Figure 22: Change in WASH Knowledge Test Scores



After School Program and the Cholera Outbreak

In December 2015, Maji Safi Group (MSG) received a call to action from the Mara Region government to reach out to local community members during a severe cholera outbreak. Emergency outreach included lessons about cholera prevention and treatment. This education was given to community members in infected areas in the form of market outreach, home visits, and teaching at primary and secondary schools. Due to the nature of this emergency, all MSG programs were closed until the cholera outbreak was no longer ongoing in the districts MSG was working in. The first cholera outbreak of the year stopped at the end of February 2016.

From January 2016 to February 2016, MSG taught students and teachers at primary and secondary schools about the cholera outbreak and ways to prevent cholera from affecting their families. Over five weeks, the MSG Community Health Educators focused on teaching students and visited 38 primary and secondary schools. The CHEs traveled throughout the Rorya and Musoma municipal and rural districts to teach a range of students from kindergarten to Form 4. In total, MSG reached 22,118 students and teachers with emergency cholera education. Data showed that 50% of the students were female and 50% were male. See Figure 23 and 24 to understand MSG's reach during this time.

Figure 23: Cholera Outreach in Primary Schools

School Name	Class	Total Number Reached	Number of Females	Number of Males
Bugendi A Primary School	Class 1-7	574	285	289
Bugendi B Primary School	Class 1-7	548	324	224
Busanga Primary School	Class 1-7	414	211	203
Gabimori Primary School	Class 1-7	540	256	284
Madame Elizabeth Primary School	Kindergarten-Class 2	87	36	51
Majengo Primary School	Class 2-7	352	187	165
Malkio Shirati Primary School	Class 1-7	343	153	190
Manila Primary School	Class 1-7	358	186	172
Masonga Primary School	Class 1-7	394	207	187
Michire Primary School	Kindergarten-Class 7	354	182	172
Milenia Primary School	Class 1-7	325	159	166
Mkoma Primary School	Class 3-7	327	181	146
Muharango Primary School	Class 1-7	724	364	360
Ngasaro Primary School	Class 3-5	235	112	123
Ngasaro Primary School	Class 6&7	182	92	90
Nyamagongo Primary School	Class 1-7	459	213	246
Nyamgere Primary School	Class 1-7	766	367	399
Nyarombo Primary School	Class 1-7	469	220	249
Obwere Primary School	Class 1-7	611	319	292
Rwang'enyi Primary School	Class 2-7	639	333	306
Shirati Primary School	Class 1-7	223	114	109

Sota Primary School	Class 1-7	523	277	246
Tina's Education Primary School	Class 3-6	187	105	82
Nyakato Primary Schools	Three Schools (A,B,C): Class 1- 7	4,070	2,023	2,047
Mshikamano Primary Schools	Two Schools (A and B): Class 1- 7	2,671	1,376	1,295
Kigenra Primary Schools	Two Schools (A and B): Class 1-7	2,544	1,347	1,197
Bakita Musoma Primary School	Class 1-7	490	238	252
Makoko Musoma Primary School and Nyarigamba Primary Schools	Three Schools (Makoko, Nyarigamba A and B): Class 1-7	982	522	460
Makoko Musoma Primary School	Class 1-7	180	107	73
Total		20,571	10,496	10,075

Figure 24: Cholera Outreach in Secondary Schools

School	Class	Total Number Reached	Number of Females	Number of Males
Katuru Secondary School	Form 1-4	360	149	211
Nyamagaro Secondary School	Form 1-4	758	338	420
Nyamtinga Secondary School	Form 1-4	180	45	135
Siko Secondary School	Form 1-4	249	118	131
Total		1,547	650	897

The cholera outreach at schools was different from MSG's normal After School Program because CHEs taught entire schools rather than small classrooms sizes. The CHEs also only visited each school once in order to reach more students in the district. While MSG would have preferred to spend more time with a school teaching smaller classes, the lessons were well received. In addition, MSG gained partnerships with the local and regional governments and the World Health Organization (WHO). The district and regional governments were thrilled to

have MSG travel through the region to teach classes about cholera and cholera prevention. The WHO donated teaching supplies like water treatment supplies, flipbooks, posters and flyers.

MSG was also able to design a new handout given to nearly 20,000 community members. Teachers and students were attentive and left the lessons aware of the severity of the health situation. Rumors about cholera were debunked, and students had a better understanding of how to protect themselves and their families.

Primary and Secondary School Health Screening Results

MSG was able to include eight schools that collaborate with MSG in the 2016 Health Screening Program. The eight schools participated in the After School Program either as a past or current location for MSG education. All primary schools are located in the Tai or Mkoma ward in the Rorya District (Michire Primary School, Mkoma Primary School, Obwere Primary School, Sota Primary School, Tina's Education Center, and Shirati Primary School). Additionally, MSG was able to screen a small sample of secondary school students from schools where MSG has taught Male and Female Hygiene. These schools also educate students who have completed the MSG After School Program in previous years. Like the primary schools, the secondary schools are also located in the Tai and Mkoma Wards (Katuru Secondary School and Tai Secondary School).

When looking at the health screening data from the After School Program participants, we also looked at MSG's participation level, broken up into seven levels:

- participated in After School Program for 1-3 lessons over a year ago;
- participated in After School Program for 4 lessons over a year ago;
- participated in After School Program for 5+ lessons over a year ago;
- participated in After School Program for 1-3 lessons within the current year;
- participated in After School Program for 4 lessons within the current year;
- participated in After School Program for 5+ lessons within the current year; and
- never participated in the After School Program.

MSG is given individual classes to teach during the After School Program; therefore, there are some class levels that have not received MSG education yet. Of those who were screened at a school, 48% (1,501 participants) participated in the After School Program either as a past or current participant, and 52% (1,617 participants) have yet to receive MSG WASH education during the After School Program. Figures 25–28 show a breakdown of the different schools, classes, and overall MSG participation level.

Figure 25: Level of Health Screening Participation by School

School Name	Number of Health Screening Participants	Percentage of School Participation in Overall Health Screening Campaign
Michire Primary School	368	7%
Mkoma Primary School	460	9%
Obwere Primary School	781	15%
Sota Primary School	362	7%
Tina's Education Center	300	6%
Shirati Primary School	384	7%
Katuru Secondary School	107	2%
Tai Secondary School	359	7%
Non-School Participants	2,022	40%
Total	5,143	100%

Figure 26: Percentage of Students from Schools that Participated in Health Screenings

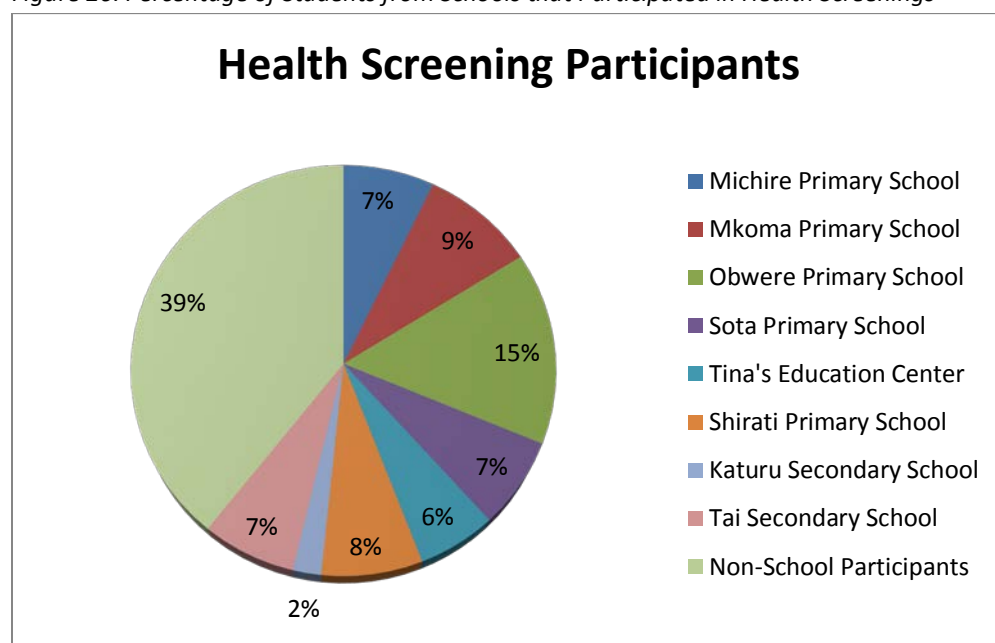
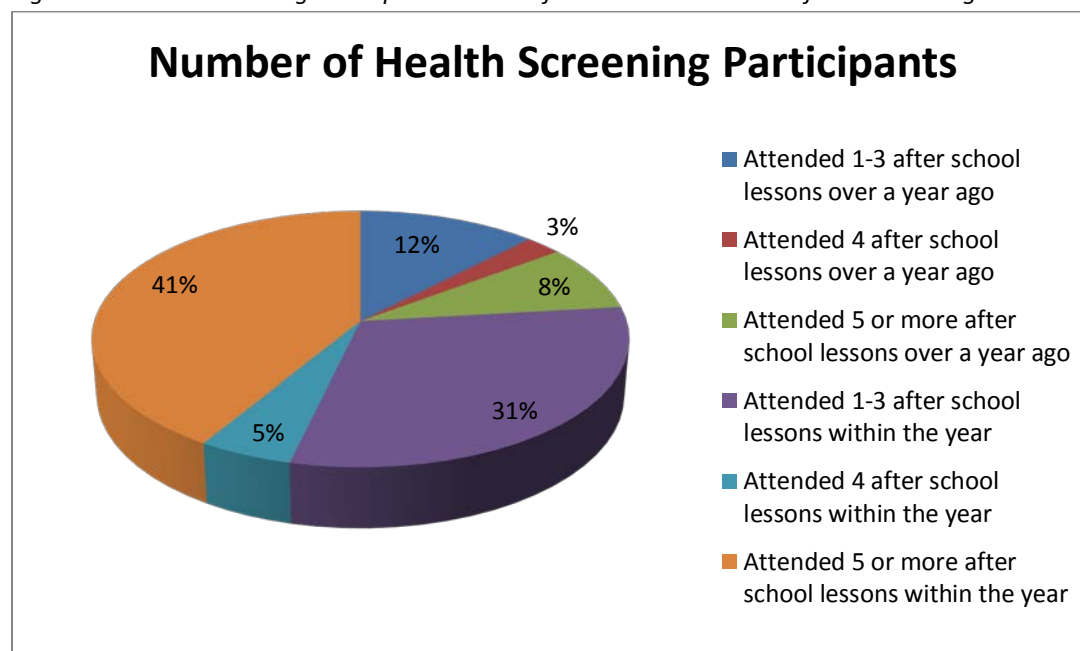


Figure 27: Health Screening Participants – Level of Attendance in MSG’s After School Program*



*This graph does not include Community members without MSG education.

Figure 28: After School Participant Status

Level of After School Participation	Attended 1-3 after school lessons over a year ago	Attended 4 after school lessons over a year ago	Attended 5 or more after school lessons over a year ago	Attended 1-3 after school lessons within the year	Attended 4 after school lessons within the year	Attended 5 or more after school lessons within the year	Total number of students screened who have participated in the After School Program	Student who never participated in the After School Program
Number of Health Screening Participants	184	38	126	458	75	620	1,501	1,617

During the 2016 health screening initiative, the program participants were screened and treated for amoebas, intestinal worms, schistosomiasis in stool, schistosomiasis in urine, UTIs, and malaria. Figure 29 shows an analysis of the program participants’ waterborne and water-related disease rates.

Figure 29: Disease Rates per School

School Name	Percentage tested positive for amoebas	Percentage tested positive for intestinal worms	Percentage tested positive for schistosomiasis in stool	Percentage tested positive for schistosomiasis in urine	Percentage tested positive for UTI	Percentage tested positive for malaria
All Health Screening Participants	14%	24%	7%	13%	51%	22%
Michire Primary School	18%	11%	9%	5%	56%	30%
Mkoma Primary School	10%	32%	2%	15%	34%	16%
Obwere Primary School	11%	24%	6%	12%	45%	31%
Sota Primary School	6%	6%	6%	1%	57%	20%
Tina's Education Center	10%	13%	7%	14%	35%	33%
Shirati Primary School	12%	25%	1%	15%	47%	22%
Katuru Secondary School	11%	8%	4%	21%	41%	12%
Tai Secondary School	27%	52%	12%	22%	65%	27%

**Note: Please note that all percentages were based off only those who produced a stool and/or urine sample.*

Figure 29 illustrates that Tai Secondary School has the highest disease rates, aside from the malaria rate, which is the highest at Tina's Education Center. MSG does not have an active After School Program at the secondary schools; however, many of the students participate in the Male Hygiene and Female Hygiene Programs. The school with the lowest disease rates for amoebas, intestinal worms and schistosomiasis in urine was Sota Primary School, which has a long-standing collaboration with MSG. The lowest disease rate for schistosomiasis in stool was at Shirati Primary school, and the lowest disease rate for UTIs was at Tina's Education Center. These schools are also long-time partners in the MSG After School Program. However, it was found that the lowest disease rate for malaria was at Katuru Secondary School.

After School Discussion

The After School Program continues to be an important program for children, adolescents, teachers and their families. In 2016, the students were able to learn and retain the knowledge better than in previous years. While we are reaching fewer children in the After School Program than in previous years, the children are able to retain the lessons better as indicated by the increase in the students' WASH test scores.

Additionally, the health screening data indicate that if MSG obtains the funding to expand the After School Program, it should consider expanding it to the secondary schools because they have the highest disease rates and therefore the greatest need for education. The data also indicate that lessons should be taught on malaria prevention. As of now, malaria is not a disease that MSG teaches about regularly, but it is a disease that has high rates. Lessons about UTIs should also be looked into and taught in a different way that enables participants to lower their disease rates.

5. Singing and Dance Program

The Singing and Dance Program started in 2012, which makes it one of MSG's oldest programs. Its goal is to use creative activities, such as songs, skits, and dances to learn and teach WASH lessons. Each lesson includes a song, dance, skit, art project or poem. Using creative and fun activities helps children remember these important WASH lessons. Ages of program participants range from 5-14.

In the beginning of 2016, there were 34 program participants. By December 2016, the Singing and Dance Group had 45 program participants that had attended the program at least once. This program met over nine months. The only months the Singing and Dance Program was not active was during the severe cholera outbreak (January and February) and health screenings (August). Over the year, the Singing and Dance Program met 62 times, an average of nine times per month. In a typical week, program participants would meet twice.

On average, 29 participants came to the Singing and Dance Group, with the lowest number of participants being 17 and the highest number of participants being 42. This shows a consistent number of program participants throughout the year. The Singing and Dance Group participated in seven community performances and two Rorya FM shows. See Figure 30.

Figure 30: Singing and Dance Program Lesson and Participant Information

Month	Number of times met (lessons taught)	Number of students who participated at least once during the month	Average number of students per class per month	Number of performances	Rorya FM Show
March	9	34	28	0	0
April	8	40	30	1	0
May	5	36	36	2	0
June	9	45	36	1	0
July	3	45	32	0	1
September	6	43	17	1	0
October	12	41	26	1	0
November	4	41	27	0	0
December	6	41	32	1	1

The Singing and Dance Program participants are tested on their WASH knowledge twice a year. This test is similar to the After School Program participant evaluation. Since the Singing and Dance children continuously participate in the Singing and Dance Program, their test scores showed a high understanding of WASH knowledge. The highest score was 100%, and 25% of those tested received an 85% or higher which is MSG's internal goal.

- **Maji Safi Cup Finals:** In April and September, the Singing and Dance Group partnered with the Maji Safi Cup Program and performed original songs and dances during the finals. April was the girls' netball final, and September was the boys' soccer final. In total, these finals attracted almost 1,000 participants through peer-to-peer teaching.

- **Shirati's Got Talent:** MSG hosted its second Shirati's Got Talent event, which attracted close to 3,000 people. The Singing and Dance participants performed at this event twice. This event provides the opportunity for local talent to showcase their skills while providing a platform for health education to reach large numbers of community residents.
- **Miss/Mr. Maji Safi Event:** Each year, the MSG Female Hygiene Program hosts the Miss/Mr. Maji Safi event. This event gives Female Hygiene and Male Hygiene Program participants the opportunity to showcase the knowledge they have learned over the year and perform in front of the Shirati community. The Singing and Dance Program performed at this event, which attracted nearly 1,000 community members.
- **Global Handwashing Day:** In October, the Singing and Dance Group was asked by MSG to participate by performing original songs, dances and poems about disease prevention and stopping open defecation. On Oct. 15, 2016, this event attracted over 1,800 community members.
- **End-of-the-year Celebration:** At the end of 2016, the Singing and Dance Group held a party to celebrate the participants' accomplishments for the year. The party started with songs, dances and skits that the group's participants had learned in 2016. The new songs and skits were about WASH lessons such as hand washing, water treatment, and stopping open defecation. The participants demonstrated a high level of understanding of WASH knowledge. Each participant who consistently had attended the Singing and Dance Group received three notebooks, a pen, and a pencil for school.

Health Screening Results

According to the results from the annual health screening campaign, the Singing and Dance Program had a lower prevalence rate of all waterborne and water-related diseases tested for than community members without MSG education. This shows us that the Singing and Dance Program is extremely effective in helping program participants and their families prevent WASH diseases.

Figure 31: Disease Rates among Singing and Dance Program Participants

2016 Health Screening Rates	Amoebas	Intestinal worms	Schisto-somiasis in stool	Schisto-somiasis in urine	UTIs	Malaria
Overall percentage of health screening participants who tested positive	14%	24%	7%	13%	51%	22%
Singing and Dance Program Participants	9%	5%	5%	6%	43%	15%
Community members without MSG education	18%	41%	10%	21%	49%	23%

Singing and Dance Discussion

The Singing and Dance Group was very successful in 2016. This year, we saw more dedication from program participants, and we were able to meet more frequently. This program maintained a high level of participation throughout the year. Additionally, we saw that program participants are healthier than their peers who are not in an MSG program. Future recommendations include:

- Start a troop for older kids (12 years and older) and add a day to the Singing and Dance Group on the weekly schedule.
- Involve their parents more in 2017 to connect their households to the program.
- Start a Shirati Wanavipaji for children to showcase their skills.

6. Disease Prevention Center

The Disease Prevention Center (DPC) started in 2012, which makes it one of MSG's original programs. The goal of this program is to provide disease prevention education in a hospital setting. The DPC is located at the Shirati KMT District Hospital's visitor center. This program provides health education in the form of demonstrations of proper hygienic behaviors, oral lessons, written materials, and interactive worksheets that the visitors keep as a reminder of the lesson. Education is given to patients, people visiting patients, and hospital staff. Visitors to the DPC learn about disease transmission, avoiding diseases in the future, and why preventing disease is more economical than treating disease. After disease prevention lessons, the participants are asked questions to monitor their demographics, knowledge of WASH, and familiarity with MSG. This program reaches people from far away because the Shirati KMT District Hospital is where patients from the entire Rorya District and beyond are treated.

DPC Demographics

In 2016, the DPC was open 96 days, and 1,032 people visited (same number of people as last year). On average, the CHEs saw 10.7 people per day. This number would vary from one person to 22 people, depending on the time of year. Approximately 60% were women, 39% were men,

and 1% did not answer the question, as shown in Figure 32. The average age of DPC visitors was 41.5, ranging from 4 years old to 83 years old. The majority of DPC participants were visiting someone in the hospital (94%), as shown in Figure 33. Of those who visited the DPC, 186 people were repeat visitors to the hospital.

Figure 32: Gender of DPC Participants

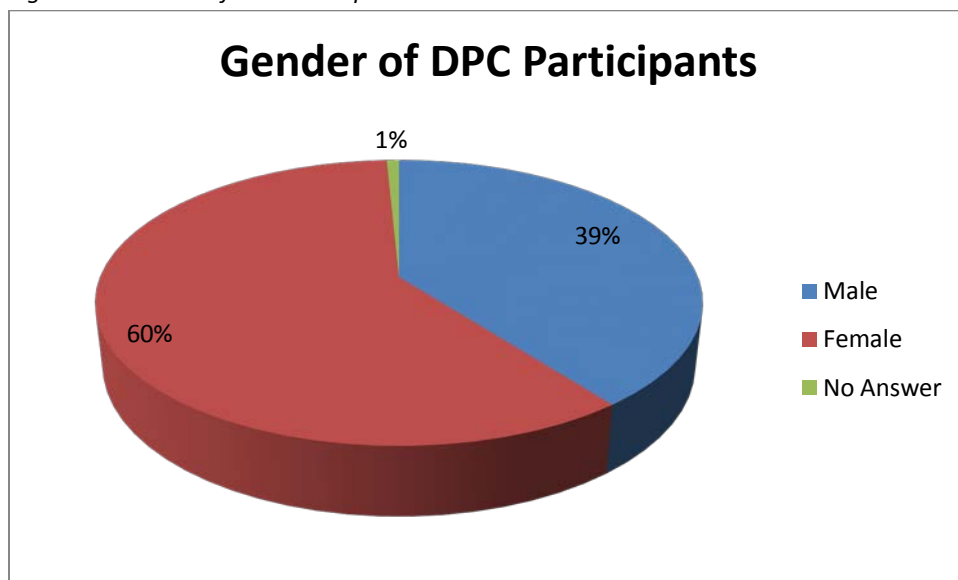
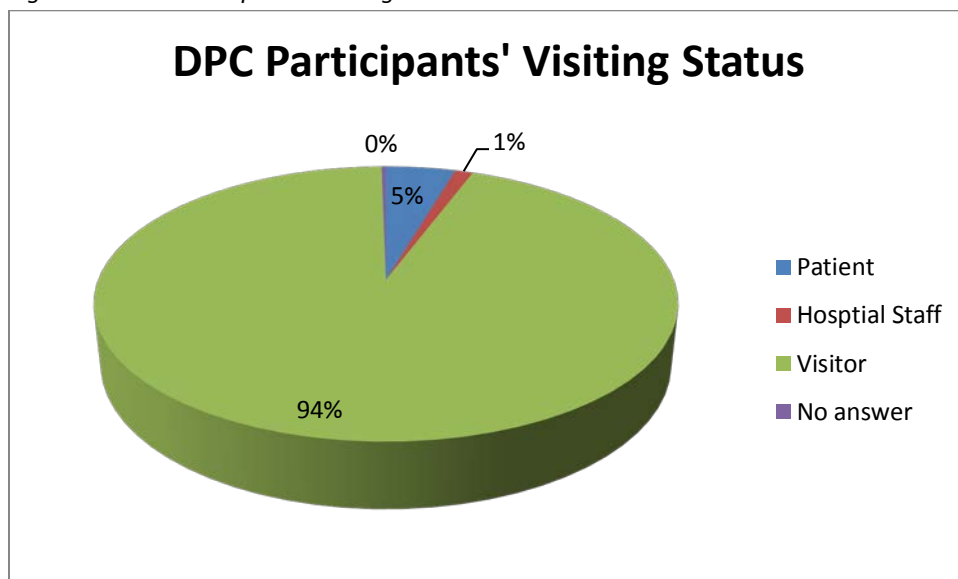


Figure 33: DPC Participants' Visiting Status



Participants are asked five questions when they visit the DPC: 1. Have they heard of MSG before? 2. Have they participated in an MSG program? 3. Do they treat their water before they use it? 4. Do they know where to get WASH products? 5. Do they have someone in the household under the age of three who has had diarrhea in the past two weeks? The garnered

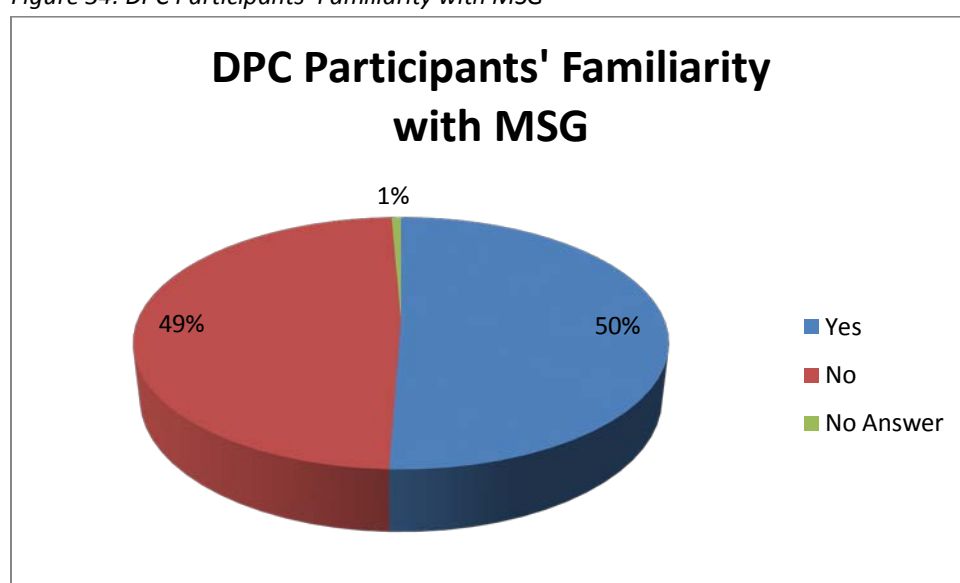
information enables MSG to track who participates at the DPC and what is needed to improve public health and behavior patterns in the Shirati community.

DPC Questions:

1. Have they heard of MSG before?

Of those we educated at the DPC in 2016, 50% of the visitors (522 people) had heard of MSG before, while 49% had never heard of MSG, see Figure 34. The majority of the participants had heard of MSG through Rorya FM, market outreach, or previous visits to the DPC. Other ways visitors had heard of MSG was through church, MSG's After School Program, MSG's hotline, announcements, the government, MSG's Singing and Dance Program, Population Services International (PSI), by seeing the MSG office in town, or by seeing MSG T-Shirts

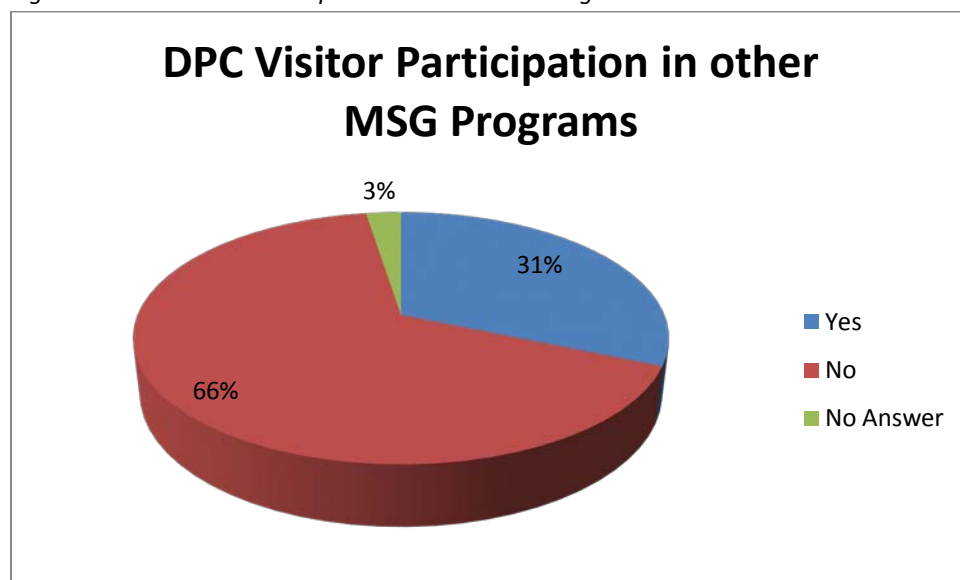
Figure 34: DPC Participants' Familiarity with MSG



2. Have they participated in an MSG Program before?

We found that only 31% (324 people) of DPC visitors had participated in an MSG program. This is a 3% increase from last year, see Figure 35. We found that the majority had participated in Rorya FM, DPC, and/or market outreach. Other programs that visitors had participated in were Home Visit, Hotline, Maji Safi Cup, Singing and Dance, or After School. Additionally, some participants had visited MSG's Office.

Figure 35: DPC Visitor Participation in other MSG Programs



3. Do they treat their water before they use it?

We found that 63% (651 people) reported that they treat their water before they use it, an increase of 9%, see Figure 36. That leaves 36% who did not treat their water before use, but now understand the importance of water treatment. Of those who treat their water, 75% use the filtering and boiling method, 19% use chlorine tablets, 4% use a different method like SODIS or ceramic filters, and 2% use both boiling and chlorine, see Figure 37. We also found that 21% of those who do not treat their water have already received MSG education, and 79% of those who do not treat their water have not received MSG education. This percentage shows that the majority of residents who do not treat their water had never received MSG education before.

Figure 36: Do DPC Participants Treat their Water Before They Use It?

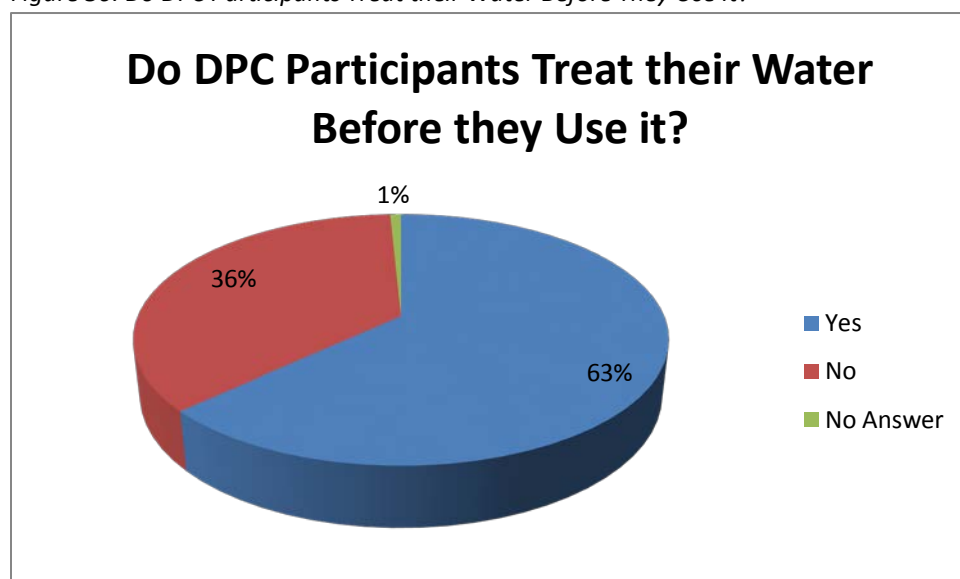
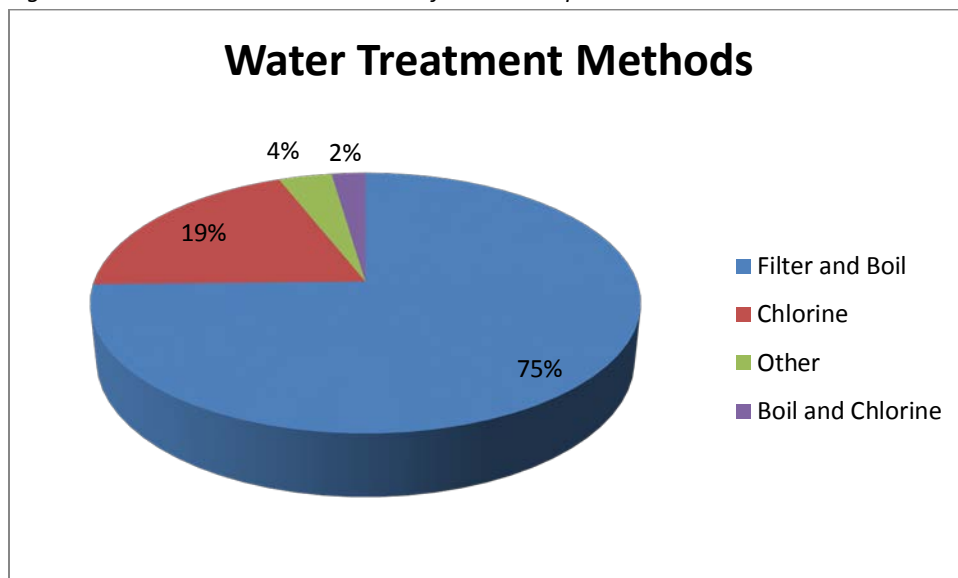


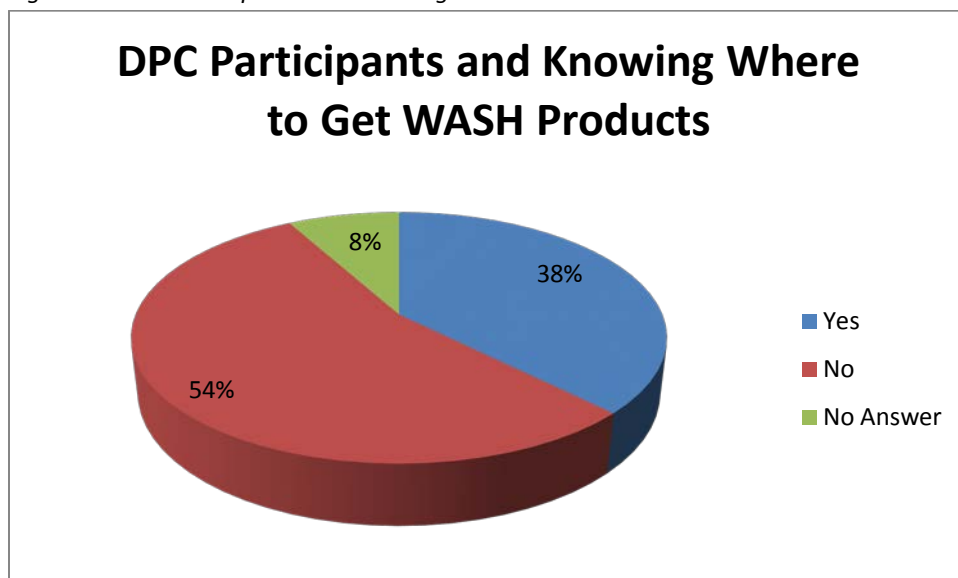
Figure 37: Water Treatment Methods of DPC Participants



4. Do they know where to get WASH-related products?

We asked the DPC visitors if they knew where to get WASH-related products. We found that only 38% (387 people) knew where they could buy WASH-related products; 54% did not know where to find WASH-related products, see Figure 38. However, 25% of those who did not know where to get WASH-related products were previous MSG program participants, while 75% of those who had not received MSG education did not know where to get WASH-related products. That means that MSG program participants are much more familiar with this information than those who have not yet attended an MSG program.

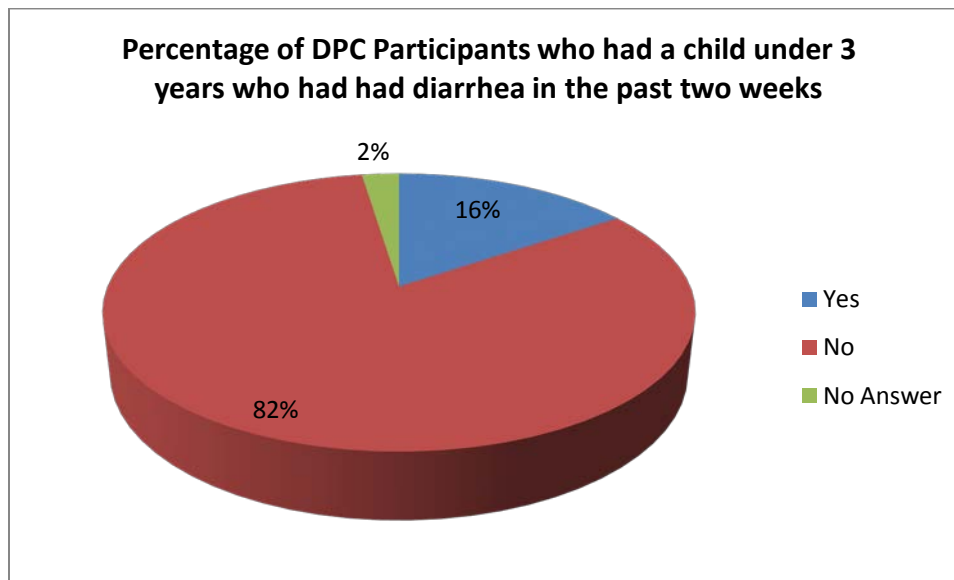
Figure 38: DPC Participants and Knowing Where to Get WASH Products



5. Do they have someone living with them under the age of three who has had diarrhea in the past two weeks?

We found that 16% (160 people) of DPC visitors had a child under three who had had diarrhea in the past two weeks, which is a decrease of 13% from last year, see Figure 39. Of those who had a child under three with diarrhea, 27% were previous MSG program participants and 73% had never participated in an MSG program. This indicates that MSG program participants have healthier families than those who have yet to receive MSG education.

Figure 39: Percentage of DPC participants who had a child under 3 years with diarrhea in the past two weeks



DPC Discussion

In 2016, the DPC was a success. The survey questions about familiarity with MSG, water treatment, WASH products, and child diarrhea rates will be used in future analyses to see how MSG is impacting the community and changing behaviors. This year will act as a benchmark for the future. Additionally, it was already found that while there are still individuals who do not treat their water, do not know where to buy WASH-related products, and have children under the age of three who have diarrhea, MSG program participants are much better informed and have healthier families than those who have never received MSG education. We could improve the DPC Program by distributing MSG WASH learning materials to other hospitals.

7. Maji Safi Cup Program

The Maji Safi Cup Program started in June 2013 and consists of month-long sport tournaments (i.e. soccer or netball) where local teams compete for the Maji Safi Cup title. Before each game, teams must attend a one-hour lesson about WASH and disease prevention. Combining athletics and education promotes overall wellness and makes lessons more memorable and thus more effective. The winners of a Maji Safi Cup are awarded the traditional Shirati trophy — a goat.

Although only one team is crowned as champions, all tournament participants benefit from team building, pre-game lessons, and a small gift relevant to their lessons (e.g. school supplies and sanitary pads).

In 2016, MSG hosted two Maji Safi Cups: one girls' netball tournament and one boys' soccer tournament. These tournaments reached a total of 6,936 community members with 14 matches. On average, 495 people came to each match. However, each match and tournament varied significantly.

Women's Netball Maji Safi Cup

The first 2016 Maji Safi Cup was a female netball tournament that took place April–May 2016. This year, MSG partnered with three secondary schools to increase female participation in the Maji Safi Cup Program. The lessons focused on Female Hygiene and Menstrual Hygiene Management. Due to the long distances between schools and the level of interest, this tournament was a short, yet effective one. There were seven games played that reached a total of 1,152 people: 46 players/participants and 1,106 spectators. During the final match, 414 community members attended to celebrate the teams. All three participating teams went home with reusable menstrual pads, and the first-place winners took home a trophy goat. On average, excluding the final match, 123 community members attended each match.

Boys' Soccer Maji Safi Cup

The second 2016 Maji Safi Cup was a boys' soccer tournament held in October, also partnering with three secondary schools. Lessons focused on personal hygiene and respect for women. There were seven games played which reached 5,784 people: 77 players/participants and 5,707 community members. The final match alone attracted 2,670 spectators. We held the final on Global Handwashing Day in order to attract more community members. On average (excluding the final match), the games attracted 519 community members per match. We believe this high increase in spectator size comes from secondary school students being interested in supporting their peers.

Maji Safi Cup Discussion

This year, both Maji Safi Cup tournaments were successful. We significantly increased the number of participants and spectators during both tournaments. We believe partnering with the secondary schools has been a success and would advise these partnerships to continue next year. However, we did find that there is still a huge difference between netball and soccer tournaments in that the boys' tournaments seem more popular than the girls'.

8. Hotline

The Disease Prevention Hotline Program started in October 2013. This program is a way for the community to get in touch with MSG to learn about disease prevention and health and for MSG to teach participants in hard-to-reach places. The hotline number is given to participants in other programs (e.g. Outreach, Disease Prevention Center, Rorya FM) if they do not have time to talk in person. This program also aims to reach men in the community, as they often do not

have time to talk during a home visit or during outreach. The number is also available to the entire community as a means to getting answers to questions about water, sanitation, hygiene, disease prevention, and health.

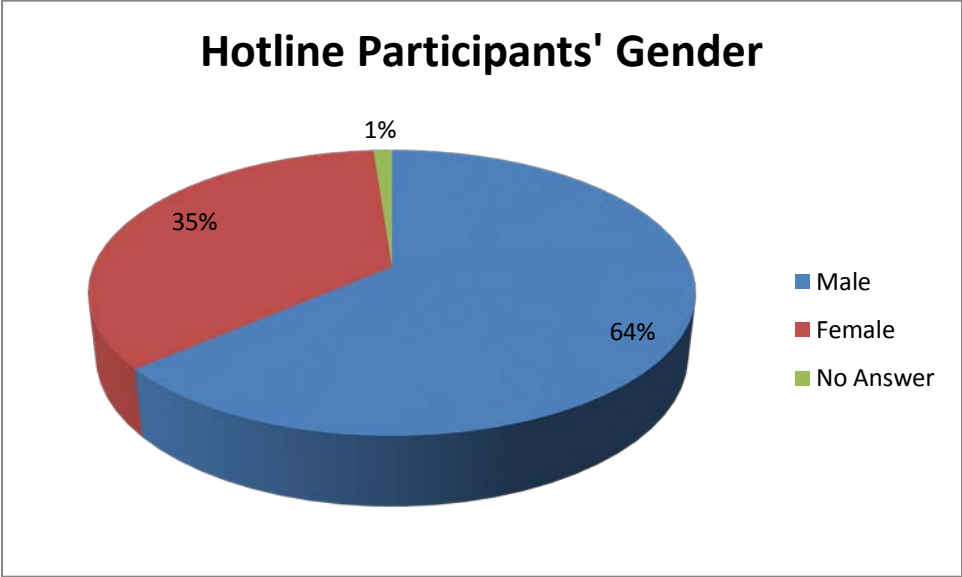
In 2016, we reached 1,467 people through the hotline. Callers came from several locations in Tanzania. Most callers came from the nearby wards: Tai, Mkoma and Nyanagaro. However, a large portion of callers came from the Musoma town and village wards where MSG provided extensive cholera outreach in the beginning of the year. We also had a few callers from Arusha, Dar es Salaam, Mwanza and Dodoma (hundreds of miles from the MSG office). We believe these callers had a connection to someone in the areas where we have provided outreach.

SMS text messages were sent to 750 people as a follow-up lesson. In total, 1,467 people called the hotline or were called by someone at the hotline. Of those callers/called, 768 were first-time callers, 373 of them called twice, 212 of them called three times, and 114 called four or more times, see Figure 40. The hotline was open 110 days in 2016 with an average of 13 people contacted via phone call and/or SMS a day. On average, seven first-time callers were contacted a day (minimum calls — 1, maximum calls — 18). As shown in Figure 41, the majority of callers were male (64%). This is probably due to men being unable to learn lessons during home visits and outreach due to work. Using the hotline allows men to call despite their work obligations.

Figure 40: Frequency of Hotline Participants

Number of Times Called/Were Called	Number of People
1 Time	768
2 Times	373
3 Times	212
4 or More Times	114

Figure 41: Hotline Participants' Gender

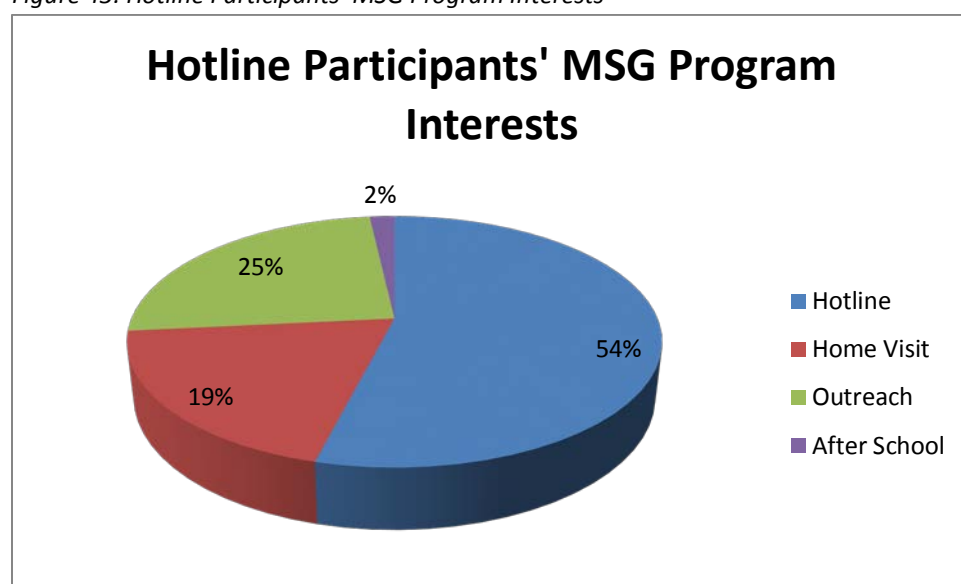


The reasons for the calls are indicated in Figure 42. The most popular reason people called was to gain information about MSG programs, followed by a WASH-related question. Most WASH-related questions concerned water treatment, fecal-oral diseases, and open defecation. The majority of hotline program participants were interested in learning more about the Hotline Program, followed by interest in Outreach and then Home Visit, see Figure 43. Callers interested in the Home Visit Program were listed in a file to potentially be visited by a CHE later. Only 2% of the callers asked questions only the hospital could answer. If MSG could not answer a question, the CHE called staff members at the Shirati KMT District Hospital and received the answer. The CHE then called back and answered the question.

Figure 42: Reason for Hotline Program Participant Call

Reason for Call	Number of Calls	Percentage
WASH-related question	308	26%
Interested in Home Visit	281	24%
Information about MSG Programs	521	44%
Question for hospital	22	2%
Other	63	5%

Figure 43: Hotline Participants' MSG Program Interests



Hotline Discussion

The MSG Hotline is a great option for those who live far away or have short WASH-related questions. During the cholera outbreak, it proved to be extremely useful in terms of informing the community about the recent outbreak. This program could benefit from adding a system that would allow us to schedule future Home Visits and track how our callers are improving their WASH knowledge. MSG could also have a more organized and efficient system for sending out mass text messages. Lastly, we believe this program can expand by using social media.

9. Outreach

There are many ways to teach WASH education to the community. Our Outreach Program started in 2012, and its goal is to teach the local community about WASH practices through a variety of local outreach methods, including event days, market outreach, visiting groups, shops, salons and restaurants, a district-wide radio show on Rorya FM, and emergency responses to cholera outbreaks and other emergency situations in the Mara Region. This program has developed over time to reach more community members and to respond to community crises. Outreach now reaches the most people and has the largest scope of all MSG programs.

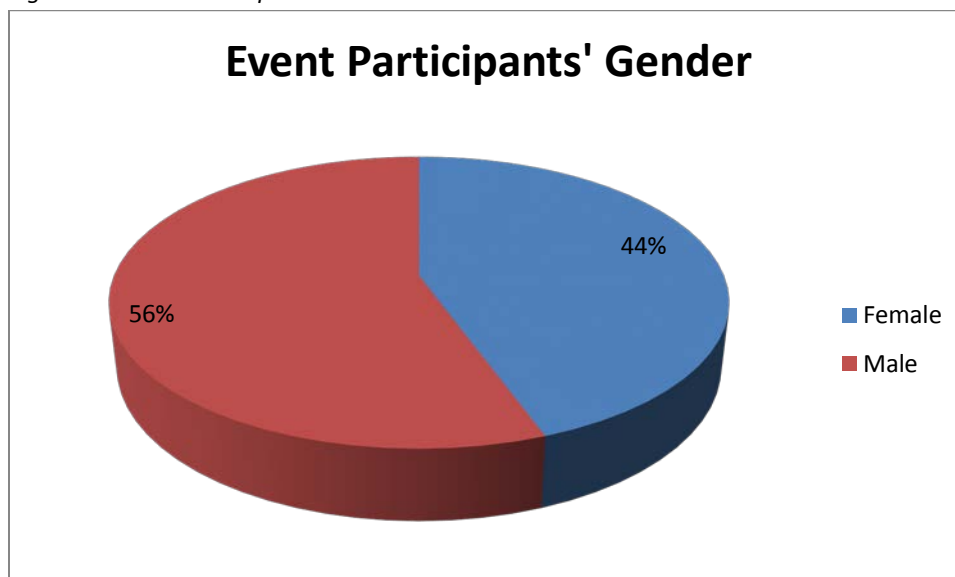
Event Days

Every year, MSG hosts community-wide events that are sometimes organized in cooperation with the government or other organizations. These events are a way to reach out to the community to teach about WASH-related issues that affect the community members' everyday lives. In 2016, MSG hosted seven events not associated with other programs like Singing and Dance and Female Hygiene (these events are explained in their own program sections). These events directly reached 4,410 community members with a gender breakdown of 56% male and 44% female, see Figure 44. Examples of events are:

- [World Water Day](#): This year, MSG celebrated World Water Day by setting up a water treatment fair during the Monday market in the village of Obwere. The fair included stations where visitors could learn about several different water treatment methods and try them out to see which one would work best for them. The winners of the Shirati's Got Talent competition performed to draw a crowd, and fun WASH demonstrations and coloring sheets were used. This event was visited by local government officials, featured in the newspaper and attended by 795 people – 180 were taught directly by a CHE, and the rest were spectators who watched the show and visited the stations.
- [Earth Day](#): MSG celebrated Earth Day by hosting a community cleanup in partnership with the government and the MSG Community Cleanup Group. Forty-three people participated in the cleanup, including MSG staff. We were able to clean from the office to the Kabwana market (small market in the village center) and back to the office (around 0.5 km).
- [Global Handwashing Day \(GHD\)](#): Every year on October 15, MSG hosts a celebration of hand washing and its key role in preventing disease. This year was our third annual GHD event. We partnered with five schools (Tina's Education Center, Obwere Primary School, Shirati Primary School, Mkoma Primary School and Sota Primary School) where CHEs taught students about the importance of hand washing. The end of the day was celebrated at the Maji Safi Cup final where hand washing was the lesson taught by CHEs, and the Singing and Dance participants performed dances and songs in front of their peers. We also hosted a Rorya FM radio show. This event reached 2,032 community members in a single day!

- [World Toilet Day](#): MSG reached rural community members on November 19 by hosting a field day. The event attracted 62 people and taught them the importance of using a latrine and ending open defecation to stop disease outbreaks.
- [Diarrheal Disease Education](#): For MSG, fighting cholera outbreaks dominated a large portion of 2016, but cholera was not the only WASH-related outbreak. MSG visited four schools during a shigella outbreak and reached a total of 1,540 students during four separate outbreaks.

Figure 44: Event Participants' Gender



Market Days

Throughout the year, CHEs visit markets located in the Rorya District. Market days are either half or full days of work, depending on the size of the market and the location. Education topics include water treatment (i.e. boiling water, using chlorine tablets, etc.), the fecal-oral disease cycle, and preventing WASH-related diseases, including cholera. The CHEs also use this time to sell chlorine tablets and oral rehydration salts. These products are sold at cost to make them more accessible to the community. On average, about 65 people receive education during a market day. In total, we visited 10 market locations over 39 days, reaching approximately 2,519 people. See Figure 45.

Figure 45: Number of Days at each Market Place

Market	Number of Days Visited
Busurwa	2
Kanga	2
Kirengo	2
Masike	3
Masonga	6
Nyahera	2

Obwere	12
Randa	4
Sota	3
Utegi	3
Total	39

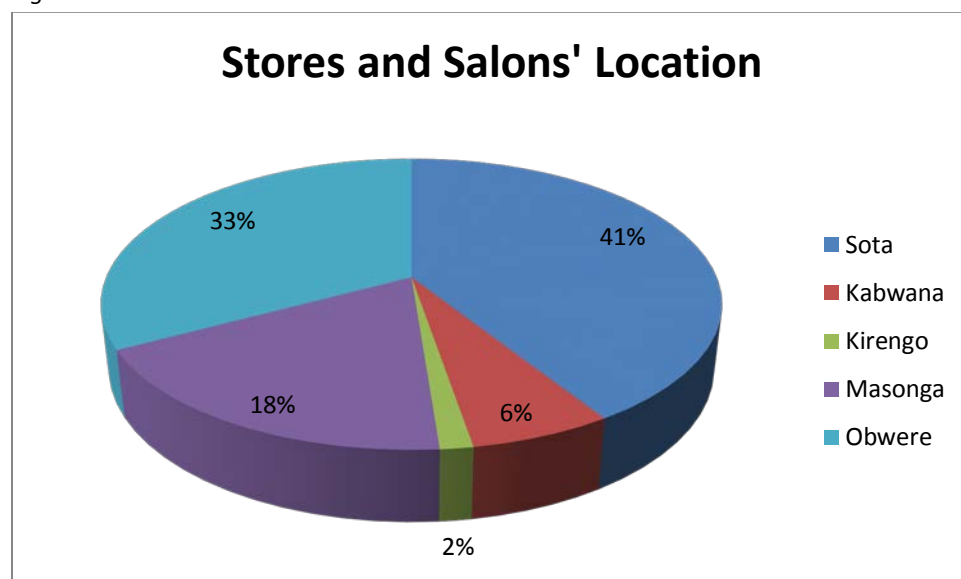
Group Visits

CHEs set up meetings with local groups and meet with them regularly. The community forms groups based on location and interest (women's groups, loan groups, fishermen groups, environment groups, etc.). In 2016, MSG taught 16 groups. Each group had an average of 31 people present. The CHEs taught two-hour lessons about WASH-related topics and demonstrated how to improve family health by preventing disease. In total, MSG directly reached 488 people during group visits. CHEs were able to teach 10 groups once, four groups twice, and two groups three times.

Salons and Shops

In 2016, MSG visited local salons and shops to teach local business people how to protect their customers and how to keep their environment clean and provide a better service. Our CHEs taught at local businesses in the centers of Obwere, Kabwana, Sota, Kirengo and Masonga, see Figure 46. In total, we taught 220 people at 208 shops and salons – 19 of these locations were retaught lessons twice.

Figure 46: Stores and Salons' Location



After each session, the shops and salons were given a score of 1, 2, 3 or 4, depending on their level of understanding with 1 being no understanding, and 4 being the highest level of understanding. Figure 47 shows that the majority of stores and salons had a 3 or 4 level of

understanding of the lessons taught. MSG retaught shops and salons if they scored a 1 or 2. In the future, MSG should hold celebrations for those stores and salons that perform well.

Figure 47: Assessment Scores for Stores and Salons

Assessment Score	Number of Participants	Percentage
1	10	13%
2	2	3%
3	46	61%
4	17	23%

Restaurants

Each year, MSG visits local restaurants throughout the year. In 2016, MSG taught 62 people at 57 local restaurants in Sota, Masonga, Obwere and Kabwana, see Figure 48. Our CHEs evaluate local restaurants to gain a better understanding of their cleanliness and safety for their customers. If the restaurant managers want to participate, they then receive MSG lessons on how to improve the environmental and food safety of their restaurant. Of the 57 restaurants, 33 were visited once, 21 were visited twice, and three restaurants were visited three times. Through analysis, we were able to follow the changes restaurant owners made over time after MSG's education, see Figure 50 and Figure 51. Once the restaurants pass MSG standards, they receive a certificate to hang in their restaurant to indicate their safety to customers.

Figure 48: Locations of the Restaurants

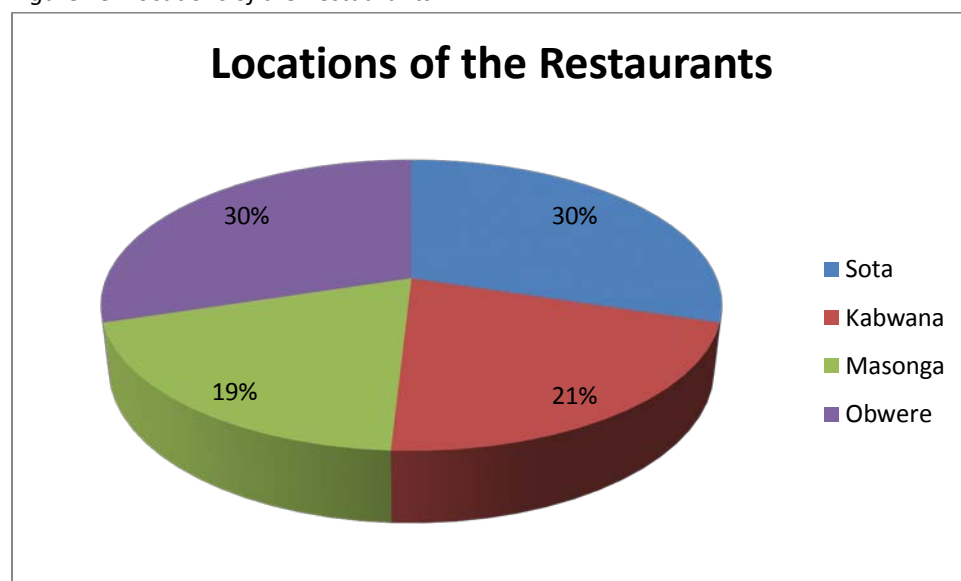


Figure 49: Restaurant Water Source

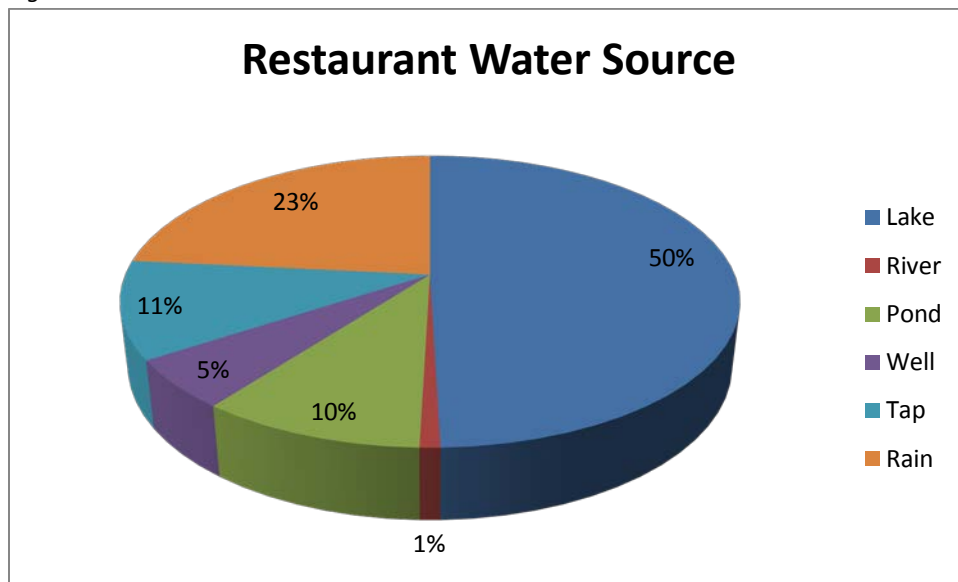


Figure 50: Overall Analysis of all Restaurants

Question	Answer	Percentage
1. Do they treat their drinking water?	Yes	67%
	No	24%
	Unanswered	9%
2. How do they treat their drinking water?	Boiling	45%
	Chlorine	37%
	No treatment	18%
3. How do they treat their dishwashing water?	Boiling	25%
	Chlorine	25%
	SODIS	12%
	No treatment	38%
4. When do they wash their hands?	Before food preparation	93%
	Before eating	81%
	After defecation	82%
	Before serving drinks	53%
	Do not wash hands	2%
5. Does their restaurant have a place for hand washing?	Yes	84%
	No	16%
6. Do they keep their food overnight?	Yes	25%
	No	72%
	Unanswered	3%
7. Are there many flies in the restaurant?*	Yes	12%
	No	86%
	Unanswered	2%

8. Do they wash dishes with soap and water?	Yes	72%
	No	25%
	Unanswered	3%
9. Does their restaurant have a latrine?	Yes	67%
	No	24%
	Unanswered	9%
10. Is the restaurant dirty*	Yes	37%
	No	49%
	Unanswered	14%

*This assessment is subjective, decided by the CHE.

Figure 51: Comparison of Answers based on Frequency of Lessons Learned

Question	Number of Visits	Percentage
1. Percentage of restaurants that treat their drinking water.	1	64%
	2	81%
	3	100%
2. Percentage of restaurants that have a place to wash their hands.	1	85%
	2	87%
	3	67%
3. Percentage of restaurants that treat their hand-washing water.	1	79%
	2	95%
	3	100%
4. Percentage of restaurants that use soap.	1	91%
	2	100%
	3	67%
5. Percentage of restaurants that use serving utensils when serving food.	1	91%
	2	95%
	3	100%
6. Percentage of restaurants that have many Flies.*	1	16%
	2	10%
	3	0%
7. Percentage of restaurants that leave food overnight.	1	34%
	2	15%
	3	0%
8. Percentage of restaurants that use soap and water to wash dishes.	1	75%
	2	70%
	3	100%
9. Percentage of restaurants that are dirty.*	1	45%
	2	44%
	3	0%

*This assessment is subjective, decided by the CHE.

10. Radio Show (Rorya FM)

MSG has a partnership with 90.3 Rorya FM, the local radio station in Shirati. This partnership allows MSG to host one-hour shows that educate the community about the importance of WASH. The radio station estimates that each show reaches approximately 3,500 listeners. In 2016, MSG aired 28 shows, indirectly reaching approximately 98,000 people (including repeat listeners). MSG ran shows over ten months of the year, averaging three shows a month, see Figure 52 for the breakdown of WASH lessons taught during each show.

Each show provides the community with the opportunity to call in and ask questions and/or make comments for our CHEs to answer. Throughout the year, MSG had 206 callers who were served directly by the CHEs. The average number of callers per show was seven, with the lowest number of callers being one person and the greatest number of callers being 17 people.

Figure 52: Rorya FM Shows in 2016

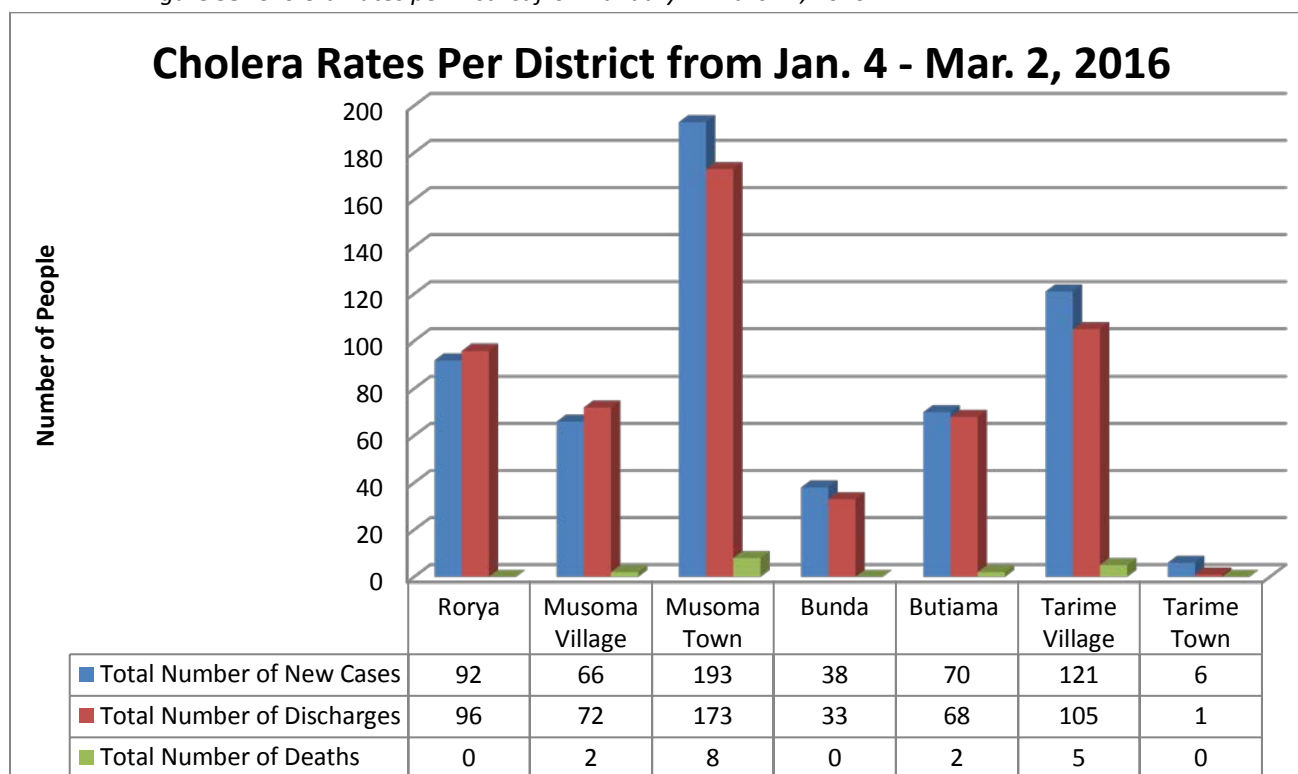
Month	Number of Shows	Lesson Taught
January	2	Cleaning the Environment / How to Prevent Cholera
February	2	Water Treatment / Personal Hygiene
March	4	World Water Day / Water Treatment / How to Prepare Food / Water Storage
April	2	Earth Day / Fecal-Oral Disease Cycle
May	4	Schistosomiasis (twice) / Personal Hygiene - Female Hygiene / Menstrual Hygiene World Day
June	4	Open Defecation / Water Storage / Personal Hygiene / Female Hygiene
September	2	Cholera / Open Defecation
October	4	Personal Hygiene / Puberty / Global Handwashing Day / Female Hygiene
November	1	Water Treatment
December	3	Relationship between Parents and Their Daughters / Personal Hygiene / Fecal-Oral Disease Cycle

11. Emergency Outreach (Cholera Response)

There were three cholera outbreaks in the Rorya, Musoma Municipal and Musoma Village Districts in 2016. During the months of January, February, September and November 2016, MSG partnered with the Rorya District Government, Musoma Town and Village District Governments, the Mara Region Government, the World Health Organization and the KMT Shirati Hospital to assist in spreading health education about cholera. MSG began educating

people during a cholera outbreak that started in November 2015. Data from the Mara Region offices showed how many new cases, discharges and deaths each of the seven districts within the region had between January 4, 2016 and March 2, 2016, see Figure 53. Please note that MSG only worked with three of the seven districts.

Figure 53: Cholera Rates per District from January 4–March 2, 2016



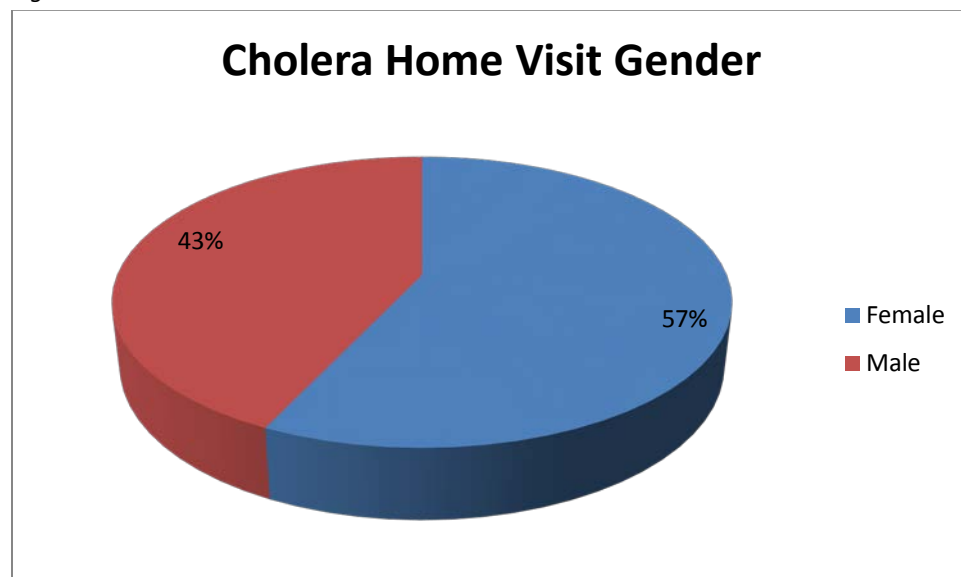
Initially, MSG only worked on the cholera outbreak in the Rorya District. However, once Musoma Village and Musoma Town started to see an increasing number of cholera cases, the Regional Health Officer asked if we could provide education to these two additional districts. Once MSG started to teach these areas, they saw a decrease in new cholera cases.

Overall, MSG directly taught 26,587 community members – 22,118 in school programs – see the After School Program section above for analysis; 4,404 through family home visits; and 65 people who were sick. MSG indirectly taught 22,000 residents when the MSG radio show and public announcements are included. Education included teaching community members in infected areas about cholera transmission, treatment, and prevention. The Mara Region Government first requested MSG’s assistance in March 2015 to help develop and implement a cholera health education campaign targeting areas affected by the outbreak and a wider-ranging initiative to provide information to the general public of the Rorya District. This partnership continued to grow throughout 2016.

Cholera Home Visit

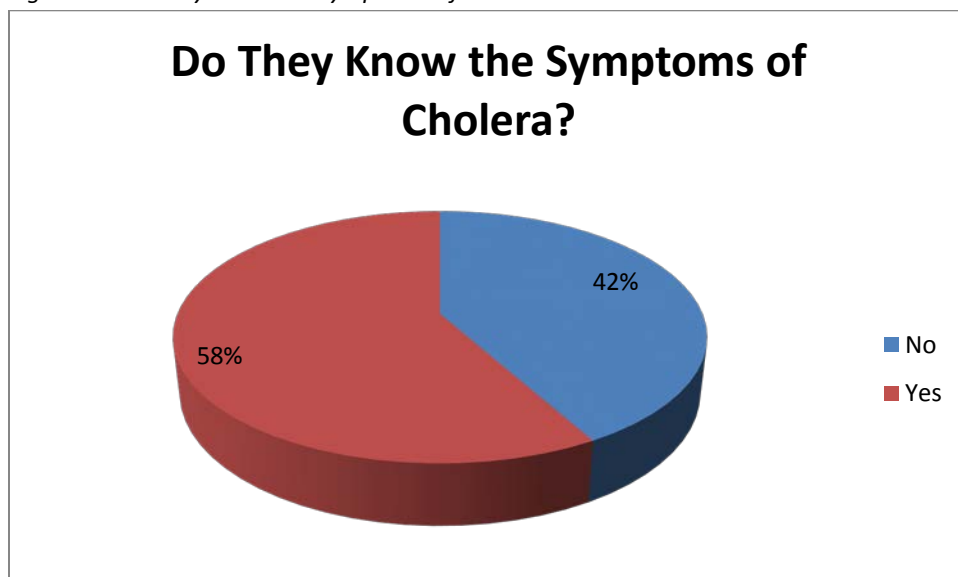
During 2016, CHEs visited the homes of 4,404 community members whose communities were affected by the cholera outbreak. MSG used 51 days in 2016 to address various cholera outbreaks in the Rorya District and throughout the Mara Region. On average, 86 people were visited a day and given cholera prevention education. The average age of those taught was 36 years old, and the gender breakdown was 57% female and 43% male, see Figure 54.

Figure 54: Cholera Home Visit Gender Breakdown



Of the people reached through home visits, 58% claimed to know the symptoms of cholera prior to receiving MSG education, see Figure 55. However, testing their knowledge revealed that only 5% actually knew all three major symptoms of cholera: watery diarrhea, vomiting and abdominal pain (cf. WHO guidelines). It was found that 85% thought there were only two symptoms, while others claimed to know more than three, see Figure 56. When asked where they had received their health education, 80% of the participants reported that they had never received health education, whereas 9% had received health education from MSG, 4% from hospitals and 3% from the government, see Figure 57. Of those visited, 2% had a family member who was sick or had died from cholera.

Figure 55: Do they know the Symptoms of Cholera?*



*This information was self-reported.

Figure 56: Participants' Knowledge of the Number of Cholera Symptoms

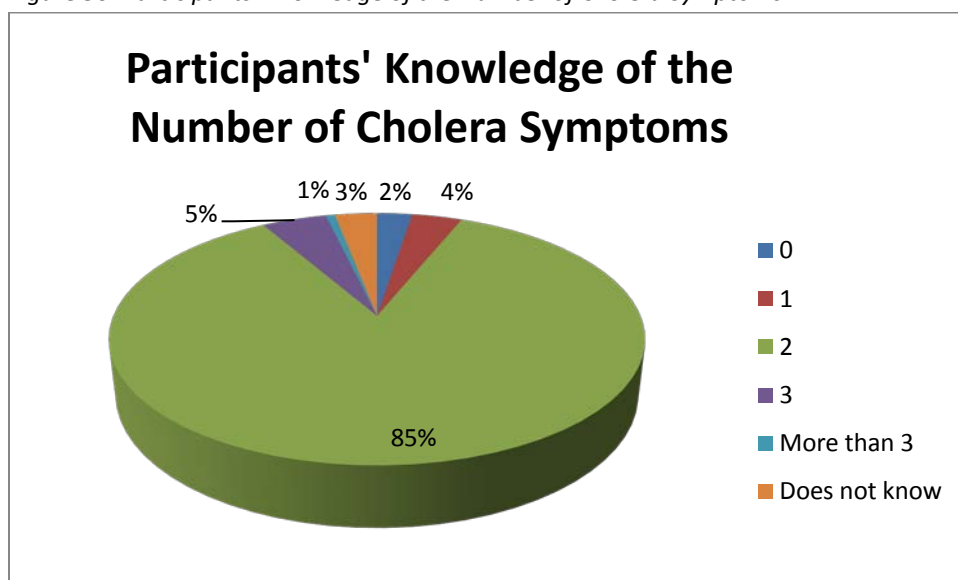
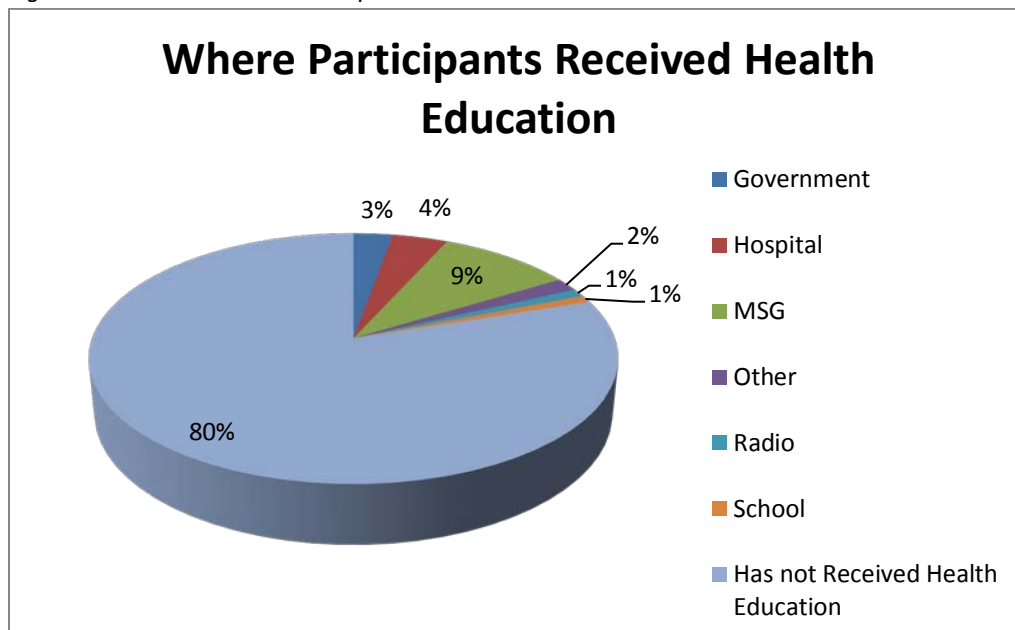


Figure 57: Where Cholera Participants Received Health Education



Home Visits with those Affected by Cholera

Of those visited at home during the cholera outbreaks of 2016, 66 families had someone who had been affected by cholera. Our CHEs were able to provide MSG education to 65 of them. MSG asked a series of questions to get a better sense of why these community members might have been more easily affected by the cholera outbreak compared to those who were not affected. The average age of those affected was 28 years old, with 52% being male and 48% being female. We also learned that 20% of affected households had more than one person in the family who was affected.

When asking about their condition, we learned that 92% of those visited had received cholera treatment at a hospital or dispensary, see Figure 58. Figure 59 indicates what the patients' status was when asked (current status). It was found that 74% of those affected had fully recovered, while 18% were still recovering, and 8% had received no treatment.

Figure 58: Did the Patient Receive Cholera Treatment?

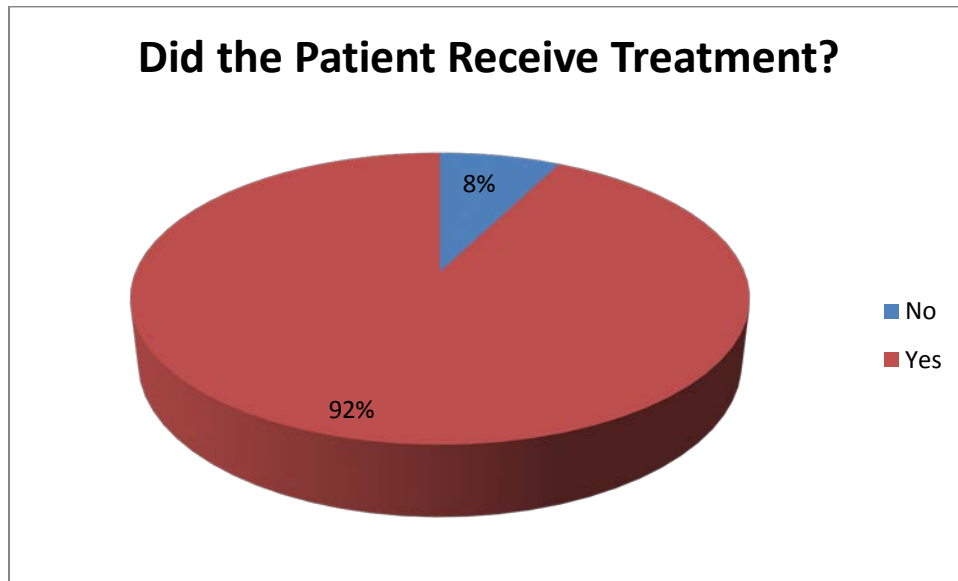
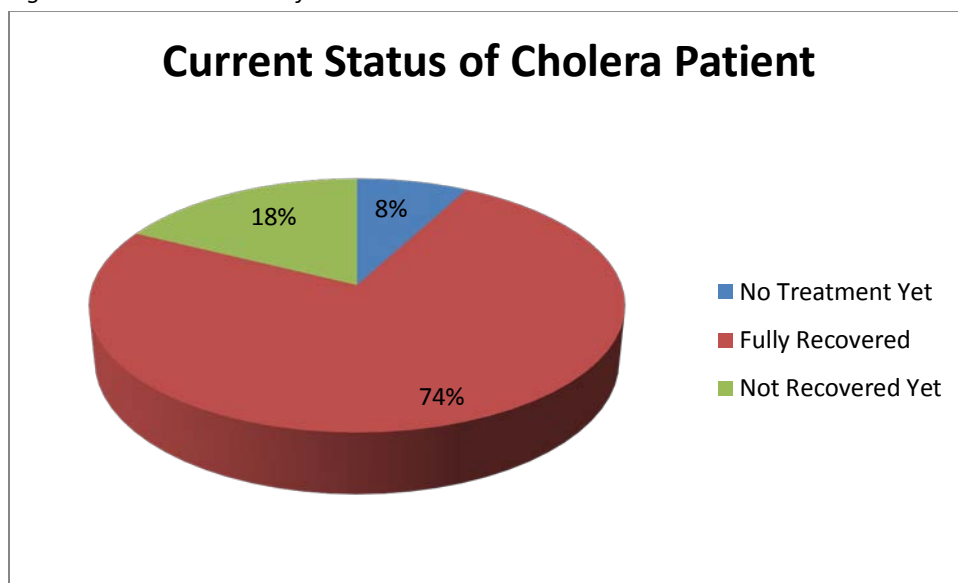


Figure 59: Current Status of Cholera Patient



When families were asked about their household practices, it turned out that only 22% of affected families treated their drinking water, and of those, 100% used boiling as their method of choice, see Figure 60. It was found that 45% of those affected collected water from Lake Victoria, and 39% collected water from wells, see Figure 61. Our CHEs also learned that 72% of those affected did have a latrine, see Figure 62.

Figure 60: Does the Family Treat their Drinking Water?

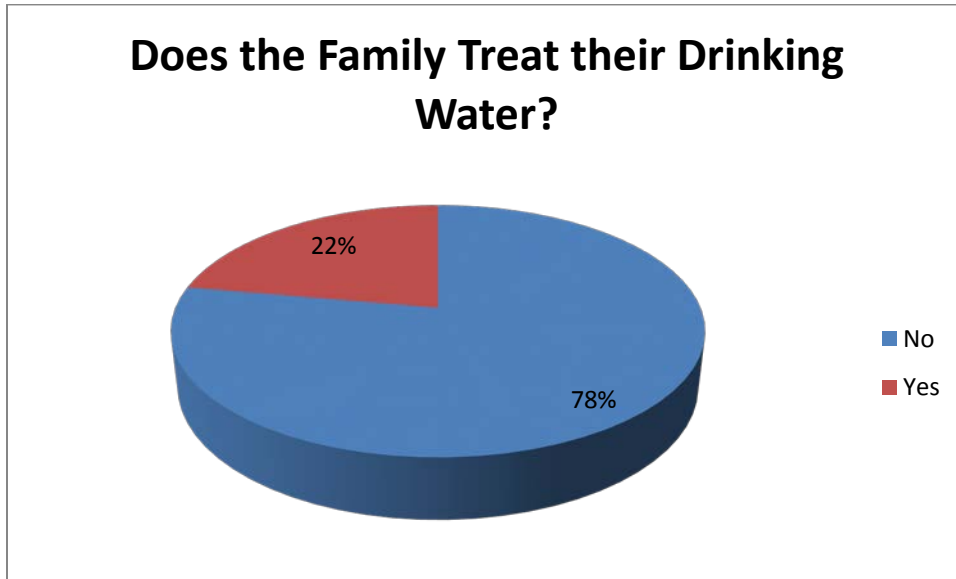


Figure 61: Where Does the Families' Drinking Water Come From?

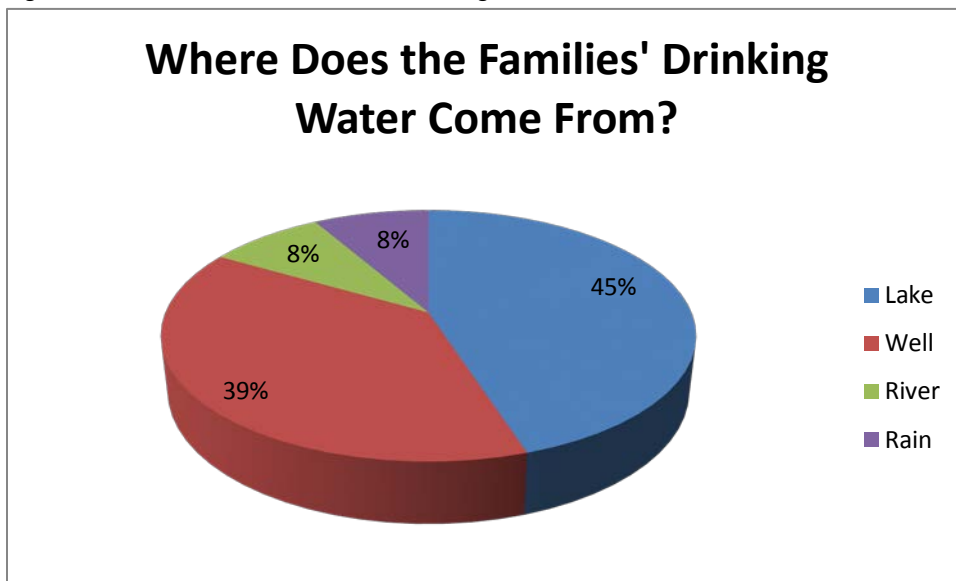
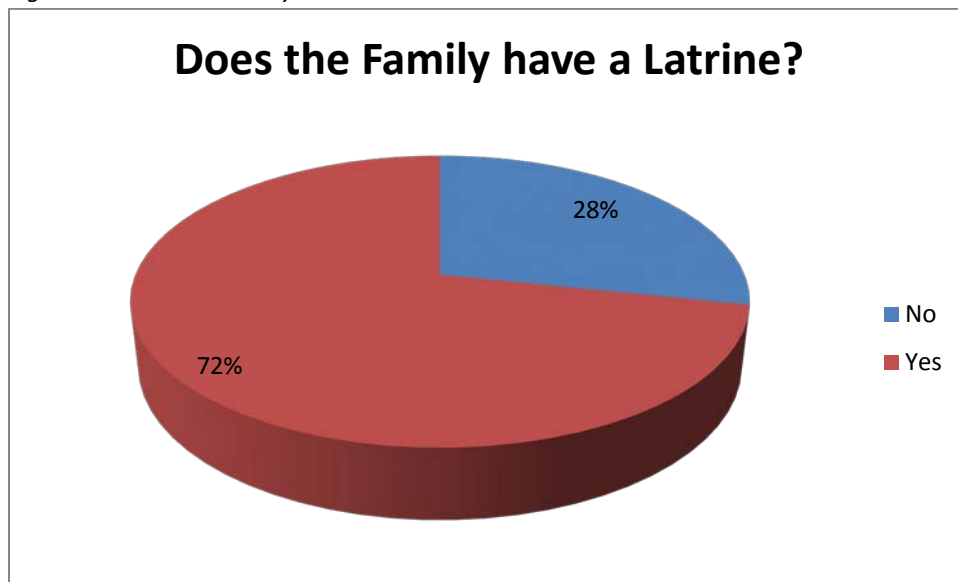


Figure 62: Does the Family have a Latrine?



Lastly, when asked about whether the family had received health education prior to MSG, only 31% had, see Figure 63, and 39% of those affected had been visited by the District Health Department, see Figure 64.

Figure 63: Has the Family Received Health Education Prior to MSG?

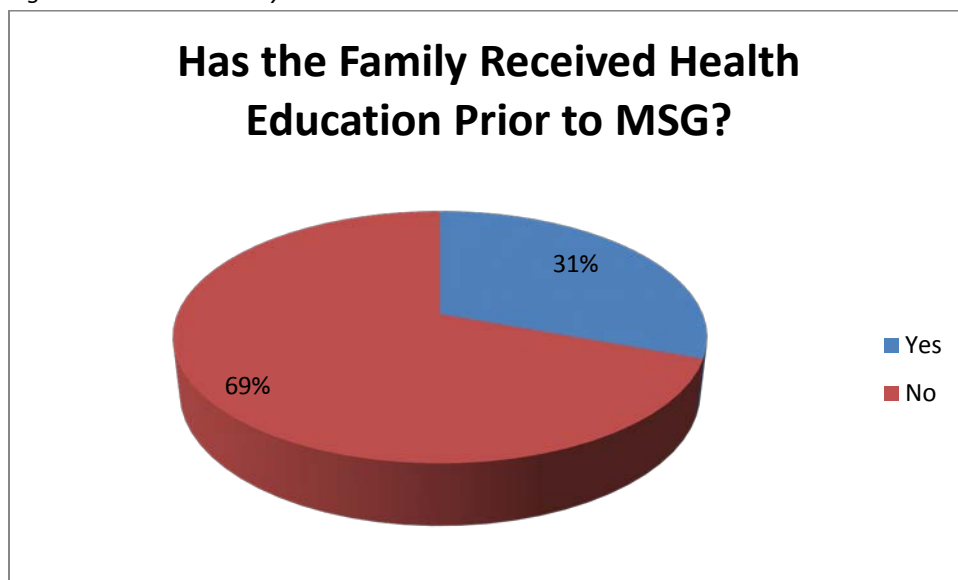
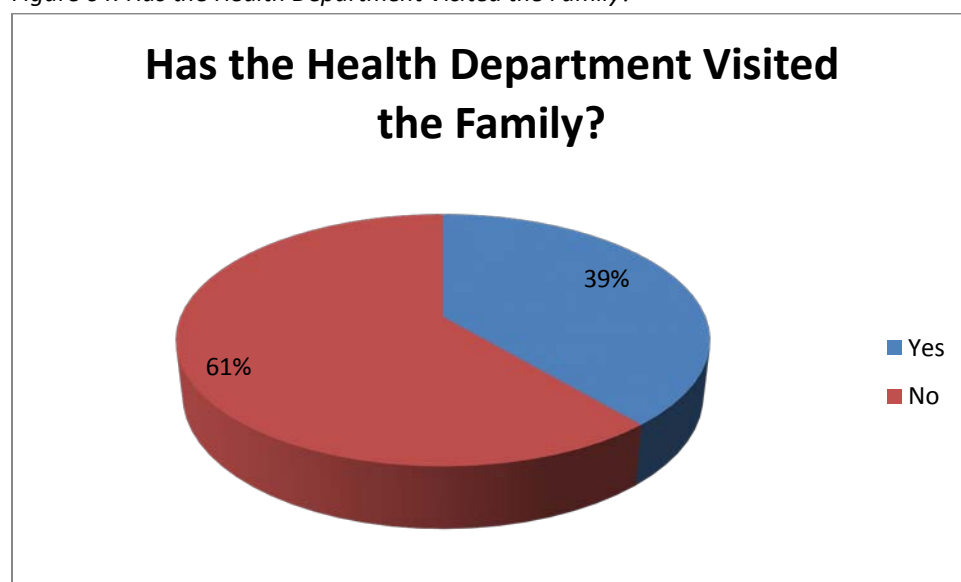


Figure 64: Has the Health Department Visited the Family?



Outreach Discussion

In 2016, MSG reached more community members than in previous years through the Outreach Program, and this program was heavily affected by the various cholera outbreaks. The program expanded this year because MSG made more of an effort to reach more remote areas, and there was an increased interest from communities throughout the Rorya District. While MSG was able to teach more community members important WASH lessons (directly or indirectly), it was difficult to measure WASH behavioral change or WASH knowledge attained from the Outreach Program because most interactions with the community were one-time encounters. In the future, MSG should develop a better pre/post assessment system for measuring the WASH knowledge learned by Outreach Program participants from restaurants, groups, shops and salons. Visiting these businesses at least twice and measuring the change that occurs over time would strengthen our program and help us determine if our outreach education is effective. After revisiting shops and restaurants, we noticed a need to emphasize hand washing and the importance of using soap when re-teaching lessons. While some restaurants changed their behaviors for the better when they received multiple lessons, other restaurants strangely cut back on hand-washing stands and the use of soap. Therefore, we will have to revisit and emphasize the hand-washing lesson during every restaurant visit.

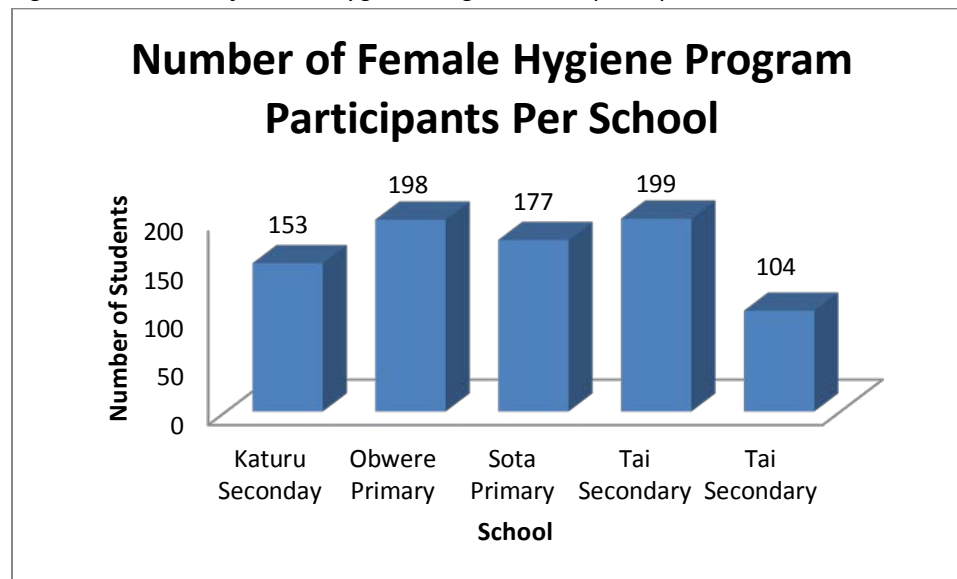
12. Female Hygiene Program

MSG started its Female Hygiene Program in November 2013 as a safe place for young women, 11-18 years old, to learn about Menstrual Hygiene Management (MHM), gain access to female WASH materials like sanitary pads, and be encouraged to stay in school. The overall objective of this program is to reduce school absences/dropouts related to menstruation by educating girls and young women about MHM and supporting them in their studies. This program

increased significantly in 2016 with the help of a grant from INTERTEAM, the City of Zurich, and the City of Basel.

Throughout the year, the Female Hygiene Program worked in two wards in four schools, an increase of two secondary schools during 2016. CHEs taught at Obwere and Sota Primary Schools and Katuru and Tai Secondary Schools. Overall, the Female Hygiene Program taught 831 young women at least one lesson during the year. The average of students taught per school was 208, see Figure 65. Class levels ranged from Class 5 to Form 4, depending on the school. On average, there were 69 young women present per lesson (minimum 35 girls, maximum 138) with four to six CHEs present to teach lessons.

Figure 65: Number of Female Hygiene Program Participants per School



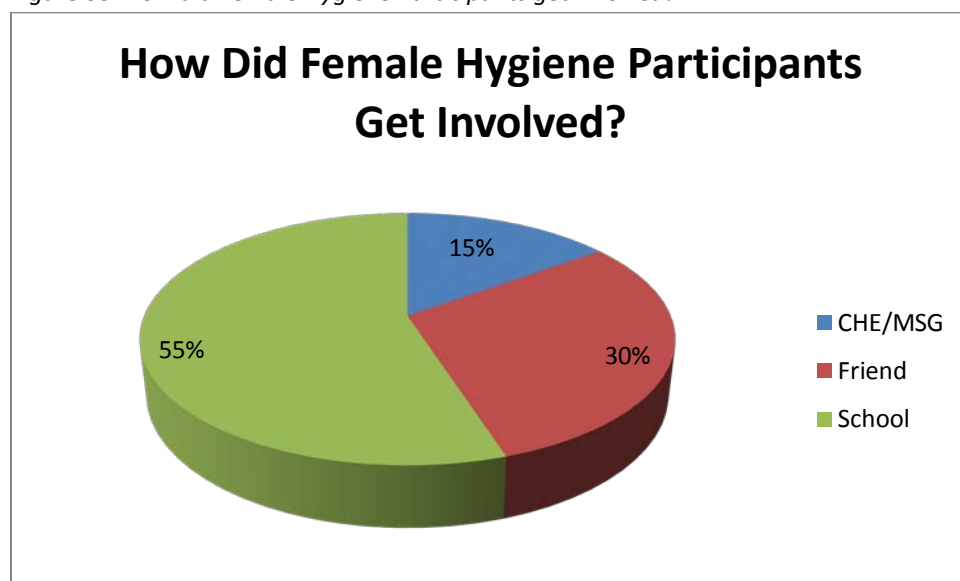
The MSG Female Hygiene lessons were created through participatory methods in collaboration with Marni Sommer's *Grow and Know* curriculum, which was developed specifically for teaching MHM in Tanzania. In 2016, the Female Hygiene Program hired a new Program Manager who is adding reproductive health to the MSG Female Hygiene Curriculum. Lessons equip participants with female health and hygiene knowledge to decrease their absences from school during menstruation and empower them to become community leaders.

All Female Hygiene Program participants, as well as girls from other communities, were invited to meet on Saturdays at MSG's office. On Saturdays, CHEs create a safe place for young women to participate in fun activities, share stories and female-specific experiences, and seek advice. The girls also engage in peer-to-peer education to further instill health lessons and give them practical leadership experience. On average, 41 young women participate on Saturdays at the office. Even during school vacations, students are encouraged to participate in Female Hygiene at the office. On average, CHEs and girls met at the office on Saturdays three times a month.

This year, the Female Hygiene Saturday program specifically worked with 20 young women to better understand their desires for the program. These girls participated regularly in the

Saturday lessons. The average age was 14 (min. 11 years old, max. 22 years old). The majority of program participants were in Class 6 or 7, but some were as young as class 4, and others were no longer attending school. According to Figure 66, the majority of participants learned about the Female Hygiene Program through school, then a friend, and last from a MSG staff member. They came from eight different schools (three secondary schools, five primary schools, and out of school). We thus have a wide variety of students who participate in this program on Saturdays.

Figure 66: How did Female Hygiene Participants get involved?



Throughout the year, the Female Hygiene Program hosts fun, educational community awareness events. This year, the Female Hygiene Program hosted five outreach events: Voice Empowerment, two Dining for Female Hygiene events, International Women’s Day, and our Miss/Mr. Maji Safi contest. Program participants invite community members to attend these events and learn about female hygiene and health issues through songs, dances, and skits.

- International Women’s Day: On March 22, the Female Hygiene Program celebrated being a woman with program participants and their female guardians. Lessons about reusable pads were taught, skits about the importance of being prepared for menstruation were performed, and reusable pads were handed out. This event attracted 110 women.
- Voice Empowerment: Professor Beth Osnes from the University of Colorado at Boulder visited MSG in May to teach the Female Hygiene Program about Voice Empowerment. MSG then agreed to partake in their 20-week study on this subject. Once the study was over, a community celebration was held to showcase all that had been learned. This event attracted 223 community members.
- In April and again in December, the Female Hygiene Program hosted Dining for Female Hygiene events. Group leaders and participants from each Female Hygiene Group organized this special dinner for participants and their female guardians (mothers,

grandmothers, aunts). During the event, female health and hygiene issues were discussed, new members were welcomed, and the young women showcased what they had learned through songs, dances, and skits. This event hosted 200 participants in April and 88 in December.

- **Miss/Mr. Maji Safi:** This year, the Female Hygiene Program partnered with the Male Hygiene Program to conduct the annual Miss/Mr. Maji Safi event. The young women and men from our Female and Male Hygiene Programs performed their Miss/Mr. Hygiene show in front of 1,000 community members. It was a very successful event, which allowed 70 young women and men to perform and compete in front of their peers and parents.

The Female Hygiene Program expanded the Rorya FM radio show to include lessons about MHM. This year, the Female Hygiene Program hosted nine shows, including one for Menstrual Hygiene Day in May. Including repeat listeners, these shows reached approximately 31,500 listeners. These numbers are indicated in the section about the Radio Show Program.

Female Hygiene Health Screening Results

Health screening results for the Female Hygiene Program participants indicate that when comparing all WASH-related diseases, program participants have a lower disease prevalence rate than community members without MSG education (with the exception of UTIs), see Figure 67. This tells us that MSG needs to improve its UTI lessons. It also shows us that Female Hygiene Program participants are healthier than community members who have not received MSG education.

Figure 67: Disease Rates among MSG Program Participants

2016 Health Screening Rates	Amoebas	Intestinal Worms	Schistosomiasis in Stool	Schistosomiasis in Urine	UTIs	Malaria
Overall percentage of health screening participants who tested positive	14%	24%	7%	13%	51%	22%
Female Hygiene Program Participants	13%	12%	7%	8%	66%	21%
Community members without MSG education	18%	41%	10%	21%	49%	23%

Female Hygiene Discussion

The Female Hygiene Program continues to grow and be one of our most popular programs. This year, we have expanded significantly. One challenge facing the MSG Female Hygiene

Program pertains to the impact and magnitude of the MHM education provided. The Female Hygiene Program currently teaches over 830 primary and secondary school girls. While the volume of students taught is large and the reach wide, it puts into question the effectiveness of the current educator-to-student ratio. To combat this issue, MSG should commit to reducing the number of students taught at each school and in each classroom. This will ensure that the students taught per session will learn more due to having a more student-friendly environment, including smaller class sizes and better student-to-teacher ratios to foster effective learning.

Another challenge we experience pertains to the Saturday MHM teaching sessions. Currently, young girls attend the sessions at the MSG office with three CHEs. Many of the participants live far from the office, and it is unusual for them to arrive on time. This shortens the time available for teaching and in-depth discussions. In order to alleviate this issue, the starting time has recently been pushed back to accommodate those participants who arrive late. The effectiveness of this schedule change will be evaluated.

13. Male Hygiene Program

In 2016, the CHEs expressed interest in starting a Male Hygiene Program as a counterpart to the already active Female Hygiene Program. MSG started piloting the Male Hygiene Program in 2016. This program provides young men and boys with education about male and female anatomy, puberty, changes in their bodies, personal hygiene, respect for women, and the importance of breaking the silence about menstruation. By involving both genders in the conversation, Male Hygiene Program participants are now becoming more aware and knowledgeable about menstrual hygiene management and female and male hygiene. As the young men become adults, they are able to support female peers and family members.

In 2016, the Male Hygiene Program provided education at two primary schools (Sota Primary School and Obwere Primary School). Sota Primary School had 80 participants that came to one or more lessons, and Obwere Primary School had 97 participants that came to one or more lessons. In total, this program reached 177 young men at schools. While this program was being piloted, the participants met a total of 22 times over five months.

Additionally, the Male Hygiene Program joined the Female Hygiene Program in this year's Miss/Mr. Maji Safi event. The event attracted 1,000 community members (some of whom were included in the overall number of program participants reached through the Male Hygiene Program). Overall, this program reached 348 boys and young men through the school program and events. This partnership was very successful and allowed Male Hygiene Program participants to demonstrate their new knowledge.

Male Hygiene Health Screening Results

According to Figure 69, Male Hygiene Program participants are healthier than people who do not participate in MSG's education. Most WASH-related disease prevalence rates are significantly lower for participants than for community members without MSG education (with the exception of malaria). MSG does not currently teach lessons on malaria, so these data indicate that its program participants would benefit from malaria education.

Figure 68: Disease Rates among MSG Program Participants

2016 Health Screening Rates	Amoebas	Intestinal Worms	Schistosomiasis in Stool	Schistosomiasis in Urine	UTIs	Malaria
Overall percentage of health screening participants who tested positive	14%	24%	7%	13%	51%	22%
Male Hygiene Program Participants	7%	9%	6%	6%	47%	23%
Community members without MSG education	18%	41%	10%	21%	49%	23%

Male Hygiene Discussion

The Male Hygiene Program proved to be of great interest to the community, so we recommend that this program continue to grow. Funding should be sought to help this program expand to other primary and secondary schools. Additionally, these young men should be provided with pre and posttests to measure their knowledge. It would also be beneficial for this program to include learning games and events, like a Dining for Male Hygiene event.

14. Health Screening Program

Maji Safi Group (MSG) started conducting annual health screenings in 2015 as a service to MSG program participants, their guardians, local community members and students from partnering schools and as a way to evaluate the impact of our programs. MSG's model promotes behavioral change; however, measuring changes in the community is a challenge. During the health screening campaigns in both 2015 and 2016, MSG partnered with the Rorya District Government through the offices of the District Medical Officer (DMO) and District Education Officer (DEO) to plan and conduct the screenings according to Tanzanian government policies and laws. Starting this year, we also partnered with the Tanzania Fisheries Research Institute (TAFIRI).

Both years, MSG hired government nurses, clinical officers, and lab technicians to screen, diagnose, and prescribe medicine, while the MSG staff organized and ran the program. Health screenings were conducted through blood, urine and stool samples to determine if the participants had one or more of the following WASH-related diseases: malaria, schistosomiasis, amoebas, intestinal worms, and urinary tract infections (UTIs). If a participant tested positive for one or more diseases, medicine was distributed free of charge, and every participant received disease prevention education.

In 2016, Maji Safi Group (MSG) conducted its second annual health screening campaign, testing 5,060 people. Overall, disease rates showed that MSG program participants who have been exposed to MSG’s education typically have a lower WASH-related disease prevalence rate (i.e. schistosomiasis, amoebas, and intestinal worms) than community members without MSG education or exposure to MSG programs. Data also suggested that MSG should reevaluate its education about UTIs and add malaria lessons to its curriculum.

2015 Health Screenings Summary

The first health screening campaign, conducted in 2015, was a means of detecting and treating any WASH-related diseases prior to MSG’s WASH education intervention. During the pilot year, we found that many students and participants were sick – 81% of those screened tested positive for one or more waterborne or water-related diseases. MSG tested and educated 3,060 community members (including approximately 900 program participants) and treated 5,604 waterborne and water-related diseases. The screenings provided participants with an understanding of their WASH health situation, treatment if needed, and education to prevent future WASH-related diseases. Additionally, following the World Health Organization and Tanzanian Ministry of Health’s guidelines, all health screening participants received treatment for intestinal worms regardless of whether they tested positive or not. This mass treatment was conducted because the Rorya District is endemic for intestinal worms. Figure 69 indicates the disease rates for each waterborne and water-related disease we tested for.

Figure 69: 2015 Health Screening Disease Rates

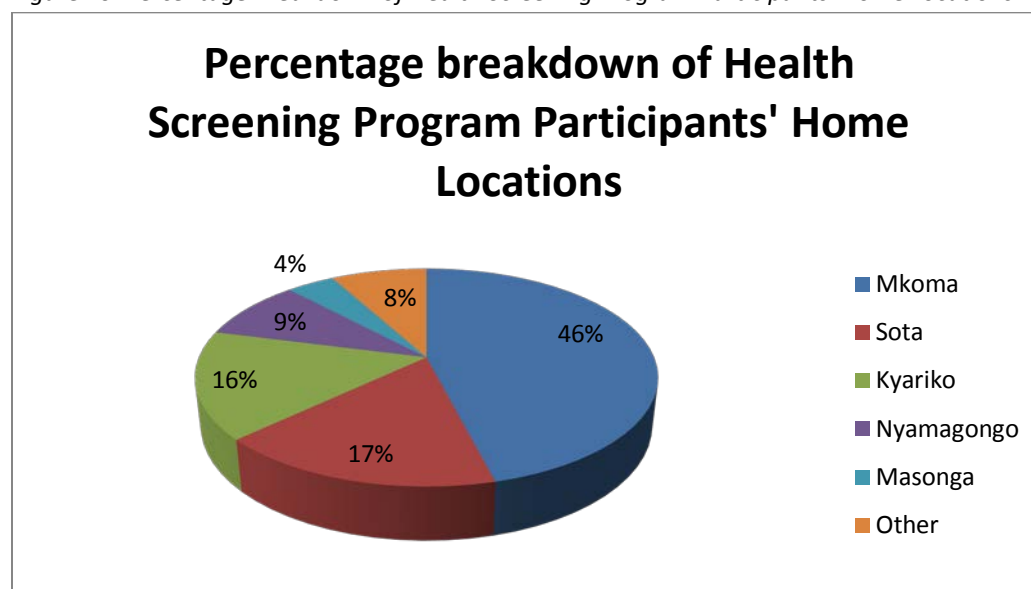
2015 Health Screening Rates	Amoebas	Intestinal Worms	Schistosomiasis in Stool	Schistosomiasis in Urine	UTIs
Overall percentage of health screening participants who tested positive	20%	18%	2%	31%	70%
New MSG Program participants who tested positive (participated in 1-3 MSG lessons)	28%	12%	17%	4%	66%
MSG Program participants	18%	16%	4%	14%	16%
Community members without MSG education	22%	30%	3%	16%	30%

2016 Health Screening Demographics

In 2016, the MSG Health Screening Program was very well received among participants and community members. Overall, MSG screened and treated 5,160 program participants and community members. The screenings were conducted over 20 days between July 16 and August 31, 2016. On average, MSG screened and treated 257 people per day, with a range of 164 to 485 participants per day.

Of those tested, 54% were female and 46% were male. The youngest person tested was two months old, and the oldest person tested was 90 years old. The average age was 18. The screenings took place in several different locations: the MSG office, Michire Primary School, Mkoma Primary School, Obwere Primary School, Sota Primary School, Tina's Education Center, Shirati Primary School, and the Sota Beach Management Unit (BMU) office. The majority of those screened came from Mkoma (46%), followed by Sota (17%), Kyariko (Obwere) (16%), Nyamagongo (9%), and Masonga (4%), as indicated in Figure 70.

Figure 70: Percentage Breakdown of Health Screening Program Participants' Home Locations



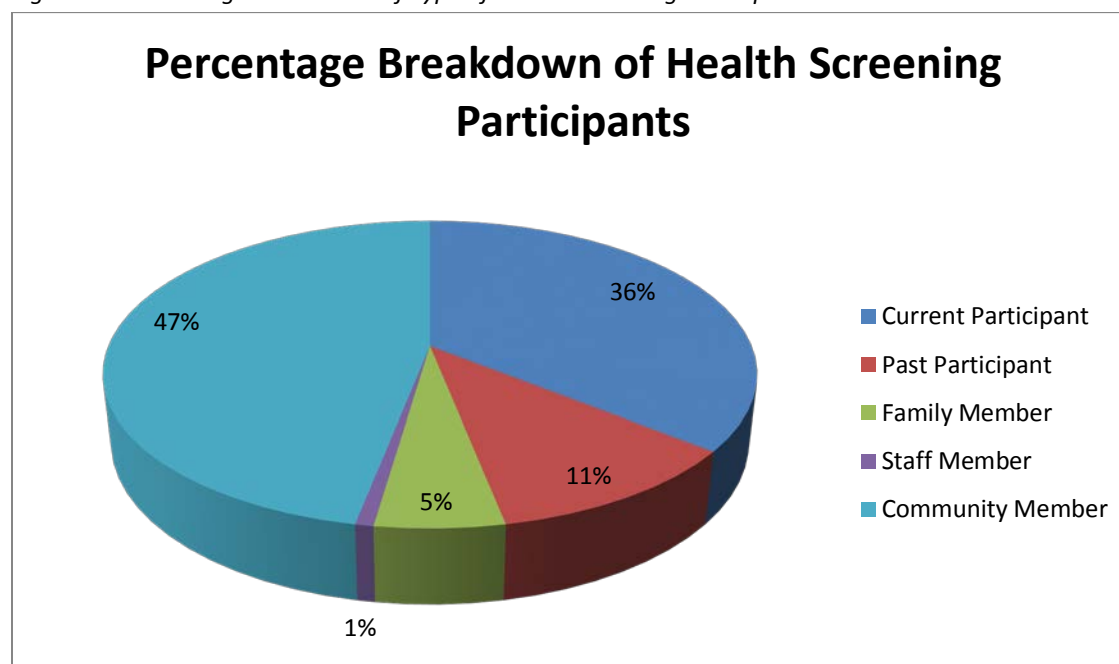
Overall 2016 Results

It was found that 77% of the 2016 health screening participants tested positive for one or more waterborne or water-related diseases. Compared to the 2015 health screening results from the same area, this is a 4% decrease. The 2016 Health Screening questionnaire was changed to better understand the background of those screened and their participation status in MSG programs. More specifically, the questions assessed if those tested were 'current participants' (those who were attending a Maji Safi Group (MSG) program during the time of the screenings or had participated in an MSG program during the past year), 'past participants' (those who had attended an MSG program over a year ago), 'family members' (those who had a family member who had participated in one or more MSG programs or a family member who was currently participating in an MSG program), 'staff member' (those who currently worked for MSG), or 'community members' (those who lived in the community, but had never been involved with MSG programs). The breakdown of the health screenings participants' status is indicated in Figure 71 and Figure 72.

Figure 71: Health Screening Participant Status

Participant Status	Current Participant	Past Participant	Family Member	Staff Member	Community Member	Overall Total
Number of Health Screening Participants	1,840	571	277	39	2,413	5,140

Figure 72: Percentage Breakdown of Type of Health Screening Participants



As indicated in Figure 73, there is a significant difference between disease rates among MSG program participants (current and past) and community members. These percentages indicate that community members with no exposure to MSG programs or education have a higher percentage of amoebas (8%-9% higher), intestinal worms (32% higher), schistosomiasis in stool (5% higher) and schistosomiasis in urine (13%-15% higher) than current and past MSG program participants. However, community members had the same percentage or lower than MSG program participants when comparing UTI rates (0%-4% lower). Additionally, community members had the same malaria rate (23%) as current MSG program participants, but a higher percentage than past MSG program participants (7% higher). These results lead us to believe that those who participate in Maji Safi Group programs (currently or in the past) have a better understanding of WASH knowledge and can better prevent WASH-related diseases, such as amoebas, intestinal worms, and schistosomiasis, than community members who have not had access to MSG education via programs. However, the data also suggest that MSG should improve its UTI education as UTI prevalence rates were the same or higher for MSG program participants than for community members. Malaria prevention is not taught in MSG education,

which is shown in the disease rates, as there is no significant difference between MSG program participants and community members.

The disease rate trends of those who have been exposed to MSG programs compared to those of community members also hold for family members of MSG program participants and staff members. There are higher amoeba, intestinal worm, and schistosomiasis rates among community members than among family members and staff. However, there is a lower UTI disease rate among community members than among family members and staff. Malaria rates indicate that family members have a 2% lower disease rate, and staff members have a 12% lower disease rate than community members. It is likely that WASH disease rates are lower among family members and staff because they are exposed to MSG education. Additionally, one potential reason for the lower malaria rates among staff members could be that they are professional health educators and understand the importance of prevention. They have also participated in malaria prevention continuing education classes.

Figure 73: 2016 Health Screening Disease Rates

2016 Health Screening Rates	Amoebas	Intestinal Worms	Schistosomiasis in Stool	Schistosomiasis in Urine	UTIs	Malaria
Overall percentage of health screening participants who tested positive	14%	24%	7%	13%	51%	22%
Percentage of current participants who tested positive	10%	9%	5%	8%	53%	23%
Percentage of past participants who tested positive	9%	9%	5%	6%	49%	16%
Percentage of family members of program participants who tested positive	11%	14%	3%	7%	53%	21%
Percentage of staff members who tested positive	12%	6%	0%	3%	53%	11%
Percentage of community members who tested positive	18%	41%	10%	21%	49%	23%

Maji Safi Group Program Disease Rates

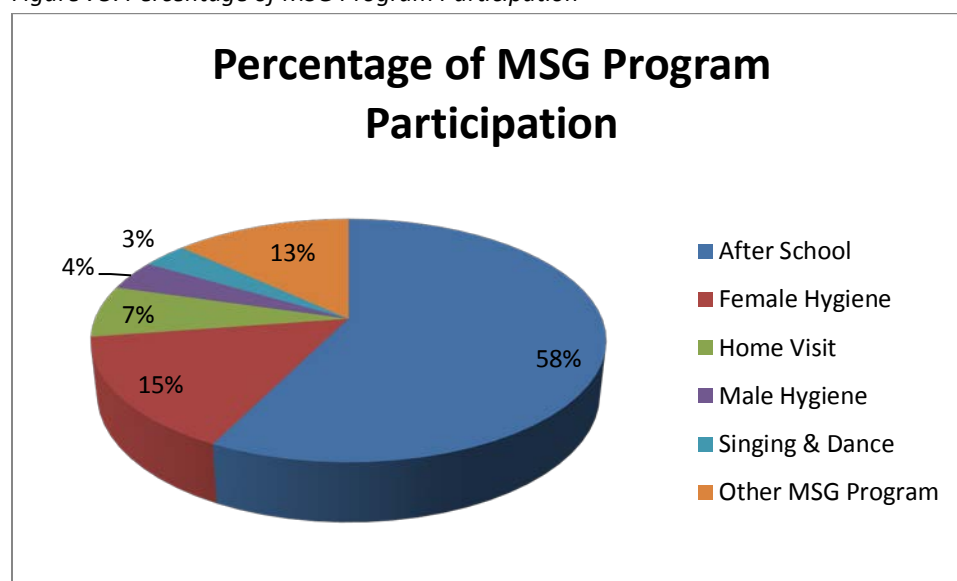
The 2016 Health Screening questionnaire was designed to ask health-screening participants if they were current or past program participants. MSG tested 1,840 current and past program participants, who made up 47% of those tested during the 2016 health screenings. The registration form was also designed to indicate which MSG programs those tested had

participated or were currently participating in. MSG programs included After School, Female Hygiene, Male Hygiene, Singing and Dance, Home Visit and other programs, such as Outreach, Disease Prevention Center, Hotline, Radio Show, and Maji Safi Cup. It is important to note that 1,012 health-screening participants partake (or partook) in more than one MSG program. This number indicates that they were currently in more than one MSG program or had participated in a program in the past and were currently participating in another program. As indicated in Figure 74 and Figure 75, the majority of program participants (past and current) came from the After School Program (58%), then Female Hygiene (15%), followed by other MSG Programs, such as Outreach, Disease Prevention Center, Hotline, Radio Show, and Maji Safi Cup, (13%), Home Visit (7%), Male Hygiene (4%), and Singing and Dance (3%).

Figure 74: Number of Current and Past MSG Program Participants

Program	After School	Female Hygiene	Home Visit	Male Hygiene	Singing and Dance	Other MSG Programs
Number of Current and Past Participants	1,638	434	196	113	96	376

Figure 75: Percentage of MSG Program Participation



According to Figure 76, all MSG programs had lower WASH disease prevalence rates than community members who had not had any exposure to MSG programs: amoebas (5%-11% lower), intestinal worms (29%-36% lower), schistosomiasis in stool (1%-7% lower), and schistosomiasis in urine (15%-17% lower). Disease rates among the program participants also varied. Amoeba rates ranged from 7% positive in the Male Hygiene Program to 13% positive in the Home Visit, Female Hygiene, and Other MSG Programs. Intestinal worm rates ranged from 5% positive in the Singing and Dance Program to 12% positive in the Female Hygiene and Other MSG Programs. Schistosomiasis in stool rates ranged from 4% positive in the After School

Program to 9% in Other MSG Programs. Schistosomiasis in urine rates ranged from 6% in the Male Hygiene and Singing and Dance Program to 8% in the Female Hygiene Program and Other MSG Programs.

When looking at UTI rates, it was found that only three programs (After School, Male Hygiene, and Singing and Dance) had a lower UTI disease rate than community members did. The other programs screened were (8%-17%) higher than community members. Lastly, while malaria rates were 21%-24% positive, programs such as Singing and Dance and the Home Visit Program had much lower malaria rates (8%- 15%).

Figure 76: Disease Rates among MSG Program Participants

2016 Health Screening Rates	Amoebas	Intestinal Worms	Schistosomiasis in Stool	Schistosomiasis in Urine	UTIs	Malaria
Overall percentage of health screening participants who tested positive	14%	24%	7%	13%	51%	22%
Home Visit Program Participants	13%	8%	3%	7%	57%	8%
Female Hygiene Program Participants	13%	12%	7%	8%	66%	21%
After School Program Participants	8%	7%	4%	7%	48%	24%
Male Hygiene Program Participants	7%	9%	6%	6%	47%	23%
Singing and Dance Program Participants	9%	5%	5%	6%	43%	15%
Other MSG Program Participants	13%	12%	9%	8%	58%	13%
Community members without MSG education	18%	41%	10%	21%	49%	23%

Fishermen Results

MSG collaborated with TAFIRI and the Sota Beach Management Unit (BMU) to reach the fishing community to evaluate the fishermen's health. The 2016 health screenings acted as a baseline for a fishermen cohort to measure if there is a need for education and further support within the fishing communities in the Rorya District. On August 5, 2016, MSG screened 214 people in Sota; 106 of them were fishermen. It was found that 100% of the fishermen screened were men between the ages of 14 and 76 with an average age of 35.

When comparing overall disease rates from the other health screening participants to those of the fishermen, it was found that fishermen have a much lower prevalence rate of malaria, amoebas, and intestinal worms, as shown in Figure 77. However, fishermen have a much higher prevalence rate of schistosomiasis (22% higher in stool and 17% higher in urine) and UTIs (14% higher) compared to other non-fishermen health screening participants. MSG recommends that fishermen gain a better understanding of schistosomiasis and UTIs through MSG education. It is also recommended that fishermen living in this area get screened for schistosomiasis every three months to maintain a clean bill of health while working in Lake Victoria.

Figure 77: Waterborne and water-related disease rates

	Amoebas	Intestinal Worms	Schisto-somiasis in Stool	Schisto-somiasis in Urine	Schisto-somiasis in both Stool and Urine	UTIs	Malaria
Overall percentage of health screening participants who tested positive (including fishermen)	14%	24%	7%	13%	1%	51%	22%
Percentage of all 214 participants tested on August 5, including fishermen who tested positive	5%	17%	21%	21%	1%	65%	7%
Percentage of non-fishermen who tested positive on August 5	5%	16%	11%	10%	0%	62%	9%
Percentage of fishermen who tested positive	4%	16%	29%	30%	2%	64%	5%

Health Screening Discussion

Maji Safi Group (MSG) gained a lot of information during the 2016 Health Screening Program. Thanks to our partners, we were able to screen 2,100 participants more than in 2015, add two secondary schools and two primary schools, and start a baseline study for the fishermen at the Sota BMU. New indicators allowed us to look further into MSG program participation and gain a better understanding of community needs in terms of WASH education.

In short, the community is getting healthier. Overall disease rates dropped four percentage points and significantly more among program participants. It was also found that any type of exposure to MSG education (current and past program participants, family members and staff) lowered WASH disease rates for amoebas, intestinal worms, and schistosomiasis in stool and

urine. UTI disease rates, however, were higher or the same among those with MSG exposure compared to community members without MSG education. This indicates that MSG needs to improve its UTI education by reviewing and revising the curriculum. Lastly, malaria rates are similar among program participants (current and past), family members and community members. MSG staff members have a lower prevalence rate of malaria. We assume that their rates are lower because they have had outside education about malaria. Malaria education in the community is much needed and could potentially be a lesson MSG adds to its curriculum. The 2016 Health Screening Campaign was very successful; however, there is always room for improvement. MSG recommends the following:

- Improve UTI education by reviewing lessons and content
- Add more health screening participants from different locations
- Add malaria education to MSG's curriculum
- Provide more days to screen fishermen to create a larger data set
- Screen fishermen from different BMUs on Lake Victoria to diversify the locations they come from
- Encourage BMUs to gain MSG education, especially education about UTIs and schistosomiasis.

Conclusion

With the financial support from our generous supporters, Maji Safi Group was able to directly teach over 72,000 people lifesaving WASH information in 2016. When we include the radio show, we taught 170,000 people WASH lessons. Overall, we are pleased to see that Maji Safi Group is growing in participation while disease rates of program participants are decreasing. We are especially pleased with the health screening data that strongly indicate that MSG program participants typically have a lower disease rate than community members without access to MSG's WASH education. We feel well prepared to enter 2017 with strong management and a team of 20 CHEs, so we can accomplish many goals. Next year, it is our aim to show that Maji Safi Group's programs are effective by continuing to work with the government and the community and to demonstrate an even larger decrease in waterborne and water-related diseases among MSG participants.