Youth Empowerment and Community Health in Maunatlala: Individuals, Families, and Systems

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Final Report Submitted to the Ministry of Health and Wellness, Government of the Republic of Botswana

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This report was prepared by all members of the 2018 Botswana Global Health Internship Program team in collaboration with key stakeholders of the Maunatlala community. It has benefited from insightful suggestions from the Maunatlala Health Clinic staff.

EXECUTIVE SUMMARY

This report summarizes the findings of the work that the Botswana Global Health Internship Program team carried in July 2018 in Maunatlala, Botswana. We worked in collaboration with key stakeholders of the Maunatlala community and the Ministry of Health and Wellness, Republic of Botswana. The report has benefited from insightful suggestions from the staff at the Maunatlala Community Library, Maunatlala Clinic, Masupe Primary School, and Maunatlala Junior School. We also list here the key recommendations that we made after completing a pilot work in 2017 in Maunatlala. In addition, we provide a brief summary of the impact of our initial work in the village.

Summary of recommendations and impact of the 2017 Botswana Global Health Internship Program:

Central Food Market
Build a food market that sells locally produced, healthy, and diverse food to promote healthy eating, food security, job creation, and local economic growth. ***Two grocery stores opened in Maunatlala between August 2017 and March 2018. These stores employ local people and sell seasonal vegetables and other local produce.***

Garbage Disposal and Recycling
Improve garbage collection and disposal system, reduce plastic burning, and increase recycle of biologically non-degradable materials. ***Each of the five wards in the village has constructed a trash collection structure built with bricks and cement. The community has invested resources in regular trash collection services. The community is considering sustainable options for plastic recycling. In 2018, Botswana's Central District Council identified Maunatlala as one of the cleanest villages in the central Botswana.***

Preventing Gender-Based Violence
Increase effort to identify and address cases of gender-based violence (GBV) in the village. Offer gender sensitivity training both at the school and community levels. Develop a strong social safety net to support the victims/survivors of GBV. ***The social worker in the village is working with the Botswana Global Health Internship team to develop and implement a gender sensitivity curriculum in Maunatlala Junior School. We are currently applying for external funding to carry out these activities.***

Community Health Workers (Social Workers)
Increase the number of community health workers (CHWs) at the Maunatlala Clinic. ***The Ministry of Health and Wellness is currently considering this recommendation.***

Youth Employment/Empowerment and Sexual and Reproductive Health
The Ministry of Health and Wellness and the Ministry of Youth Empowerment, Sport, and Culture Development should collaborate to identify and support sustainable programs to promote youth employment and health promotion/prevention. ***Both ministries are currently considering these recommendations.***

Based on our work in Maunatlala in July 2018, we make the following recommendations:

- Efforts leading to youth empowerment, engagement, and employment are critical to sustainable economic growth, health and well-being, and community-building in Maunatlala.
- Maunatlala youth groups are actively seeking to develop employment and recreational opportunities to effectively engage others in the community. We strongly support such efforts and encourage the local, regional, and national governments to support these initiatives as well.

- The Maunatlala Community Library is well-integrated into the local cultural ethos. It plays an important role in the everyday lives of people in the village. The space available at the library offers an excellent opportunity to strengthen existing and build new youth training, health promotion and education, and community engagement programs.
- There is growing recognition that youth in Botswana present an optimum point for systematic engagement to ensure sustainable economic growth and reverse the trend of the HIV/AIDS epidemic. We strongly recommend to the Ministry of Youth Empowerment, Sport, and Culture Development that a position of Youth Engagement Coordinator be created for rural communities such as Maunatlala. This position can be affiliated with the public libraries (e.g. Maunatlala Community Library). It can play an important role in future workforce development by assisting youth in skill building and to prepare for professional opportunities.
- Replace the current Maunatlala Clinic building with a new clinic building with modern facilities and infrastructure to ensure that the clinic and its staff are able to meet the rapidly growing demands for health services. The new building must have upgraded internet accessibility and desktop computing to ensure reliable prescribing and tracking of medications and patient records. This will also allow the clinic's Patient Information Management System (PIMS) to be linked with the national PIMS.
- Maunatlala Clinic staff are currently doing their best to manage their patient load. There is an urgent need to add additional staff to the clinic workforce to ensure that clinic services are not adversely affected.

Notwithstanding the above recommendations, we are encouraged by the willingness of the Maunatlala community to continue to seek new information and opportunities to improve their community. With additional help from the Government of the Republic of Botswana, especially from the Ministry of Health and Wellness and the Ministry of Youth Empowerment, Sport, and Culture Development, the Maunatlala community can be a spotlight for Botswana.

As we continue to grow our partnership with the Government of the Republic of Botswana and the community of Maunatlala, we will organize around the data, focus on the assets of the community, collaboratively work with all stakeholders to bring all the players together to coordinate decision-making and action, and share responsibility and accountability.

PROGRAM BACKGROUND

Achieving health and well-being for all is one of the most exciting and pressing issues of our times. This key goal in the global health arena requires coordinated interdisciplinary approaches that engage researchers, community stakeholders, donors, and governments to work in a collaborative, sustainable, and empowering manner.

Supported by the Robert & Sara Rothschild Endowment Fund, the Botswana Global Health Internship Program, which is part of the CPHHS Botswana Program, is a collaborative effort by Oregon State University's College of Public Health and Human Sciences and the Ministry of Health and Wellness (MOHW) in Botswana to identify and implement locally relevant and sustainable community-based efforts to improve health infrastructure, strengthen health care services and systems, and enhance youth employment, engagement, and empowering activities. Each year, the Botswana Global Health Internship program recruits and trains student interns to engage in community-based work in Maunatlala – a village located in the Central District of Botswana, on health-related issues that prioritized both by the MOHW and the village community.

Key Partners

1. Ministry of Health and Wellness, Government of the Republic of Botswana
2. College of Public Health and Human Sciences, Oregon State University
3. Robert & Sara Rothschild Endowment Fund
4. Robert & Sara Family Foundation

In 2018, six student interns participated in the Botswana Global Health Internship program from June 29, 2018 to July 28, 2018. Student interns were selected from diverse academic backgrounds and interests, including public health, toxicology and environmental sciences, engineering, and social sciences. The interns collaboratively worked in collaboration Dr. Sunil Khanna (Director of the Botswana Global Health Internship Program) and local stakeholders on different domains of the topics identified above.

In Spring 2018, student interns completed a number of readings on Botswana and its history and cultures. The program interns participated in four workshops to learn more about topics such as traveling abroad, culture shock, Botswana's culture, infrastructure, health systems, and about the community of Maunatlala – the site of the internship. The program interns received basic training in how to conduct community-based research, especially the use of qualitative methods (e.g. participant observation, in-depth interviews, focus group discussions, etc.). The interns also received reading materials for reference in the field.

Image 1: Orientation Workshop Organized by the Ministry of Health and Wellness

Upon arrival in Gaborone, the team of student interns and program director participated in an orientation workshop organized by the MOHW to learn more about the state of health in Botswana. The workshop helped us identify key priority areas of health service delivery and policy at the national level (See Image 1). After completing the orientation training, the team of student interns along with the Director of the program left for Maunatlala – the site of the program.

Maunatlala is a village in the Central District of Botswana, situated at the foot of the Tswapong Hills near the Lotsane River. It is located approximately 221 miles from Gaborone, the capital city of Botswana. According to the 2011 census, Maunatlala's population is just over 4, 500. The community has three schools (two primary and one junior secondary), a community health clinic, and the Maunatlala Community Library. Our time in Maunatlala offered an incredibly rich learning opportunity. During our stay, we engaged in numerous conversations with community leaders and key stakeholders. More than 70 individuals in the village shared their experiences and opinions with us. By using both structured and unstructured data collection tools and complementary field methods (e.g. participant observation, in-depth interviews, group interviews, focus group discussions, and resources mapping) with Maunatlala clinic staff, workers at the Maunatlala community library, youth leaders and group members, local political and community leaders, District Health Management Team (DHMT), and school teachers, we developed a nuanced understanding of multiple perspectives on a broad range of topics including, available health services, HIV/AIDS, youth empowerment, poverty, gender-based violence, and education.

In addition to collecting data through interviews, we gathered data through observation, resource mapping, analysis of health data records, and visual documentation. Both data collection and analysis occurred simultaneously. We focused on concept saturation and triangulation of information and became familiar with the data by reading and re-reading our notes, noting impressions, looking for meanings and identifying overlapping themes. We categorized data into broad themes and identified relationships (patterns, connections, contradictions, etc.) between and across themes. Specifically, we focused on content analysis, narrative analysis, conversation analysis, and grounded theory (Mack et al. 2005).

Key Principles of Community-Based Participatory Research (CBPR)

- It is a collaborative enterprise among diverse stakeholders.
- It seeks to democratize knowledge by validating multiple sources of knowledge and promtoing the use of multiple methods of learning and dissemination.
- It builds on the strengths and resources within the community.
- It involves cyclical and interative process of data collection and analysis.
- It strives to understand issues from culturally appropriate and sustainable perspectives.
- It disseminates findings and knowledge gained as a result of the collaboration between researchers and community.
- Its goal is social engagement and empowerment for the purpose of achieving social change and social justice.

This report includes a comprehensive analysis of our findings. It represents the perspectives of various stakeholder groups on health and wellness and youth engagement in Maunatlala. It highlights the experiences and aspirations of Maunatlala residents and leaders. In our roles as community partners or collaborators, we endeavored to summarize diverse yet complementary perspectives on health and well-being as shared with us by people living and/or working in Maunatlala. Based on rigorous analyses of data, we have made some key recommendations to foster positive change in the village and to help the Maunatlala community and the MOHW to identify key priorities to improve health services and the everyday lives of youth in the village.

SECTION I: COMMUNITY, CULTURE, AND HEALTH

There are two primary schools (Maunatlala Primary School and Masupe Primary School) and one (Maunatlala Junior Secondary School) in the village. These schools are supported by the Botswana government and follow the curriculum as prescribed by the country's Ministry of Education and Skills Development. Students in the junior secondary school learn about basic health education as part of the larger school curriculum. Topics covered include personal and family sickness, alcoholism, physical abuse, HIV, social and moral aspects of health, etc. Health lessons are based on Botswana's Junior Secondary School curriculum guidelines, which focus on topics of personal, social, educational, and vocational training. External stakeholders, including community police officers and nurses, are often invited to give talks on issues that are relevant to the student learning and success.

In Maunatlala, like in many other rural communities in Botswana, it is common for students to live with their grandparents. According to a school employee, "Ninety percent of students live with their grandparents while their parents live in another city or town." Such a family structure, in addition to cultural taboos related to conversations on sexual and reproductive health issues in the family, often leads to limited or no discussion at home of sensitive health-related information such as sexual and reproductive health and HIV/AIDS. At school students often ask questions regarding puberty and body changes because these topics are not fully explained at home. School teachers shared with us that school lessons on sexual and reproductive health offer only basic information. Culturally prescriptive norms prevent to openly discussing topics related to HIV/AIDS in class.

Several misconceptions about health issues, especially reproductive health issues and HIV/AIDS, can be addressed by improving the school curriculum to offer more information on sexual and reproductive health to students. Since students are often unable to discuss sensitive health issues with family members, we suggest that teachers and administrators at the local school consider revising the curriculum in order to improve awareness of HIV/AIDS and other sexual and reproductive health issues among students. For example, the Knowledge, Innovation, and Training Shall Overcome AIDS Program (KITSO) sponsored by the Botswana's Ministry of Health and Wellness can be adapted to educate students about HIV/AIDS. The Baylor International Pediatric AIDS Initiative (BIPAI) was launched in 2006 to equip teachers and non-teaching staff with the knowledge, skills, and attitudes to support HIV-positive children in schools.

Such school-based HIV/ADS and sexual and reproductive health education program are in a unique position to reach every child, youth, and their families in the village. School-based programs provide students with opportunities to learn how they help prevent the onward transmission of the HIV virus and contribute to a caring and compassionate society of people living with and affected by HIV/AIDS. Studies indicate that school-based HIV/AIDS education programs effectively improve student knowledge about HIV/AIDS and reduce risky behaviors and that the positive effect of HIV/AIDS education supports scaling such efforts at the national level in Botswana (Grepin and Bharadwaj 2015).

Based on input from school teachers and non-teaching staff, we also recommend that a full-time school nurse should be made available at the junior secondary school. Currently, a nurse employed by the Maunatlala clinic is responsible for providing health care in the school. This person is unable to spend enough time to promote health education. A full-time school-based nurse can help enhance education and reduce knowledge gaps by serving as a resource for students to ask questions and learn about health issues. Teaching students about

health-related issues creates sustainable long-term change with positive effects not only for the current generation, but also future generations. Furthermore, this will further strengthen the currently available health care services in the school.

We strongly recommend a full-time school nurse be employed, to ensure appropriate, timely, private care is available to students in school.

SECTION II: YOUTH HEALTH, EMPLOYMENT, AND EMPOWERMENT

The Maunatlala Community Library was officially opened in 2015 as an outcome of a collaborative effort among the Botswana National Library Service (Ministry of Youth Empowerment, Sport, and Culture Development), Maunatlala chiefs and other leaders, and the Robert and Sara Rothschild Family Foundation. The Maunatlala Community Library serves the Maunatlala community in multiple ways and has become a community center for staging a range of community development activities (see Image 2). It offers a safe and easily accessible community space for social and cultural activities, community-building, children's playground, and as an important site to promote health and well-being. Several community groups use the Maunatlala Community Library to meet and plan for their programs; clinic staff use the library to promote health eating/living and HIV/AIDS prevention programs; youth groups meet in the library to develop youth empowerment initiatives; and several community groups use this space to launch community development efforts. The Maunatlala Community Library plays a vital role in educating the community and making it self-reliant.

Image 2: Maunatlala Community Library

We worked with *Botselo Luengo* (BL) – a youth group that regularly meets at the Maunatlala Community Library. This group includes members ages 18-35 and meets twice a month in the library.

A youth group leader stated that they want to pull youth from the streets and engage them in productive activities rather than let them get into bad habits of drug and alcohol abuse.

We worked closely with this youth group to finalize a business proposal to be submitted to the Ministry of Youth Empowerment, Sport, and Culture Development for funding. The proposal focuses on building a poultry house and eventually a community recreational center. We believe that this group exemplifies how the community can work together to promote youth employment and empowerment in Botswana. Similarly, a health care worker in the village has proposed to create a "Skill Building Programs for Youth." These programs would train unemployed youth on a variety of skills including cooking, farming, computer programing, plumbing, electric maintenance, and other technical skills. These skill-building programs would allow youth to find employment. We strongly recommend that the Maunatlala Community Library serve as a site for such programs, which could be of significant benefits to youth and the community. The Government of the Republic of Botswana, which is currently seeking out-of-country sponsorships, would be able to better attract foreign businesses because they would have available skilled workers in the country.

Community Recreational Center

We observed that most people in Maunatlala have a sedentary lifestyle. Some individuals participate in organized sports or engage in routine exercise. The village does not currently have a dedicated space for exercise, local cultural norms do not promote regular activity, and gender roles stereotypically exclude women from participation.

Botselo Luengo (BL), the village leaders, and the Village Development Committee (VDC) have agreed that a community recreational center would help to engage people, create jobs, promote physical activity, and create an opportunity to inform and empower individuals about their health and well-being. These stakeholders have identified a building that needs renovation to serve as a recreational center in the village. We strongly agree that building and operationalizing a recreational center would have enormous benefits to the people, especially youth, in the village.

Exposure to physical activity begins at a young age. After primary and secondary school sports, there are few sports opportunities available for youth or adults to join. In Maunatlala, only men's soccer is available. Although there are enough women to form a league with athletes willing to coach, no coordinated sports opportunity currently exists for these individuals. The community soccer field is poorly maintained. We observed that the field is shared by many during heavy usage time of 4:00 PM to 6:00 PM on weekdays. Considering that participation in sports is associated with positive group development, increased self-confidence, and developing strong social relations, we strongly endorse the proposal to create more organized sporting activities for youth in the village. A recreational center has the potential to significantly improve the health of community members.

A recreational center could serve not only as a place for sports and exercise, but as a teaching facility as well. Lessons of healthy eating habits, active lifestyles, sports engagement, exercise and more can be advertised through posters, classes, or merchandise. The center can be used to offer formal classes on yoga, judo training, aerobics, healthy aging classes, running, weightlifting, and self-defense.

A recreational center in Maunatlala would also help to combat issues of unemployment among youth, which is a major problem in the village. A small staff would be necessary to operate the center, and paid memberships or renting space for parties and weddings would generate a profit. Staffing could include jobs such as event planning, cleaning, teaching, coaching, and more. Currently, consumption of alcohol and drugs is common and often serves as a recreational activity for many community members. A recreational center would provide a healthy alternative for individuals in the community.

Youth Engagement Coordinator

Due to the cessation of local kimberlite extraction operations unemployment or underemployment is a harsh reality for youth (18-25 years) in Maunatlala. New labor market entrants without business or leadership experience are no longer competitive applicants in 200+ candidate pools. Under-employment is on the rise further throttling the earning capacity of youth. Their difficulty in locating employment outside Maunatlala is compounded by a lack of reliable transportation to allow youth to arrive at and depart worksites in a timely manner. Local bus schedules are unpredictable to commute to a formal job with strict shift requirements. During our time in the village, we talked with about 25+ young jobseekers struggling to schedule interview appointments around informal transportation arrangements. This lack of basic services undermines youth's independence and adds unnecessary struggle to the interviewing process.

Youth in the village are eager to work, but with limited access to the Internet, they are unable to access basic online job portals. Youth are required to pay for hard copies of application materials then hand deliver in person. Furthermore, we learned about unwarranted bias from employers who unfairly stereotype all young mothers, single fathers, or other village residents as not capable of arriving on time in proper attire ready to complete job duties. All

youth we met speak fluent Setswana, have a command of formal and informal verbal English, and otherwise can compete for jobs. They can benefit from skills-based training in professional resume building, interviewing, and professional presentation.

We strongly recommend to the Ministry of Youth Empowerment, Sport, and Culture that a position of Youth Engagement Coordinator be created for rural communities such as Maunatlala. This position can be affiliated with the public libraries (e.g. Maunatlala Community Library) and it can play an important role in future workforce development by assisting youth to prepare for professional opportunities.

Recent research and evaluation of youth development and employment programs suggests that the demands of the knowledge of economy and the ever-expanding digital economy are causing employers to expect higher levels of skills from youth. In addition to streamlining education/training programs, these changes require that youth have access to post-education enabling services to have information on the skill requirements of particular occupations, effective application and resume development, and interview and negotiation skills. In addition to helping youth with these issues, the Youth Engagement Coordinator can serve as an employment matching agent to advocate, mentor, and solicit professional opportunities on behalf of employers. Given meaningful and sustained assistance and mentoring from a Youth Engagement Coordinator who is familiar with new enterprises, emerging small businesses, and first-time job seekers, youth can succeed in gaining employment, which could fuel the next economic revolution in Maunatlala.

Image 3: *Botshelo Luengo* (Youth Group in Maunatlala)

Botshelo Luengo

Botshelo Luengo is a youth group in Maunatlala with a membership of more than 20 individuals. We worked closely with this group to prepare a business proposal to establish a small-scale meat poultry production cooperative (Maunatlala Poultry House) that would provide part-time employment for 3-8 youth as security guards, caretakers, and processing/packagers to fill a local market gap for institutional chicken meat and eggs. The group proposes to market its products at the local schools by offering them a sustainable year-round supply of eggs and chickens. The group has held fundraising lunches, solicited donations of construction materials, and have an assigned land plot with river water draw access. The group is supported by the Maunatlala Community Library and the community at large (see Image 3).

SECTION III: HEALTH SERVICES AND SYSTEMS

The Maunatlala Clinic serves a target population of slightly more than 9,000 individuals. On an average day, around 50 patients receive services at the clinic. However, this number varies because of the different services that the clinic provides on different days of the week. For example, on Tuesdays and Thursdays, the clinic holds an HIV clinic, which draws in 40 additional patients. The clinic offers special services for patients with diabetes, tuberculosis, and hypertension. On days when these additional services are offered, the clinic staff manages around 100 appointments per day.

> The clinic in Maunatlala village is currently operating over capacity. Considering the anticipated increase in the patient population, this issue will only continue to worsen.

After the mine closure in Selebi Phikwe, many of the miners started returning back to their home villages to live with their families. This "return migration" is one of the reasons for an increase in the patient load at the Maunatlala Clinic. Even though the capacity of the clinic has not significantly changed, the number of patients in the area has increased posing a significant challenge to the clinic in terms of continuing to provide services to patients.

Based on numerous conversations with clinic staff and observations of clinic routine, we are proposing some recommendations to help the Maunatlala clinic address its staffing issues keeping an eye on current and anticipated growth in the number of patients seeking care at the clinic.

Recommendation 1: Increase staffing at the Maunatlala Clinic

Table 1 depicts the current staffing positions at the clinic, as well as the recommended staffing level to ensure that the clinic continues to offer quality health care.

POSITION	CURRENT STAFFING	DESIRED STAFFING
Physicians	1	2
Nurses (includes Midwives and Nurse Prescribers)	10	12
Midwives	4	6
Nurse Prescriber	1	4
Pharmacist/ Pharmacist Technician	1	3
Social Worker	1	3
Cleaning personnel	2	3
Ambulance Driver	2	3
Support Staff	1	3

*Other staffing at the clinic includes sanitation attendants and night security guards. These individuals are on independent contracts with the clinic.

Table 1: Staff at the Maunatlala Clinic

Physicians and Nurses

Currently there is only one physician at the clinic. When the physician is on leave there is no physician to oversee operations or to stay on-call. During our time in Maunatlala the physician was not present and had been out of the office for two months. Therefore, the entire service area population was without a physician. The nurses at the clinic perform multiple roles. They work not only as nurses, but also as midwives and nurse prescribers (with appropriate training and certification). While the clinic could always use more nurses, the pressing issue that the clinic faces is obtaining or training nurses with the additional midwife and nurse prescriber qualifications in order to keep up with the patient needs.

Pharmacists

Currently, there is only one pharmacist at the clinic who possesses a complete knowledge of the dispensing process. Due to high patient load at the clinic, the primary focus of the pharmacist is dispensing of drugs. With the help of an additional dispensary technician, it would be possible to offer drug-related advice to patients and to provide back-up to the full-time Dispensary Technician for supply orders and storeroom stocking. This would allow the clinic to manage and track medication usage and prepare report drug usage. Additional help would also allow for prescriptions to be dispensed outside of the clinic structured times (for example prescribing ARVs outside of the Tuesday- Thursday schedule). This could potentially improve adherence to medication schedules by allowing patients to come at their own convenience to pick up their medications.

Social Worker

Currently this is only one social worker at the clinic providing services to the entire catchment area. The social worker is responsible for linking individuals to relevant social and health services. By working with the social welfare offices, the Department of Community Development, and local governments, the social worker makes tangible changes to the lives of the community but is overworked. The Maunatlala community needs more social workers to create sustainable solutions for the issues of health and other needs that the community faces.

Transportation

With the expanding patient population and the potentially expanding catchment area, Maunatlala faces severe transportation barriers to timely and quality health care. The Maunatlala Clinic currently has one ambulance that is used by the clinic and four health posts which serve five villages. The ambulance is used in the following ways:

- Transportation of patients and medical professionals during emergencies and for consults at the Palapye hospital.
- Transportation of medication to the four health posts.
- Transportation of midwives to surrounding health posts to do prenatal care (PNC/ANC).
- Post-natal checkups on new mothers and babies.
- All other transportation needs of the clinic and health posts.

We observed that often the ambulance is not available during emergencies because it is being used for another purpose. It can take over an hour at times for the ambulance to arrive during an emergency. This also makes it difficult to schedule the post-natal checkups on women and so often they simply do not happen. In our assessment, the clinic is in dire need of at least two additional ambulances and drivers to continue to provide basic health care in its service area. The issue of clinic related transportation was brought up in every interview and affects every part of the clinic and the communities that the clinic serves.

Support Staff

Currently, nurses in the clinic perform multiple roles, including counseling patients on issues such as alcohol abuse, gender-based violence, mental health, health education in schools, etc. These responsibilities also fall upon the already overloaded social worker in the village. At the moment, the support staff consists of a health education assistant who also carries many additional roles and responsibilities. The community needs trained health professionals specifically dedicated to assisting with issues related to alcohol abuse, gender-based violence, mental health, and school-based health education.

Recommendation 2: Create additional opportunities for nurses to obtain further professional training

We were highly impressed with the professionalism and work of the midwives and nurse prescribers for ARVs at the Maunatlala clinic. We strongly recommend that, with the support of the MOHW and Palapye DHMT, the Maunatlala clinic leadership should facilitate additional training opportunities for nursing staff. Despite the hard work of everyone at the clinic, there are not enough midwives to assist with all of the pregnant women and deliveries that occur at the clinic. Because the midwives at the clinic are both nurses and midwives, they work as nurses during most of the week; a few days they work as the midwife on shift. This often presents a number of operational challenges because when the nurses work as midwives, they could be helping with deliveries at any time of the day or night and then expected to work the next day if they are scheduled. Additional midwives would allow the clinic staff to rotate through the position less frequently and would result in better rates of staff retention and better health outcomes.

All ART services are centralized at the Maunatlala clinic. One ART nurse prescriber sees all of the patients from all of the health posts and the clinic. On Tuesdays and Thursdays when the clinic prescribes and distributes ARTs, the nurse prescriber meets with up to forty patients per day. This is four times the recommended patient load of ten patients per day for an ARV nurse prescriber. We strongly suggest that additional training opportunities should be provided for nurse midwives and nurse prescribers. This will significantly help the quality of care at the Maunatlala clinic.

Recommendation 3: Provide additional clinic housing with preference given to on-call staff

Currently, there are only four staff houses build near the clinic. The available housing is insufficient for the nurses that currently work at the clinic. By adding more affordable staff housing. It would be easy for the staff to easily reach the clinic in case of an emergency. We are not aware of the criteria used to assign staff housing. We recommend that for staff housing allocation, priority should be given to nurses and midwives who need to be close to the clinic for nights when they are on call.

One of the benefits to living in the on-site housing, is that rent is cheaper than paying for an accommodation elsewhere in the village. Several clinic staff live rent housing from the Village Development Committee (VDC) or from private landlords. In terms of rent, living in the clinic staff housing or renting from the VDC are cheaper options (~ P300 per month). However, renting from a private landlord could be expensive (~ P1,500 per month). One must also factor in the additional cost of transportation to and from the clinic for the staff member. One clinic worker reported that it can be prohibitively expensive to live in the village and pay for all of the additional associated costs. If the government were to assist with the cost of housing for the individuals who had to live in the village, working at the clinic would allow individuals to save money and would incentivize individuals to stay in the village and bring their spouses and families to live with them. This would help to incentivize village work and would help to retain clinic workers.

Additionally, while this issue is not unique to the health clinic workers, it is worth noting that many of the government workers we encountered during our trip were separated from their spouses and their families. We consulted with two major groups of government workers associated with the health clinic and those associated with the schools. We learned that that they all experienced difficulties regarding the government placement process. While one individual expressed that there were exceptions made for married couples, most of the other individuals we talked to shared that they were hours away from their spouses and families. This often leads

to feelings of isolation and depression and a sense of not belonging to the community they are serving. This also puts an additional financial burden on government workers who then have to spend significant parts of their earnings on transportation to see their families on weekends and holidays. If the government were to develop a system in which families and couples could be placed together, these issues could be better addressed.

In summary, the staff at the clinic is currently doing a commendable job to manage their patient load. It is evident that they are operating at maximum capacity. The clinic needs additional staff in order to continue to provide quality and timely health care to a rapidly growing patient population.

SECTION IV: HEALTH INFRASTRUCTURE

The clinic is comprised on four separated single-floor buildings that were built in the 1970s. The clinic compound also has staff house (see previous section) and sufficient parking space. It is easily accessible to patients. Our interviews with clinic staff and observations of the clinic building revealed key concerns about the health infrastructure and facilities at the Maunatlala clinic.

Maternity Ward: Delivery Room Space and Availability

The Maternity Ward of the Maunatlala clinic is an old building with limited natural light and insufficient airflow in the delivery room and post-natal care room. The space available in the delivery room is small (see Images 4 and 5), which makes it difficult to examine a patient from all sides. In cases when staff have to simultaneously attend to more than one delivery, there is a backup smaller delivery bed (see Image 6).

Image 4: Delivery Room (Entrance View)

Image 5: Delivery Bed.

Image 6: Back up Delivery Bed.

In case of a normal delivery, the mother stays in the delivery room for a few hours after delivery to make sure everything is normal and that the baby is healthy before they are moved over to the post-natal room (see Images 7 and 8). However, if there are more than one woman need the delivery room or in case of a complicated pregnancy, women are moved out of the delivery room as quickly as possible to make room for incoming mothers in labor. Several staff members shared that moving women out of the delivery room immediately after birth could compromise their care.

Image 7: Post-Natal Care Room (left side of room)

Image 8: Post-Natal Care Room (right side of room)

Maternity Ward: Water Availability

Although water is readily available in most areas of the clinic, the maternity wing of the clinic lacks a reliable source of water. Specifically, the wing lacks hot water taps. The midwives specifically expressed this as an issue for sanitation. The lack of hot water, and occasionally the lack of water, necessitates for the clinic staff to leave the delivery room and go to another building to wash their hands. The midwives mentioned that this is a problem because it requires them to step away from their patients at critical time in the delivery process.

Maternity Wing: Lighting

In the case of an evening delivery there is only one light source available in the room during delivery (see Image 9). This is a single point light placed in the center of the ceiling and can lead to difficulties in properly examining a patient due to the limited amount of light produced and the shadows that are caused by the source of the light.

Image 9: Delivery Room Light source

We strongly recommend the need for a new building with larger delivery and postnatal care rooms and wide doorways to allow transfer of equipment used in the delivery and that of wheelchairs and beds.

We made a number of observations regarding the drug store room, as shared by staff and observed by the team. The space is very small and the shelving inadequate, considering the volume of pharmaceuticals stocked and dispersed to meet patient health needs across the catchment area. The store room has no air conditioning and no lighting. We noted that many of the drugs stored in the room have a specified maximum storage and handling temperature of 25 degrees centigrade. There is a temperature gauge visible in the store room—showing a range from 50 degrees below to 50 degrees above 0 centigrade—but no evidence of tracking sheets to record daily temperatures. Cold chain commodities are not stored in the

drug store room but kept in the refrigerator in the clinic and delivered in a cold case to health posts, as needed. There is also a concern regarding rainwater infiltration. We noted water damage on the ceiling above a wall of shelves containing pharmaceuticals, indicating roof leakage during the rainy season.

Overall Building Structure

The entrance to the maternity ward is made up of a ramp and a long set of stairs. The ramp is cracked and broken in some places and has a large lip when it meets the ground (see Image 10). This would make pushing beds and wheel chairs up the ramp difficult and could be a tripping hazard for patients, especially at night. The stairs are also showing signs of wear. The first step is much too high off the ground, this again could be difficult and dangerous for patients entering the building to use. It should also be considered that there is no hand rail for support on either the ramp or the stairs.

Image 10: Entrance to the Maternity Ward

These tight corners and hallways make it difficult to guide women when they are unable to walk without assistance or to move patients with ease in case of an emergency. The inside of the building also contains many instances of water damage and deterioration of the ceiling.

Patient Confidentiality/Privacy

The clinic structure can be improved to offer confidentiality or privacy to patients (see Image 11). Considering that Botswana has listed health rights that include necessary patient privacy, this lack of privacy in the clinic may serve as a major deterrent for patients.

Image 11: Doors to Patient Consulting and Testing Rooms

Cleaning and Equipment Sterilization

The maternity ward currently has a washing machine that does not work. There are no resources available to repair the washing machine (*see Image 12)*.

Image 12: Linen Cleaning Area

All equipment used in the maternity ward are sanitized using a small pressure cooker, which is kept in the kitchen directly next to an open trash can (*see Image 13).*

Image 13: Pressure Cooker For Tool sterilization

Specific Recommendations

Clinic Expansion

Given the state of the current clinic building, we strongly recommend that a new clinic be built in Maunatlala. It should be a modern building with multiple rooms that can be used for many purposes. Each room should have the ability to be used as a delivery room but should also be designed so that it may be used as an examination and consultation room at other times. When designing the new building the rooms should be designed to be spacious enough to comfortably move equipment and patients around and also allow for a minimum of 5 personnel to move freely in the room during the birthing process. It should also be considered that each room should have the potential to comfortably accommodate two delivery beds so that new mothers would not need to be moved to another room directly after delivery. These rooms should serve as delivery rooms and recovery rooms.

Every room should have dependable access to running water, including hot water to ensure that midwives can wash and properly sanitize their hands before performing procedures on women. There should be a minimum of one working bathroom facility for every two rooms including a working shower so that the mothers can relieve themselves and shower when necessary. The new building should have a well-designated laundry room with appropriate electrical fittings and floors. The new building should also have a furnished call room for after hour services. The current call room is not furnished to provide comfort for the officer on call.

From a structural standpoint, a new clinic building should have patient waiting areas that are separate from individual exam rooms to ensure patient privacy/confidentiality. There should be a functional kitchen that is separate from the room were medical equipment are sterilized to ensure that proper sanitation protocols can be followed.

We strongly believe that the new clinic building will enhance Maunatlala clinic's current services. It will maximize the offering of a team-based approach to providing health care and services to patients. It will also allow for an expansion of clinic services, especially behavioral health, dental health, and telemedicine. Finally, a new clinic building will enhance the ability of the current health care providers in Maunatlala to work as a team to eliminate barriers to care that they currently face.

SECTION V: HEALTH DATA MANAGEMENT

We included in our study a brief assessment of some of the challenges and opportunities facing health information management at the Maunatlala Clinic, Central District. The Ministry of Health Integrated Health Service Plan (IHSP; Ministry of Health, 2010) identifies several current challenges, including areas for improvement in supply chain management and challenges related to timely data collection, collation, analysis, interpretation, and dissemination (Ministry of Health, 2010, p.9). Here we provide a brief overview of findings and observations related to data collection and collation for reporting and data quality, demand, and use. Our focus is primarily on data related to disease, services, and medicines with the goal of contributing to the specific IHSP Health Information and Research objectives of minimizing duplication and maximizing optimal utilization of resources; ensuring timely and need-based dissemination of data to stakeholders; and the development and implementation of a research agenda.
This brief assessment is not intended to be exhaustive in its review of systems and data management. Due to clinic staff demands and time constraints, the team conducted an overview assessment. This description is a result of initial findings, observations, and options for consideration, going forward.

Supply Chain Management Observations, Findings, and Assessment

Pharmaceutical supplies are delivered to the Maunatlala Clinic from the Central Warehouse in Gaborone twice a month, at the end of the first and third weeks of each month. Boxes of supplies received are offloaded to the clinic's Infectious Disease Care Clinic (IDCC) and HIV dispensary and to the clinic's drug store room. Clinic staff, under the direction of the Nurse Supervisor and the Technician of the clinic's general dispensary, conduct an inventory of the supplies and essential, vital, and necessary drugs received. Validation, inventory, and tracking of drugs and supplies from the drug store room to the dispensary and to health posts in the catchment area are completed manually using pen and paper on forms kept on the drug/supply shelves next to each item in the store room. Health posts track their supplies with pen and paper, and at the end of each month, send a request to the dispensary technician in Maunatlala for ordering. When an order is received and filled, a carbon copy record is kept in a log book in the dispensary. The clinic ambulance is used to deliver drugs to health posts.

The above-mentioned processes can be strengthened by using an electronic system, such as PIMS or a dedicated database, which could reduce error in calculating pharmaceutical consumption rates and enhance efficiency with the tracking of prescriptions filled, drugs dispensed, and inventory on hand. Similarly, records should be maintained in the general dispensary of prescriptions filled and medications given to patients. Reliable tracking of pharmaceuticals dispersed from the general dispensary could reduce chance of errors at several levels.

A simple flow chart of the supply chain management system at the health clinic follows:

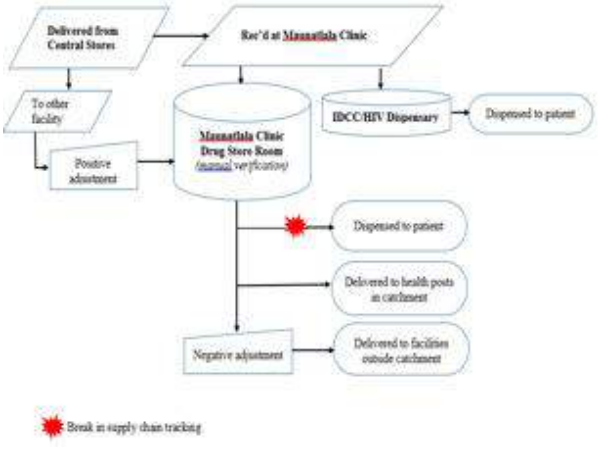

Image 14: Supply Chain Management System

Currently, PIMS is internal to the Maunatlala Clinic (see Images 14 and 15). It should be connected to the national [Integrated Patient Information Management System] (PIMS), to minimize duplication of effort and data redundancy. Although PIMS is used during consultations, additional data is captured manually by recording in a patient record and transferred to a register or log book. Monthly reports are compiled from the various registers, log books, templates, and PIMS print-outs, and entered manually into the national forms, such as the Out-Patient and Preventive Health Statistics Monthly Summary Form (form MH 1049), Out-Patient and Preventive Health ASRH Monthly Summary Sheet (form MH 3126), and other forms.

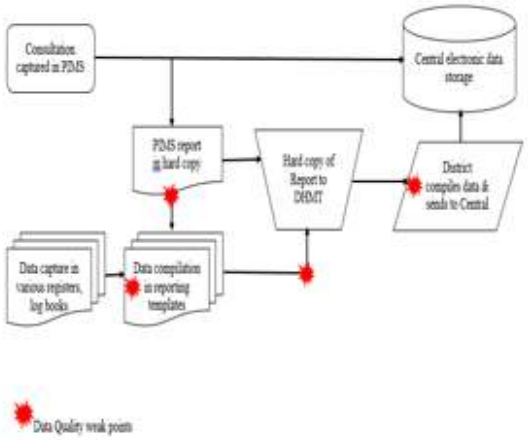

Image 15: Usage of PIMS

Examples of registers and log books observed during this brief assessment include:

- Pap Smear Registers
- ANC Register (includes one page for each client), which is used to monitor for eclampsia and other risks, as well as tracking number of ANC visits
- High-Risk Pregnancy Management & Monitoring Tool; a tool that is used by clinic staff to assess their efforts and successes annually
- Malaria logbook
- Child Welfare Clinic Register and a Ration Register that tracks food and other rations to orphans and vulnerable children
- People with Disabilities Register, which is used to complete a monthly report template
- Palliative Care Register / Home-Based Care Register, which is used to complete the CHBC monthly report template
- Home Visit Register, which tracks home visits to individual households in Maunatlala for follow up on TB and ARV medication adherence, post-partum (domiciliary) status,
- School Visits Register, which tracks health education talks and immunizations provided at school (e.g., polio and diphtheria-tetanus)
- Pharmacy Monthly Reporting Template, which is intended as a month-end tally of vital, essential, and necessary drugs stocked and dispersed at the health clinic, by: list number; code; item name and description; unit; quantity received [during the reporting month]; quantity in stock; expiration date; average monthly consumption; and quantity on order.

Clinic staff laboriously work to create log books and data registers by drawing in row, column, and description or variable names manually. Monthly data compilation templates are photocopies of standard electronic print-outs. When end-of-month data reports are compiled for submission to the (DHMT) monitoring and evaluation (M&E) point of contact in Palapye/Serowe, clinic staff reviews and manually calculates figures by combing through hand-written notes in various registers and log books. Data entered into registers and log books is derived from individual patient consultation notes, and hand-copied into the registers and log books. The numerous points of hand-copied transfers of data in the

compilation process, along with little or no time available to staff for validation checks, can introduce significant challenges to data quality. The graph below is a brief sketch of data compilation and data flow for reporting, with vulnerable (weak) points for data quality identified:

By adding an adequate database at the clinic for a comprehensive compilation of key monitoring and reporting data the clinic would be able to reduce chances of error and allow for real-time analysis and data use for strategic information and planning is extremely limited.

While the PIMS may be underutilized because of lack of training and computer access by clinic staff, it is used consistently for HIV patient consultations. However, the clinic staff noted several problems with the PIMS-generated report on cumulative progress to date in treating patients with HIV. Since Botswana shifted to a "treat all" approach to providing ARVs to all Batswana testing positive for HIV, rather than withholding treatment until a low CD4 count threshold is reached, PIMS has not yet been updated to reflect this change in protocol, and thus the interpretation, data quality, and use of particular indicators related to eligibility for ART and highly active ART (HAART) are not readily apparent. One of the key indicators that could be effectively used for strategic planning, staffing, and evaluation purposes, given accurate data, "Total number of active HIV+ patients currently registered at this facility," appears to include a significant number (roughly 2,500 out of the PIMS-reported 3,965) of patients lost to follow up who are no longer active or current at the Maunatlala Clinic. Patients are considered lost to follow up when they miss their recommended clinic visits for CD4, liver function, and other tests as well as ARV prescriptions for three months in a row or 90 consecutive days. If patients lost to follow up have not been subtracted from the figure being reported as "currently registered" at the facility, a discrepancy results between this indicator and another indicator generated by the system, "Total number of patients currently on HAART at this site," which is seen as a much more accurate figure.

Additionally, because PIMS is internal to the Maunatlala Clinic, if a patient moves to another catchment are or chooses to seek treatment at Maunatlala from another clinic or a hospital, they will need to re-register and thus be double-counted in national figures. PIMS automatically generates a registration number if one is not available. If patients come to the clinic and re-register without their unique identity card number, the PIMS will not pick up the duplication because it is not linked electronically to the national PIMS. If a patient is transferred out, care-givers at the Maunatlala Clinic will not know if the patient has reached the new facility or not.

Recommendations and Options to Consider

In proposing options to consider and suggested recommendations, we asked ourselves, "how can small changes provide maximum effects and provide leverage for improved timeliness of data capture, reporting, verification and analysis, and the interpretation and use of data?" The following suggestions reflect some initial thoughts on realistic recommendations that build on current systems and opportunities in a resource-constrained environment.

- Consider scheduling regular onsite visits by key staff from Gaborone to the rural health clinics, such as the Maunatlala Clinic. This could provide the opportunity to discuss options and underutilized opportunities for improved health information management system practices.
- Tracking forms, monitoring templates, and training in use of the forms and the data generation are recommended as a way to more readily track pharmaceuticals dispensed and shore up weaknesses in the supply chain management.

- Track overages due to private orders when stock-outs are not fulfilled by Central Stores.
- Upgrade internet accessibility and desktop computing to the general dispensary and all clinic staff involved in prescribing and dispensing medications. This could allow for the use and electronic access of Microsoft Excel and Word documents designed to capture supply chain management if an upgrade to PIMS and/or the introduction of IPMS is not possible in the near future. Another option might be to upgrade to QR codes using WiFi to share google sheets for improved monitoring and access to data.
- As soon as improved internet access is available at the clinic, consider moving the clinic's PIMS to the nationally-linked IPMS. If the last update of PIMS was in 2014 (with PIMS II Version 2014), the system is due for an update to reflect current protocol, ART, and HAART treatment. One recommendation would be to provide additional workshops designed to provide feedback on PIMS from users of the database, to both district level and Gaborone PIMS information technology staff.

Recommendations for System Level Issues

As PEPFAR gradually transitions to exit out of Botswana, the Ministry of Health and Wellness is beginning to make efforts to take on the HIV/AIDS screening, ART prescription, and HIV/AIDS prevention program. However, several issues are constraining these efforts. These include, but are not limited to, lack of adequate resources, insufficient personnel training, and selective PEPFAR focus on screening and treatment rather than on prevention.

During several conversations with local clinic staff, we learned that PEPFAR was involved in Maunatlala primarily through and research and tracking team led by researchers from Harvard University and the Center for Disease Control (CDC). Little efforts were made by the research team to offer cross-training to personnel working at the Maunatlala Clinic staff. Several Peace Corps volunteers however were involved in community-level efforts, especially among youth, to promote HIV/AIDS awareness and safe sex practices.

We recommend that the staff's education, especially related to comprehensive primary healthcare is improved. They should all be trained and hold an opportunity in staff meetings to discuss proper voluntary counseling and testing (VCT) methods and other preventative methods. With upscaling of different levels there needs to be an emphasis on creating more self-efficacy of the staff in the transitioning period. To ensure that resilience and determination are advancing through the clinic having an accountability supervisor in the clinic is also necessary.

The community is also an extremely important part of combatting this war against HIV and AIDS. Across all age groups people have risks that need to be addressed to protect themselves and others. This should be done through creating opportunities for the community to expand primary care, self-esteem and self-motivation. Making a horizontal integration effort helps fight stigma of the disease to fit a certain type of person. Exclusion whether economic, gender, sexual, or legal increases vulnerability to HIV because it prevents access to correct information and prevention methods for prevention against HIV.

Finally, we are very encouraged by the willingness of the Maunatlala community to continue to seek new information and opportunities to improve their village. Maunatlala is an excellent example of community resilience. The people of Maunatlala are always willing to look for creative solutions that are generated by working collaboratively and by appreciating the interconnections

between community issues. With additional support from the Government of the Republic of Botswana, especially from the Ministry of Health and Wellness and the Ministry of Youth Empowerment, Sport, and Culture Development, the Maunatlala community can be a spotlight for the entire Botswana.

As we continue to grow our partnership with the Government of the Republic of Botswana and the community of Maunatlala, we will organize around the data, focus on the assets of the community, collaboratively work with all stakeholders to bring all the players together to coordinate decision-making and action, and share responsibility and accountability.

Image 16: Children and Families in Maunatlala

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