

The Botswana-Baylor

Children's Clinical Centre of Excellence (COE)

ANNUAL
REPORT | 2015-2016

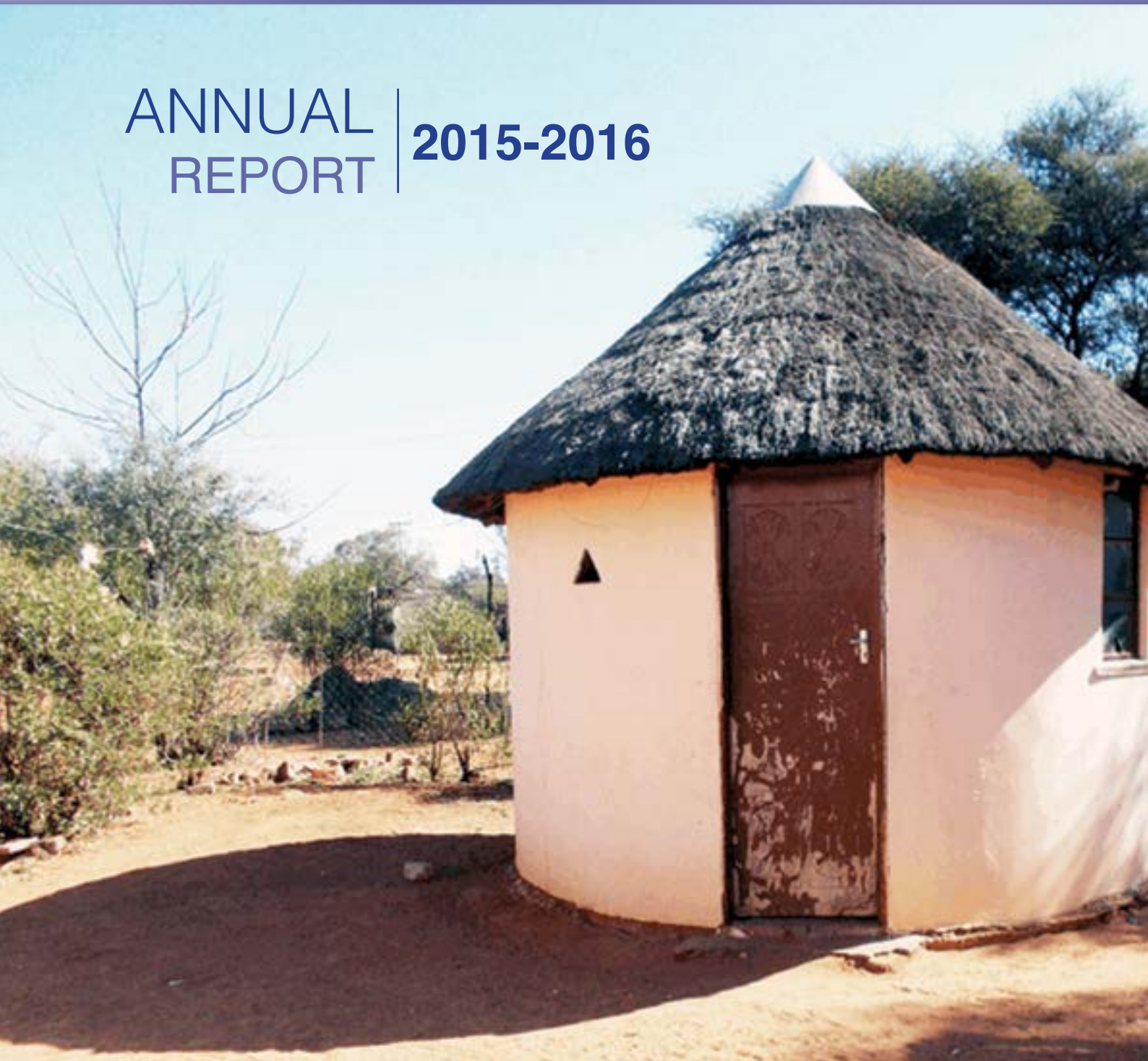




TABLE OF CONTENTS

Letter from the Executive Director	4
About Our Programme	5
2015-16 Care & Treatment Highlights	6-18
Paediatric Infectious Disease Clinic (PIDC)	6
Screening Clinic	7
Nurse Prescribers.....	8
Challenge Clinic	8
Clinical Psychology	9
Social Work.....	9-10
Diet and Nutrition	10
Motsweding Project.....	11
Cervical Cancer Screening	11
Outreach.....	11
Adolescent Services.....	11-15
APC Project	13
Telling the Baylor Story: Patient Perspective	14
Hematology/Oncology.....	16
Education	17-18
Research & Publications	18-22
Financials	22
Grants and Donations	23



Advancing Partners and Communities (APC) in Botswana:
Taking services to households.



Figure 1: "Mural painting at the Baylor Bristol – Myers Squibb Phatsimong Adolescent Centre"

Letter from the Executive Director

This past year we accomplished a major milestone: the signing of a Memorandum of Agreement under discussion since 2012 with the Ministry of Health for the construction of a state-of-the-art Children's Cancer and Haematology Centre in Botswana. The Implementing Partners - Baylor College of Medicine and Texas Children's Hospital – will be responsible for raising the funds, the design, construction and running of the Centre for an initial period of 15 years. Apart from positively impacting the health of children in Botswana, this development signifies further deepening and solidification of the already strong relationship with the Government of Botswana.

On the research front, the National Institutes of Health funded Collaborative African Genomics Network (CAfGEN) study is on course to surpassing its set objectives when it comes to an official close at the end of this year. We are already working with the other members of the CAfGEN consortium on a competing renewal application. If we are successful, we will have the chance to build on our success and to entrench genomics further in Botswana, Uganda and possibly Swaziland. Also the Young 1ove One Love study that has been rigorously evaluating the impact of a short 45 minute education program on intergenerational sex behavior among youth in Botswana has been completed. The results are being analyzed and should be published during the coming months.

Our major supporters this past year have been the Government of Botswana, the National Institutes of Health, MAC-AIDS Foundation, and USAID through FHi360. We have also been informed that our joint application with PCI to support Orphans and Vulnerable Children in the community has been successful. We owe a huge thank you to all our funders and supporters for this support and for trusting and believing in what we do.

Lastly but not least, a word of gratitude to our staff – most of whom have already worked for the COE for at least 5 years. They are indeed our most valued asset. Thank you very much to each one of you and God Bless.

Gabriel M Anabwani
Executive Director

The COE at a Glance

BIPAI Botswana is headquartered in Gaborone, Botswana.

Budget	USD 1.9 million
Patients in care	2,400
Locations	1
Number of staff	84



About Our Programme

The Botswana-Baylor Children's Clinical Centre of Excellence (COE) , a public-private partnership between the government of Botswana and the Baylor College of Medicine Baylor International Pediatric AIDS Initiative (BIPAI) was officially opened by President Festus Mogae in June 2003. It was registered as a Trust in December of the same year. The Trust was indigenized in 2013 but remains affiliated to BIPAI.

Since its inception, the COE has provided free-of-charge, state-of-the-art pediatric HIV care, treatment and support to children throughout Botswana.

The services provided at the main clinic in Gaborone and the decentralized outreach sites across the country are based on a holistic, comprehensive approach that ensures that children and their families are cared for in the most appropriate way. Currently about 2,400 Botswana patients receive care, treatment and support at the COE's main clinic while many others are reached through its decentralised outreach and mentorship sites and teen clubs across the country. The clinic continues to lead the way in the field of paediatric and adolescent HIV care in Botswana, the region, Africa and beyond.

Our Vision

A future where all children are living longer and healthier lives.

Our Mission

To provide high quality comprehensive family centred health care, education and clinical research.

Our vision and mission are aligned to those of BIPAI.

BIPAI Vision: A healthy and fulfilled life for every HIV infected child and their family.

BIPAI Mission: To provide high quality, high impact, highly ethical pediatric and family centered health care, health professional training, and clinical research focused on HIV/AIDS, tuberculosis, malaria, malnutrition and other conditions impacting the health and wellbeing of children and their families worldwide.

2015 – 2016

Care and Treatment Highlights Overview

As the premier Pediatric Antiretroviral (ARV) centre in the country, our COE continues to provide unsurpassed care to children, adolescents and young adults in Botswana. As an integral part of the Government of Botswana's National ARV Programme known as MASA, the COE provides free, comprehensive HIV/AIDS treatment and care to Botswana children, including screening, adherence counseling, routine clinical care, psychosocial and pharmacy services.

The COE also provides mentoring services in the form of attachment, continued medical education, as well as other healthcare personnel trainings. In order to align its services with the changing demographics of its patients, the COE services are becoming more adolescent-focused than ever before. In this regard the COE is currently working with the Ministry of Health with the aim of integrating COE best practices in the public health system across the country.

A complement of physicians, nurses, psychologists, social workers, volunteers and students from other learning institutions, both national and international, collaborate to ensure that the clinic continues to be the source of care, psychosocial support, learning and attachment to clients and workers alike. The COE continues to attract other health care providers to benchmark Pediatric Infectious Disease Clinic (PIDC) best practices.

Paediatric Infectious Disease Clinic (PIDC)

PIDC continues to be a source of pride for the team: a beacon of excellent pediatric HIV care not only in the country but in the region. Our current patient load is 2,393 active patients, most followed every 3 months. The clinic sees between 100 to 120 patients per day for routine and emergency clinical care, psychosocial and dietetic services, medication refill as well as research related services. The team provides a plethora of support services, designed to maximize care of the infected child, adolescent and young adult.

The COE also cares for a group of caregivers with complex social situations as part of the Family Model Clinic (FMC). Even with an increasing adolescent population, clinical care outcomes continue to be exemplary. The Lost to Follow Up, viral load suppression rates and mortality are unsurpassed at less than 1%, 92% and 2%, respectively.

Our TB/HIV integration plan continues to develop cost-effective ways of dealing with TB/HIV over time with improved screening rates for TB. We continue to add more services aimed at maximising a morbidity-free

life for our aging adolescent population with a focus on minimised long-term treatment toxicities as well as monitoring for non-communicable diseases.

Major achievements:

- ❖ Improved communication with adolescents which makes it easier for them to open up to staff about their problems/ challenges.
- ❖ Expanded tracking and return to care of Lost to Follow Up (LTFU) patients through the APC project.
- ❖ Many challenge patients now have suppressed viral loads due to camp and support group activities.
- ❖ Successfully transitioned adolescents to Family Model Clinic (FMC).

Major challenges:

- ❖ Poor adherence of adolescents and young adults.
- ❖ Increasing incidence of pregnancy and STIs amongst adolescents and young adults.
- ❖ Increasing second generation HIV vertically infected children.
- ❖ Patients who refuse to come to the clinic.
- ❖ Inadequate family support for adolescents and young adults.
- ❖ Patients who do not follow up with referrals to other service providers.



Figure 2: The Botswana-Baylor Children's Clinical Centre of Excellence in Gaborone.

Highlights, continued

Screening Clinic

The national PMTCT programme makes referrals to the COE for postnatal HIV screening at six weeks using dried blood spot HIV DNA PCR (See Table 1).

In total, 91 infants were tested in the past year. Of these, 13 received HIV positive results and were linked to appropriate treatment and care services with 12 (or 93%) initiated on HAART at the COE. The testing rate at 18 months remains low. Three infants who originally tested HIV negative were retested at 18 months and all three tested HIV negative. The rest of infants who tested negative are suspected to have been retested outside the COE as rapid tests are much more widely available than the DNA PCR test.

In addition to DNA PCR testing, the clinic also offers HIV screening using the double rapid test. The service is provided to relatives and siblings of our patients and any other person who voluntarily seeks HIV testing (See Table 2). All clients receive extensive counselling prior to testing and those who test positive receive further counselling before enrollment in the national antiretroviral (ARV) programme at the COE or other health facilities. Due to the introduction of the new Rapid HIV test kits by the government, testing ceased during October 2015 and resumed 19 April 2016. The hiatus was due to training and the logistics and getting new test kits.

Table 1: Number of infants who had HIV DNA PCR testing in 2015/16

Total number of infants tested	91
Total number of infants tested HIV negative	78
Total number of infants tested HIV positive	13
Total number of infants re-tested and testing negative at 18 months	3
Total number of infants initiated on HAART at COE	12

Table 2: Number of adults and children who had a double rapid HIV test in 2015/16

AGE (YEARS)	NEGATIVE	POSITIVE	DISCORDANT RESULTS	STARTED ON HAART	REFERRED TO LOCAL IDCC	TOTAL
0-5	8	1	1	1	0	10
6-13	1	4	1	4	0	6
14-19	3	1	0	1	0	4
20 and above	15	1	0	0	1	16
						36

Highlights, continued

Nurse Prescribers

Our nurse prescribers have been the backbone of the clinic since the departure of some doctors at the end of the Pediatric AIDS Corps Program in 2012. Currently the clinic has 8 nurses trained in the provision of pediatric HIV/AIDS screening, care and treatment. This cadre alone sees more than half of our stable patients. Two nurse prescribers start duty at 06:30 AM to provide “Early Bird” services to our clients who come as early as 05:00AM. Nurse prescribers also play a key role in research, outreach services, in-reach services, Motsweding community care, and the TB sputum induction project.

Challenge Clinic

The COE runs focused services for challenge patients who meet the following criteria:

- ❖ Complex psycho-social issues
- ❖ Detectable viral load/Low CD4 count over 6 months
- ❖ On salvage therapy

Interdisciplinary collaboration between our doctors, nurses, the psychologist, the dietician and social workers facilitates the exploration of factors that our clients at risk of failure. Measures are then pursued to help clients overcome their issues. Overcoming challenges is termed “graduation” from challenge clinic.

Whereas previously a specialized Challenge Clinic was run by the COE, a decline in staff numbers prompted the re-integration of challenge patients’ services into the mainstream clinic. The COE started the report year with over 100 adolescents and young adults on the challenge patients’ register. We are delighted to report about 30% of these clients have successfully graduated.

Among the year’s highlights is a challenge patients’ camp in January 2016. This was followed by two support groups meeting every month as adjunct therapy. The

camp and support group meetings created a favorable atmosphere for the challenge patients to openly share their experiences, discuss their problems, and receive peer-to-peer emotional support. With additional support from the APC project, challenge patients also benefitted from home visits and re-linkage to care for those who had defaulted or missed appointments.

The Government of Botswana’s introduction of Dolutegravir in combination with Truvada as a once daily regimen has also been a noteworthy development this year. The regimen, with its limited side effects and reduced pill burden, was welcomed with happiness by our challenged patients.

The regimen helped some reach viral suppression for the first time in years. The COE plans to intensify interventions for this special group of patients by joining hands with other stakeholders in order to augment the services and increase the impact of the COE.



Figure 3: Triage in progress.

Highlights, continued

Clinical Psychology

Since 2008, the clinical psychology service team has integrated well with other departments and is making significant contributions towards providing holistic care to COE patients. The team implemented new psychological interventions to deal with adherence challenges, especially depression.

Growing numbers of adolescents require more psychology services at the COE, with depression being the leading cause of adherence challenges seen by the psychologist. (See Table 3). Almost 80% of adolescents with adherence issues indicate moderate to severe depression. Moreover, around 50% of children reported high levels of depression and anxiety related symptoms.

In order to address these issues, a number of new initiatives were put in place:

- ❖ Depression screening tools were placed in the consulting rooms so that every patient seen can be screened for depression.
- ❖ Implemented an Adherence Support Group for adolescents struggling with adherence with more topics geared at addressing depression.

Social Work

The social work service team provides a full spectrum of social welfare counseling services to all COE patients and their caregivers on referral by clinic staff. Supportive counseling and adherence counseling continue to be the core services offered. Supportive counseling involves mostly family care intervention and home visit follow ups. Starting November 2015, the social worker conducted in-reach visits and follow-ups of complex and emergency cases as part of the APC project. Also through APC the social worker in collaboration with a nurse conducted training for parents and caregivers whose children are enrolled in community care in seven districts: Kgatleng, Kweneng East, South East, Gaborone, Kanye, Goodhope and Mahalapye. The group sessions aim to raise awareness on issues such as medication adherence, disclosure, PMTC, parent-child communication, children's rights, and more.

In December 2015, the social work team coordinated the children's annual Christmas party at the Lion Park Resort. This event was filled with fun, joy and laughter, thanks to our different sponsors. The community donated the gifts distributed during the party.

Table 3: Cases referred to Clinical Psychology Department 2015-16

PRESENTING ISSUES	NO. CASES
Adherence Issues	548
ADHD	3
Behavioural/Delinquency Issues	279
Anxiety Disorder	187
Anger	170
Disclosure	69
Depression	368
Grief and Bereavement	99
Educational Difficulties	158
Emotional Abuse	59
History of Sexual Abuse	9
Physical Abuse	14
Suicidal Ideation	74
Suicide Attempt	3
Rape /Sexual Assault	8
Relationship Problems	75
Self-Esteem Issues	95
Self-Stigma	118
Transition (Assessing Readiness)	0
Substance Use/Abuse	23
Family Conflicts	81
Career Counselling	81
Acute Psychosis	3
Adolescent Sexual & Rep. Health (Counselling)	84
Emotional Support	47
TOTAL	2655



Figure 4: Childrens christmas party at Lions Park.

Highlights, continued

Table 4: Cases attended by Social Work Department 2015-2016

Type of cases	>18 years		<18 years		Total
	Male	Female	Male	Female	
SUPPORTIVE COUNSELLING	49	52	15	22	138
ADHERENCE COUNSELLING	71	99	15	26	211
DISCLOSURE ISSUES	3	1	0	2	6
SRH SERVICES	0	0	0	0	00
JUVENILE DELINQUENCY/ BEHAVIOURAL ISSUES	10	9	4	5	28
CHILD NEGLEGECE	19	12	1	1	33
CHILD ABUSE	7	9	0	1	17
CHILD PLACEMENT	1	2	0	0	3
CAREER COUNSELLING	0	0	3	0	3
CHILD CUSTODY	0	4	1	1	6
SCHOOL PLACEMENT	3	3	2	1	9
FAMILY CONFLICTS	5	8	1	1	15
DOMESTIC VIOLENCE	1	1	0	0	2
MARRIAGE COUNSELLING	2	0	0	0	2
FOOD AND FINANCIAL INSECURITY	6	10	0	3	19
TRANSPORT FUNDING	3	6	0	5	14
OTHER SOCIAL BENEFITS	6	3	0	6	15
STIGMA AND DISCRIMINATION	1	3	0	0	4
REFERRED CASES	14	21	5	6	46
HOME VISITS	3	2	0	1	6
TRANSITION TO ADULT CARE	2	0	0	0	2
DEATHS	6	9	0	5	20
TOTAL	212	254	47	86	599
	466		133		599



Figure 5: Botswana Baylor Pharmacy

Highlights, continued

Motsweding Project

Dealing with a growing adolescent and young adult population calls for innovative ways to address their unique needs and challenges. More time is needed to deal with complex psychosocial issues which increases the average patient waiting time at the clinic.

In order to remedy this situation, the COE partnered with the Rotary Club of Gaborone on a pilot community medication refill project in March 2015 called the Motsweding Project. This project aims to bring services nearer to patients in their communities (using local schools and churches) and decongesting the clinic. Services provided include medication refills, adherence counseling, TB screening, and anthropometric evaluations in non-clinical settings. To date only one out of six proposed pilot sites (Tlokweng) has been operationalised with the rest to follow in the coming months. Our experience so far is that most encounters are quick, allowing patients and caregivers to complete their medical visit and go to school or work much earlier than in the traditional clinic setting.

Cervical Cancer Screening

As part of the Motsweding Project, the Rotary Club provided funding for a 'See and Treat' cervical cancer screening program. As patients with HIV live longer, non-communicable diseases begin to take a much more prominent role in their health. Cervical cancer is one such condition that has increased in incidence and prevalence.

We have now received some of the equipment and hope to receive the rest in the next few months when we expect to start providing cervical cancer services. In anticipation of this, protocols on screening and management of cervical cancer in older adolescent girls and young women are under development.

There is a paucity of data about cervical cancer in perinatally HIV infected adolescent girls in the literature and therefore the problem does not receive a great deal of systematic attention in policy and programming.

This project is expected to create a cohort of patients and to generate important data which will inform researchers, clinicians and planners. In addition, the COE plans to train a team of nurses and doctors who will provide cervical cancer screening services as part of an expanded sexual and reproductive health programme at Botswana-Baylor.

Outreach Programme

Due to lack of funding, outreach activities were scaled down to 5 sites including Tsabong, Hukuntsi, Gantsi, and Gumare Primary Hospitals and Seronga Clinic. Over the reporting period, a total of 340 patients were seen by the Botswana-Baylor Outreach team. The main challenges faced by the outreach team include staffing and limited financial resources to cover more sites.

We continue to search for additional funding to return this highly successful, internationally recognized programme to its former level of services.



Figure 6: Patient sample transport.

Highlights, continued

Teen Club

Teen Club remains the cornerstone of our adolescent services, bringing together our adolescent patients, ages 13 to 18. On the last Saturday of every month, over 100 teenagers assemble at the COE in Gaborone. Throughout the month, another 350 more teens gather at our 15 satellite sites around the country.

Regardless of their location, all Botswana Teen Club members engage in activities and develop support networks that assist them with a healthy transition into adulthood. During the 2015-2016 year, 1,108 adolescents attended Teen Club events as follows: Gaborone (483), Molepolole (70), Goodhope (61), Kanye Main Clinic (10), Thamaga (47), Sefhare (37), Mookane (17), Mahalapye Airstrip (61), Mahalapye Mother's Union (27), Moshupa (43), Ramotswa (21), Mochudi (62), Kanye SDA (9), Palapye (43), Selebi Phikwe (40) and Francistown (27).

While Teen Club covers HIV-centric topics such as medication adherence, stigma, and sexual and reproductive health, we also cover topics that are relevant to all teens. Important issues like safety, financial literacy, stress management and leadership are included in the curriculum.



Figure 7: Monthly teen support group.

Young Adults Support Group (YASG)

The number of young adults (ages 18-25 years) at the COE has been growing drastically. By June 2016 there were about 750 young adults enrolled on treatment at the COE. These young adults are transitioning from a supportive paediatric and adolescent setting to adult care and require specific targeted support.

The developmental tasks and expectations of young adulthood include completing school and finding employment; establishing durable relationships; parenting; and achieving higher levels of independence from parents and caregivers. However, many young adults find it difficult to successfully transition and this poses a challenge to their future health.

Modelled after Teen Club programme, YASG members meet once a month to work on life skills and share leisure and entertainment. During 2015-2016, an average of 47 youths attended YASG each month. In April 2016 the YASG curriculum was revised to include job readiness skills, financial management, emotional and mental health, sexual and reproductive health information, and self care skills. With this change in content, the attendance will likely increase significantly as the young adults feel that the curriculum is now more relevant to their daily lives.

“Finding The Leader Within”

In 2015 the COE partnered with Stepping Stones International (SSI) to implement the Finding the Leader Within (FTLW) Programme. FTLW targets out-of-school and unemployed youth ages 16-25 years. The year-long programme began February 2016 with 38 enrolled participants. The curriculum focuses on leadership development, career and vocational guidance, healthy and productive lifestyles, financial literacy, and ICT skills with optional English literacy lessons. Programming runs four days a week (Tuesday through Friday) and is facilitated by adolescent services staff and volunteers.

To augment FTLW, the COE added the Photovoice Project which trains youths on the art of photography. This year's project was run by a Stanford University student. Participants used digital cameras to take photos that captured parts of their lives and met weekly to discuss photography techniques and interpretations of their photos. Masterpiece photos were displayed at the Thapong Visual Arts Centre's Shine Arts and Crafts Festival. Participants learned basic photography skills that can be used for hobby or employment and shared their story through photography.

Highlights, continued

Advancing Partnerships with Communities Project (APC)

The APC project, led by Family Health International (FHI360) in Botswana, seeks to advance and support community programmes that improve access to and retention in care and treatment in 8 PEPFAR priority districts. The goal is to achieve the global 90-90-90 targets set by the Joint United Nations Programme on HIV/AIDS (UNAIDS) to end the AIDS epidemic.

At the community level, the project works to mobilise and engage communities through community based organizations (CBOs), local leaders and community members to address the HIV & AIDS challenges that affect their communities.

The APC project uses a combination of home visits, community outreach, community HIV testing and counselling, and community tuberculosis care approaches, together with strengthened referrals for clinical services. The project is funded by USAID with FHI360 acting as lead implementer.

The COE partnered with FHI360 in October 2015 to implement the APC project with a focus on HIV positive children and adolescents aged (0-19 years). Botswana-Baylor has deployed 6 district officers (DOs)

and 37 community treatment supporters (CTSs) in 8 PEPFAR priority districts including Ghantsi, Gaborone, Kgatleng, Kanye, Goodhope, Kweneg East, South East and Mahalapye.

The CTSs provide community-based support to PLHIV in the pre-ART and ART phases. They track patients who are lost to follow-up, defaulted or who missed appointments and return them to care; provide community-based adherence support; and TB screening. Other services provided by Botswana-Baylor include Teen Clubs, caregiver education sessions and in-reach visits. Table 1 depicts the total number clients who benefitted from the project.

Table 5: APC Project Coverage

Newly enrolled into community care	2,304
Number of patients followed-up after 3 months	396
Number of Teen Club attendees	1,816
Number who attended Care-giver support sessions	242



Figure 8: Adolescent girls and young women in solidarity.

TELLING THE BOTSWANA-BAYLOR STORY: THE PATIENTS' PERSPECTIVE

Depression, Acceptance and Academics

A young adult reflects on the role that Botswana-Baylor has played in his life

Baylor has played a major role in my life. The first time I came here I was 12 years old. The first few times they were drawing blood. Then I came for a check-up one time and it was not a normal check-up.

Check-ups are usually quick: go get weight, temperature, pill-count, see the doctor or nurse, and then go home. But this day we went to see the doctor and stayed for a while. They spoke to my aunt in private and then invited me into a pool of doctors and nurses. That is when they told me that I had HIV. I was 12 and I had heard of HIV. I burst into tears and cried for a while because my whole world had collapsed and I was very hurt.

However, a lady came in afterwards and she took me to a room filled with books and gave me a book I could draw in. I did that while we talked until time passed. I still remember waking up the next morning in shock. I

**To me,
Baylor is like a
second home.**

was hoping it was a dream, but when I realized it was not I decided that life must go on. Since then, I have come to grips with the fact of what is going on inside me.

Ever since I was a child the way I thought about it was that I'm like a robot which always has to take its batteries (pills) for recharging and when I think of it like that it doesn't seem so sad anymore.

To me, Baylor is like a second home. It is filled with all these people who care for me, love me, and only want what is best for me. There was a time when I was 17 when my grades weren't good. It was the year before I went into form 5. I was really scared because in my family you have to have good grades in order to be respected. I don't know if that is an African thing or what?

They always want to know if you are performing well in school because they think that is the highlight of who you are and regardless of what else is happening in life that is the most important thing you should be focusing on. So I started thinking that if my grades were bad, then I wasn't good at anything in life. I felt empty and sad. I didn't know how to solve it because I was honestly trying my best; some subjects were just so difficult. That is when I started to have suicidal thoughts and took a few attempts at ending my life.

The emptiness was still there. During the first few months of my form 5, though, I met a gentleman at Baylor when I was sitting in the waiting room reading before my check-up. He asked if we could talk and we had a discussion about a tutoring program at Baylor. He asked me if I wanted to join and I did so right away. From there on out, I came here every single weekend to try and further my studies.

Baylor is a loving place, a wonderful place where they do their best to make sure that each patient is well taken care of, is healthy, and can keep going on with their life. I expect and want Baylor to play a huge role in my life going forward. I want nothing to change. I want to come here even when I'm working. I will be in a suit and tie and say, "Hey could you please hurry up because my boss wants to see me right away." I think that Baylor is the closest thing to heaven.

Highlights, continued

Tutoring

There is a high prevalence of learning difficulties and poor academic performance amongst HIV+ children and adolescents, so our tutoring programme aims to improve the educational outcomes of these patients. Possible causes include absenteeism due to hospitalizations and medical appointments, hunger and poor nutrition, or even poor cognitive development. Our weekly tutoring programme meets every Saturday morning that there isn't a Teen Club with free tutoring from 9 am to 12 pm in the Adolescent Centre.

Over the past year, 94 children and teens ranging from primary to senior secondary school were tutored. Tutees and tutors are matched based on subject matter. All tutors receive training in basic teaching skills before participating in the programme.

Camp Hope

Some of our most vulnerable patients are invited to attend Camp Hope. Camp Hope is a weeklong camp for patients 10 to 12 years. The next Camp Hope is planned for the end of the year in November. First, there will be leadership training from the 14th of November to the 18th of November. Then, the staff will be trained from the 20th of November to the 24th of November. Two sessions of the camp will be held, one from the 27th of November to the 1st of December. The next session will be from the 4th of December to the 8th of December.

Activities include arts and crafts, team-building exercises, performance arts, as well as life skills sessions on nutrition, hygiene and confidence.

Volunteer Program

Volunteers continue to be an essential part of adolescent services at the COE. Currently there are 230 active volunteers in our database with many applications arriving each week. Volunteers assist in a variety of ways, including morning play group, tutoring, Teen Club, the Finding the Leader Within Programme, and with office work. Whether they are reading books to children who are waiting for their appointments, or facilitating discussions at Teen Club, volunteers have proven to be effective, dedicated and talented.

All volunteers complete an application, sit for an interview and attend an in-depth volunteer orientation. The volunteer orientation sessions introduce them

to basics of HIV and ART, facilitation and tutoring skills, confidentiality and much more. This training increases the effectiveness of the volunteers and has become indispensable to adolescent programming at Botswana-Baylor.

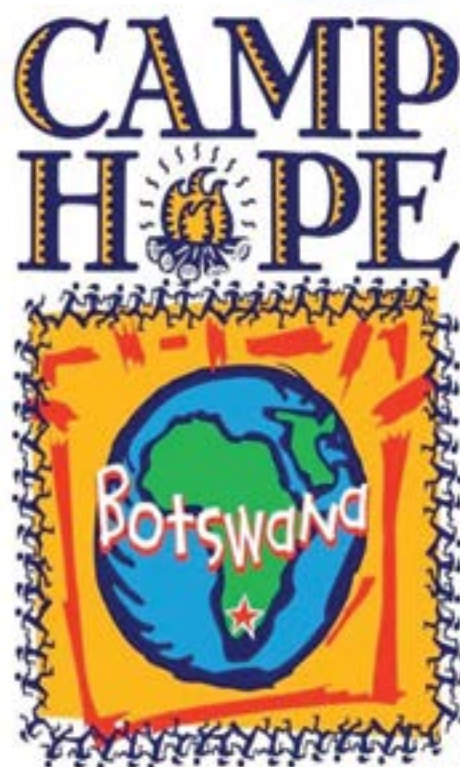


Figure 9: Camp Hope participants playing games.

BOTSWANA PEDIATRIC HEMATOLOGY/ONCOLOGY PROGRAM

Landmark Agreement

On June 13, the Botswana-Baylor Children's Centre of Excellence and the Government of Botswana signed a memorandum of agreement to build the first children's hematology and cancer centre of excellence in Gaborone, Botswana.



Figure 10 : Signing of MOA with the Botswana Ministry of Health.

"Approximately 40,000 children a year are diagnosed with cancer in sub-Saharan Africa, and 20 percent of those children survive, compared with 80 percent in the U.S.," said Dr. David Poplack, director of Texas Children's Cancer and Hematology Centres and professor of pediatrics at Baylor College of Medicine. "This centre of excellence, in partnership with the Botswana Ministry of Health, will change those numbers in favor of the children of Botswana."

This historical agreement includes a commitment to build the first stand-alone cancer centre of excellence devoted exclusively to treatment of children with cancer and blood diseases. The partnership responsible for the development and management of the children's cancer centre in Gaborone includes the Botswana Ministry of Health, the Baylor College of Medicine and Texas Children's Hospital.

Celebrating Pediatric Cancer Superheroes in Botswana

September officially marks international childhood cancer awareness month. In order to honour the fighting spirit of the brave children battling cancer in

Botswana, we held the first annual Childhood Cancer Awareness Party on 23 September 2015.

The Centre celebrated these paediatric cancer patients with a superhero themed party at the Baylor Bristol-Myers Squibb Phatismong Adolescent Centre. Thirty-seven Botswana children, which included cancer survivors and on-therapy patients, were celebrated as superheroes. The children were given a T-shirt with a "Botswana Kids Fighting Cancer" logo, and parents, donors and staff were given gold ribbons to pin on their shirts.

To our knowledge, this is the first event in Botswana to specifically celebrate childhood cancer survivors. The superheroes then had a chance to feast on a delicious brunch, have their faces painted, participate in a jam session, add their handprint to a collage, play in a soft play area and pose in a superhero-themed photo booth. Fallen superheroes were honoured with a moment of silence and a bubble blessing. It is our hope that this type of event will continue to raise awareness about childhood cancer throughout Botswana.



Figure 11 : The Super-Heroes

Education and Training

Education and training are major components of our COE. Our aim is to expand the pool of professionals with the necessary knowledge and skills to effectively identify, treat and/or care for HIV infected children, adolescents and young adults.

During the reporting period, training was provided at pre-service and in-service levels with financial support from the Ministry of Health and CDC-PEPFAR. The main activities were pediatric KITSO training, the COE visiting scholars programme, and a continuing medical education series (CMEs).

Pediatric KITSO Training

Pediatric KITSO targets physicians, nurses, pharmacists, social workers and other health professionals. The course is conducted over a period of five days at ART sites across Botswana. Over the past year, 4 pediatric KITSO courses were delivered reaching 101 professionals drawn mainly from government hospitals and clinics. Fewer pediatric KITSO workshops were conducted than in past years because the 5 year CDC-PEPFAR Pediatric HIV Treatment and Care grant ended September 2015. Efforts are underway to identify new funding to continue this important program. Nonetheless, in collaboration with the Ministry of Health, the Botswana-Baylor COE reviewed the pediatric KITSO curriculum content to match changes in national treatment guidelines including the "Treat All" policy which aims to provide antiretroviral therapy to all Botswana citizens living with HIV.

Future trainings will highlight the evolving treatment and care needs of HIV infected children as they transition into adolescence and young adulthood, and the role of health workers in the achievement of the UNAIDS 90-90-90 global targets.

Visiting Scholars Program

During 2015-16, 97 medical students, residents, fellows, nurse prescribers and other health professionals visited the COE from various training programs in Botswana and from around the globe. These visiting scholars spent most of their time in the COE shadowing and working alongside experienced care providers and researchers. They also participated in lectures taken from our pediatric KITSO training. Some scholars presented articles at journal club or helped with ongoing studies and quality improvement activities. Visiting scholars were also given opportunities to participate in

Education in 2015-2016 at a Glance

The COE provides one-on-one training and group educational events to hundreds of local health care workers each year.

PEDIATRIC KITSO TRAINING

Clinicians Trained – 101

Visiting Scholars – 97

Teen Club activities, in pediatric KITSO training, work at outreach sites alongside the outreach team, or spend time with the pediatric oncology program at Princess Marina Hospital.

Some quotes from visiting scholars

"My experience with Botswana-Baylor exceeded my expectations. Everyone was always willing to help me learn or to lend a helping hand to make sure I was comfortable. The facilities were beautiful, and well-kept. All of my patients were kind and welcoming to me as a foreign doctor. I hope to someday have the opportunity to return and work in the clinic again." [Caitlin Crumm, Baylor College of Medicine](#)

"My experience with BIPAI was extremely beneficial to my academic success. One highlight of my rotation was working with Dr. Alan Anderson at the Princess Marina Hospital. He provided me with an exceptional opportunity to shadow his medical work in the pediatric cancer ward. Overall, my experience at the Centre of Excellence in Botswana has strongly impacted my motivation to enter the medical field." [Jacob Sorensen, Arizona State University](#)



Figure 12 : Visiting scholars.

Education, continued

Sputum Induction Training

The COE continues to upgrade and expand its services for pediatric tuberculosis care in collaboration with the Ministry of Health. Major components of that effort include improved diagnostic capacity, health worker education, mentorship, enhancing collaborative partnerships and patient education.

During the reporting period, 40 clinicians were trained in Selibe-Phikwe (15), Francistown (13) and Palapye (12). In Botswana, 3 new sites were provided with sputum induction training and began offering this vital service.

Post training evaluation results shows high appraisals including relevance of content (94.4%); presenter knowledge/expertise (92.6%); and presenter's ability to make points clearly (96.8%). There are plans for the project to be continued and expanded under a new funding mechanism by Botswana National TB Program.



Figure 13: TB nurse demonstrating how sputum induction equipment works

Research & Publications

The COE has continued to carry out research in several aspects of HIV care and treatment in order to inform practice and policies in Botswana and other countries.

Currently there are four ongoing studies:

1. The Collaborative African Genomic Networks (CAfGEN) Study
2. Medical Audit of Patients Registered at the Botswana-Baylor Children's Clinical Centre of Excellence
3. The Public Health Evaluation (PHE) – Adherence to HAART among HIV-positive Adolescents
4. The Impact of Providing Relatively High-Risk Information by Ages and Partnership Network on Sexual Behaviour of Botswana Youth

Collaborative African Genomics Network (CAfGEN)

The CAfGEN launched in 2014 with a mission to create, as part of the H3Africa Consortium, a collaborative, multi-disciplinary, multi-institutional, inter- and intra-country network of African scientists, clinicians, and researchers to use a genomic approach to study gene/pathogen interactions for HIV/AIDS, its co-morbidities, and other diseases among diverse pediatric African populations. The specific aims of CAfGEN are:

1. Recruit well-phenotyped pediatric HIV and HIV-TB infected patients and create a DNA and RNA biorepository from blood and sputum samples that will be linked to a central clinical database.
2. Evaluate the roles of established and novel HIV disease progression alleles in children by sequencing and allelotyping candidate genes and by using whole-exome sequencing in case-control genetic studies of long term non-progressors status.
3. Use integrated studies of clinical outcomes, DNA and paired RNA analysis in HIV/TB co-infected children to identify genes that contribute to the progression to active TB.

Education and Training

4. Enhance undergraduate, graduate and faculty education in genetics/genomics and provide opportunities for long- and short-term training of scientists and technicians from African universities.
5. Establish genetic and genomic technologies and supporting laboratory and physical infrastructure for large-scale genetic/genomic analyses of common diseases in Africa.

Progress to-date since inception includes:

1. Completion of four Genome Adventure comic books in English which have been translated to several languages including Arabic, Hausa, Luganda, Setswana, and Swahili thanks to an NIH grant. The launch of these books was successfully completed in Uganda and Tanzania in June 2016. Launches for other countries are planned for next financial year. In Botswana, the books were successfully distributed nationally through media houses. The forewords of the comic books were written by the ministers of health, education and skills development, and infrastructure science and technology.
2. One of the important milestones in the history of research conducted at Botswana-Baylor was the involvement of a community advisory board (CAB) to provide advice and guidance on the design of the Genome Adventure comic books. CAB participation demonstrated the crucial role communities can play in the design and implementation of research and educational materials.
3. The programme registered the successful recruitment of 500 participants for the retrospective cohort and 600 participants for the prospective cohort. Recruitment of TB cases followed a change in the scope of the study with 11 TB cases and 8 controls added. The recruitment is ongoing for the TB cases. The challenge is the low incidence of TB cases at Botswana-Baylor. This prompted an extension of the study to Swaziland and change of the study design to Case Control.



Figure 14 : CAfGEN team in Senegal

4. The new study site in Swaziland was formally established at the Swaziland Baylor College of Medicine Bristol Myers Squibb Children's Clinical Centre of Excellence (Mbabane, Swaziland) and staff training was done within the National IRB, namely, Swaziland Ethics Committee and other satellite sites. The study obtained formal national approval from the Swaziland Ethics Committee in April 2016. Formalization and approval of the Material Transfer Agreement was done to facilitate transfer of biological specimens between Botswana and Swaziland. Recruitment started in May 2016 and by end of June, 9 TB cases and 4 control cases were enrolled into the study.
5. In addition, CAfGEN study enhanced the University of Botswana's capacity for genetics/genomics education and research. As part of the NIH grant, a total of 7 PhD trainees (3 PhD students from Botswana, 4 from Uganda), were sent to Baylor College of Medicine, USA, for training. They will complete their studies by the end of 2016. After the training, these scientists will go back to their respective countries to oversee the establishment of sequencing and bioinformatics education and research initiatives.

Research & Publications, continued

6. In preparation for the establishment of faculty in genetics/genomic education at the University of Botswana, sophisticated equipment has been procured, including a ABI 3500 Genetic Analyzer, Quantstudio 6 Flex real time PCR machine, standard PCR thermal cycler and Water purification System. This equipment will enhance the university's infrastructure and capacity to carry out genomic studies.
7. Completion of a four part Genome Adventures comic book series in English which has been translated to several languages including Arabic , Hausa, Luganda, Setswana, Portuguese, French and Swahili thanks to an NIH grant.

When the project began in 2014, it reached 13,366 students directly through Young 1ove facilitators, and a further 13,000 students through 106 trained guidance and counselling teachers in a total of 343 schools. These schools spanned standard 6 for primary schools and form 1 and form 2 in junior schools. The project included the peer arm, guidance and counseling arm and a pure control arm where no intervention was implemented to be able to compare the impact of the program on youth's attitudes, knowledge, behavior and teenage pregnancy.

In 2015, the COE and Young 1ove returned to all 343 schools a year later to determine the impact of the programme. Surveys were conducted with a team of 45 young, local surveyors. Roughly 42,000 students in same schools as the baseline survey were re-assessed on their knowledge, attitudes, and self-reported sexual behaviours. All students were also assessed for the main outcome of pregnancy (used as a proxy measure for unprotected sex and HIV rates) through 3 measures: self-reported, school report by teachers and students, and visual checks (tummy spotting).

YOUNGLOVE_ONELOVE PROJECT

Botswana-Baylor partnered with the Ministry of Education Skills Development (MOESD), the Jameel Poverty Action Lab (J-PAL), Evidence Action and Young 1ove, a local NGO, to evaluate a one-hour YOUNGLOVE_ONELOVE curriculum on the HIV risk of sexual relations with older partners. The project was implemented in 4 MOESD regions including Kgatleng, Kweneng, South East and Southern.



Figure 15: Young Love session attendees.

Research & Publications, continued

While in schools, the surveyors collected attendance data, recording all girls that had dropped out, transferred schools, or missed school for at least two weeks. Twelve surveyors, called trackers, then received extra training to locate and interview girls absent from school. The tracking teams administered a written survey (comparable to the in-school survey) and oral interviews with both the girls and their caregivers. Similarly, pregnancy status of all the tracked girls was recorded. A total of 539 girls (representing a 92% tracking success rate) were found and interviewed across Botswana, providing a rich collection of qualitative and quantitative data on our main impact measure of pregnancy.

The focus of 2016 was on data analysis to compare pregnancy rates, knowledge and school absenteeism between the YOUNGLOVE_ONELOVE program when delivered by peers versus guidance teachers versus no exposure whatsoever. To our knowledge, this constitutes the largest social intervention randomized trial in Botswana, with some of the most comprehensive metrics for pregnancy ever collected. So far the data cleaning and analysis has been completed. The results of the study will be published in the next few months.

Publications:

Lowenthal ED, Marukutira T, Tshume O, Chapman J, Anabwani GM, Gross R. (2015). Prediction of HIV Virologic Failure Among Adolescents Using the Pediatric Symptom Checklist. *AIDS Behav.* 19(11):2044-8 Doi 10.1007/s10461-015-1061-7. PMID: 25855047.

Eby J, Chapman J, Marukutira T, Anabwani G, Tshume O, Lepodisi O, Dipotso T, Mokete K, Gross R, Lowenthal E. (2015). The adherence-outcome relationship is not altered by diary driven adjustments of microelectronic monitor data. *Pharmacoepidemiol Drug Saf.* 24(12):1313-20. Doi: 10.1002/pds.3887. Epub 2015 Oct 12. PMID: 26456482.

Okatch H, Beiter K, Eby J, Chapman J, Marukutira T, Tshume O, Matshaba M, Anabwani GM, Gross R, Lowenthal E. (2016) Brief Report: Apparent Antiretroviral Over Adherence by Pill Count is Associated with HIV Treatment Failure in Adolescents. *Journal of Acquired Immunodeficiency Syndrome.* 72(5):542-5. Doi:10.1097/QAI.0000000000000994. PMID:26990822.

Anabwani GM, Karugaba G, Gabaitiri L. (2016) Health, schooling, needs and perspectives and aspirations of HIV infected and affected children in Botswana: a cross-sectional survey. *BMC Pediatrics.* Doi: 10.1002/pds.3887. Epub 2015 Oct 12. PMID: 26456482.

Lowenthal ED, Marukutira T, Chapman J, Tshume O, Matshaba M, Anabwani G, Gross R. (2016). Psychological Reactance is a Novel Risk Factor for Adolescent HIV Treatment Failure. Conference on Retroviruses and Opportunistic Infections. IAS-USA, February 2016.

Several abstracts were presented, twelve (12) at the BIPAI annual meeting from the Botswana-Baylor Medical Audit protocol.

Consolidated Financials

BIPAI Botswana Centre of Excellence

(Fiscal year ending June 30 2016)

BWP

INCOME

Gross Income	13,833,578
Expenses	19,255,647-
Deficit	5,422,069

BALANCE SHEET

Assets	
Non-current	11,500,560-
Current	17,992,926
Total	29,493,486

Grants and Donations

During 2015-2016, fundraising efforts focused on those projects and programmes whose funding from international and local organizations was coming to an end. These programmes include in-reach and outreach, Camp Hope and recreational patient activities.

We received financial support as follows:

Donor	Amount (BWP)	Activity/Beneficiaries
Botswana Government	5,630,343	Core activities
NIH	2,414,431	CAfGEN
CHOP	526,228	PHE Study
MAC Aids	1,370,681	Young love study
FHI360	2,001,652	APC
TCH	90,650	Facilities
Serious Fun	62,584	Camp
IN-KIND DONATIONS		
Donor	Items	Activity/Beneficiaries
Katlego Kesupile	2 stuffed toys	2 Patients Called Katlego
Ntobeledzi Boitumelo	Clothes	Needy Patients
Broadhust primary School	150 Presents	Christmas Party
Standard Chartered Corporate Staff	P5000.00	Christmas Party
Pie City	Christmas Food staff	Christmas Party
Plush Women's social Club	Fruits	Christmas Party
Noot Catering Company	Bottled water and DJ	Christmas Party
Pick & Pay supermarket	Cupcakes	Christmas Party
Dr. L. Rajeswaran	Utensils for Christmas party	Christmas Party
Lion Park Resort	Resort as Christmas party venue, free rides and foods	Christmas Party





BOTSWANA - BAYLOR

Children's Clinical Centre of Excellence

Plot No. 1838, Hospital Way, Princess Marina.

Private Bag BR 129, Gaborone, Botswana

www.botswanabaylor.org