

June, 2019

BHP Presents Ya Tsie Study Results



Dr Mompati Mmalane presenting BCPP Results at the 14th Meeting of the 3rd Ntlo Ya Dikgosi at Travel Lodge

Botswana Harvard AIDS Institute Partnership (BHP)'s Deputy Chief Executive Officer (CEO), Dr Mompati Mmalane recently presented the Botswana Combination Prevention Project (BCPP) results to Ntlo Ya Dikgosi and BHP non-scientific staff members.

The main aim of study conducted in 30 communities (villages) across Botswana was "To determine whether implementation of an enhanced proven efficacy combination prevention package can significantly reduce population-

level, cumulative HIV incidence in 16-64 year old residents in Botswana" over a period of 36 months. The study started in October 2013 and the interventions ended in March 2018, with main follow-up completed in June 2018.

Presenting the results at the 14th meeting of the 3rd Ntlo Ya Dikgosi on the 18th June 2019 at Travel Lodge and successively on the 13th June 2109 at the BHP conference room respectively, Dr Mmalane revealed that the study has observed a 30% reduction in

community HIV incidence with a combination of community-based HIV testing, linkage-to-care, and ART interventions.

He pointed out that the study also found out that "it is possible to increase ART coverage and reduce HIV incidence in a high-prevalence generalized epidemic, even when very high baseline ART coverage exists."

Dr Mmalane explained that the trial enrolled a random sample of 20% households, in the 30 communities.

Fifteen (15) communities were started on the intervention package while the other 15 communities received standard of care. All consenting 16-64 year old members of the households in all the 30 communities were enrolled.

The intervention consisted of an intensified package of community mobilization, home-based and mobile HIV testing campaigns, linkage to care support, counseling, CD4 testing done at home, clinic appointment scheduling, SMS reminder, calling participants who missed visit, universal ART and same-day ART start, streamlined follow-ups, as well as strengthened male circumcision (MC) services.

"New HIV infections in the communities that received the intensified package were counted and compared to the number of new HIV infections in the communities that received the standard of care. We also measured and compared how many people in the two groups had received HIV prevention and treatment services and were HIV virus suppressed," Dr Mmalane explained.

12,610 participants were enrolled (81% of eligible household members). Of these 8,974 were HIV-negative while 3,596 (29%) were HIV positive residents. Of the HIV negative, 4,487 were randomized to the intervention communities and the other 4487 in the standard of care communities. 95% re-tested for HIV over a median period of 29 months.

The Deputy CEO noted that HIV incidence varied significantly by community. Overall, the HIV incidence was lower in the intervention communities, in 10 out 15 community pairs. In total 57 new HIV infections occurred in the intervention communities versus 90 in the standard of care communities yielding a 30% reduction of new HIV infections attributable to the



Kgosi Puso Gaborone of Batlokwa, also Chairman of Ntlo Ya Dikgosi and Kgosi Mosadi Seboko of Balete commenting on Ya Tise Results

intervention.

For Intervention Coverage by Randomization Arm, Six communities, three each in the intervention and standard of care respectively were selected for further surveys of 80% of community residents that had not been originally included in the 20% randomized cohort that had been enrolled by the BHP at the beginning. Thus at the end of the study an additional 11,647 residents were interviewed to measure coverage and impact of the intervention over time.

Dr Mmalane stated that while there had been overall increase in persons who had HIV viral suppression over time, there was a higher increase in proportions of persons who had viral suppression between the beginning of the study 70% to 88% ie total 18% increase in the intervention communities versus 8% increase from 75%-83% in the standard-of-care communities.

He decried minimal uptake of Male Circumcision (MC) saying uptake in 16-49 year old HIV-negative men was only Ten percent of eligible men in the intervention vs. 2% in standard-of-care arms.

Dr Mmalane said 92% of People

Living with HIV (PLWH) but not on ART were referred to care, enrolled and received HIV services. Men less than 25 years and youth had lower rates of linkage than women counterparts hence the need to educate and motivate for health seeking behavior among young men. He said PLWH have "expressed strong discontentment by not receiving HIV care and treatment in an integrated manner in which routine healthcare is delivered; feeling inconvenienced and stigmatized by provision of standalone HIV/AIDS services; long waiting times and negative Health Care Practitioner's attitudes."

On the association between mobility and having detectable HIV-1 RNA, Dr Mmalane said "a lower proportion of mobile HIV-positive participants knew their HIV status or were on antiretroviral treatment compared with non-mobile individuals while a higher proportion of the mobile HIV-infected individuals were significantly more likely to be viremic, which renders mobility a primary risk factor for HIV transmission."

He advised that health care systems need to better accommodate more mobile populations, to achieve

high treatment and viral suppression targets.

On Multiple Concurrent Sexual Partnerships (MCP), Dr Mmalane reported that despite efforts to reduce MCP behaviors, these remain common with High Prevalence with 31% of self reported MCP by sexually active individuals, particularly among men. Reporting MCP was also significantly associated with transactional sex, intergenerational sex, and high alcohol consumption. MCP was not associated with recent or prevalent HIV infection while knowledge of positive HIV status was associated with lower MCP rates.

More female than male youth reported ever being sexually active, and females were more likely to report inconsistent condom use, intergenerational sex, and transactional sex, Dr Mmalane said. More female also contacted HIV than the male youth.

"Males are more likely to report early sexual debut and alcohol use with sex and economic stress was strongly associated with increased sexual risk behavior in females. This means that programs targeting episodic risk, particularly around alcohol, could be more effective in young males," said Dr Mmalane. On the issue of undisclosed Antiretroviral Drug Use, undisclosed ART use (detectable antiretroviral levels) was found in 52 (39%) participants among 134 household survey participants

in Botswana who had HIV-1 RNA < 400 copies/mL but who reported not being on ART. The overall proportion of virologically suppressed HIV-infected adults increased by 1.5% after accounting for undisclosed ART.

Dr Mmalane also pointed out that HIV infection weakens the immune system leaving the body susceptible to attack by various illnesses. "Death due to infectious causes is more common in people who are not on ARTs or have less than one year of ART treatment. "If a person has been on treatment for over five years, the likelihood for them to die of infections is very much reduced and almost as low as that for those who are HIV negative," he said.

He said the cause of death in 62 HIV infected individuals 24% were cancer related and 15% Tuberculosis. The same diseases killed less numbers of people in 42 HIV negative individuals. Cancer accounted for 19% of deaths versus 24% for those who are HIV infected, while TB accounted for only 2% versus 15% HIV infected.

The BCPP study was sponsored by the Centers for Disease Control and undertaken in collaboration with the Ministry of Health and Wellness, CDC-Botswana, CDC- Atlanta, and the Harvard T. H. School of Public Health.



Dr Mompati Mmalane presenting Ya Tise Results to BHP Non-Scientific staff members at BHP Conference Room

BHP consults stakeholders on IMPAACT 2016 Study



CTU Site Leader and IMPAACT 2016 Principal Coordinator, Dr Gaerole Masheto giving the overview of the study

On April 02, 2019, BHP held a consultative stakeholder engagement meeting on a new BHP study, IMPAACT 2016. This is a study **"To evaluate a Group-Based Intervention to Improve Mental Health and Antiretroviral (ART) Adherence Among Youth Living with HIV in Low Resource Settings."**

IMPAACT 2016 is a multi-site, two-arm, randomized, controlled study preceded by a feasibility and acceptability pilot to examine if a Model of trauma-informed cognitive behavioral therapy (TI-CBT) intervention demonstrates improved mental health outcomes and ART adherence for youth living with HIV.

The study is being prioritized for implementation in countries with high volumes of 15 - 19 year-olds living with HIV, and sites with minimal mental health care infrastructure in order to achieve the biggest impact and deliver the program in areas of greatest need.

The engagement was meant to give stakeholders an

opportunity to review the study protocol, procedures and intervention manuals that will be used with a view to identify design gaps, assess acceptability, as well as aligning the study to the socio cultural and Botswana context.

Giving the overview of the study, Principal Investigator, Dr Gaerolwe Masheto stated that the primary objective of the study is to evaluate whether a Trauma-Informed Cognitive Behavioral Therapy (TI-CBT) Intervention is associated with improved depression, anxiety, and/or traumatic stress symptoms for youth living with HIV compared to a Discussion Control at six months.

The study will proceed in two stages over approximately three and one-half years. In Stage, 1 the feasibility and acceptability of the model will be evaluated through Focus Groups and Pilot Testing to adapt the intervention to the local for 15-19 year-olds living with HIV and their caregivers.

In Stage 2, the efficacy of the model of TI-CBT intervention using a 2-arm randomized controlled trial design will be evaluated for 15-19 year-olds living with HIV and their caregivers.

He explained that the study is to be conducted in multiple IMPAACT sites in Southern Africa, with a sample size of approximately 192 - 256 youth participants (96 - 128 per arm) cumulatively and their caregivers. In Botswana the study is earmarked to enroll up to 64 youths and their caregivers.

"Adolescents living with HIV often struggle to cope with normative developmental challenges in the face of having a chronic, life-threatening, stigmatized, sexually transmissible illness. The struggle is frequently marked by impulsivity, risk taking, and a sense of invincibility, and may be enacted through maladaptive health behaviors, such as antiretroviral therapy (ART) non-adherence, unprotected sex, and substance abuse

"These high-risk behaviours have been found to be more likely among HIV-infected youth and is associated with a history of mental diagnosis as compared to those without a mental diagnosis," said Dr Masheto.

"A high prevalence of mental health difficulties has been demonstrated among youth living with HIV, including anxiety, depression, emotional and behavioral difficulties, and post-traumatic stress symptoms", he said. Dr Masheto further explained that these mental health difficulties have been associated with ART non-adherence and poor virologic outcomes.

"There is ample evidence that caregiver support; attentiveness, warmth and open communication can promote resilience and positive health outcomes and behaviours among children. Strengthening the parent-adolescent relationship may protect against mental health problems and improve ART adherence for youth living with HIV," he said.

Dr Masheto noted that despite the scale up efforts of effective ART, in the absence of evidence-based mental health interventions and the lack of resources to deliver effective programs, millions of adolescents living with HIV in low-income countries would remain disproportionately vulnerable to accelerated disease progression due to untreated mental health symptoms.

He emphasized that need for effective mental health interventions, especially those that can be administered by trained lay people in low-resource settings, to reduce mental health problems among youth living with HIV

has become a public health emergency that needs to be addressed speedily.



Trauma-Informed Cognitive Behavioral Therapy (TI-CBT) Intervention

Explaining the TI-CBT Intervention, IMPAACT Study Physician, Dr Ponego Ponatshego stated that intervention was developed in the 1990's to serve children and adolescents who had experienced sexual abuse, but has since expanded over the years to include services for youths who have experienced any form of severe trauma or abuse.

"TI-CBT is an evidence-based treatment for children and adolescents impacted by trauma and their parents or caregivers. It is a components-based treatment model that incorporates trauma-sensitive interventions with cognitive behavioral, family, and humanistic principles and techniques," he said.

Dr Ponatshego revealed that the success of the intervention relies on a trusting, genuine therapeutic relationship between the therapist, child, and parent. He said the therapist incorporates individual child and parent sessions as well as joint sessions using family therapy principles.

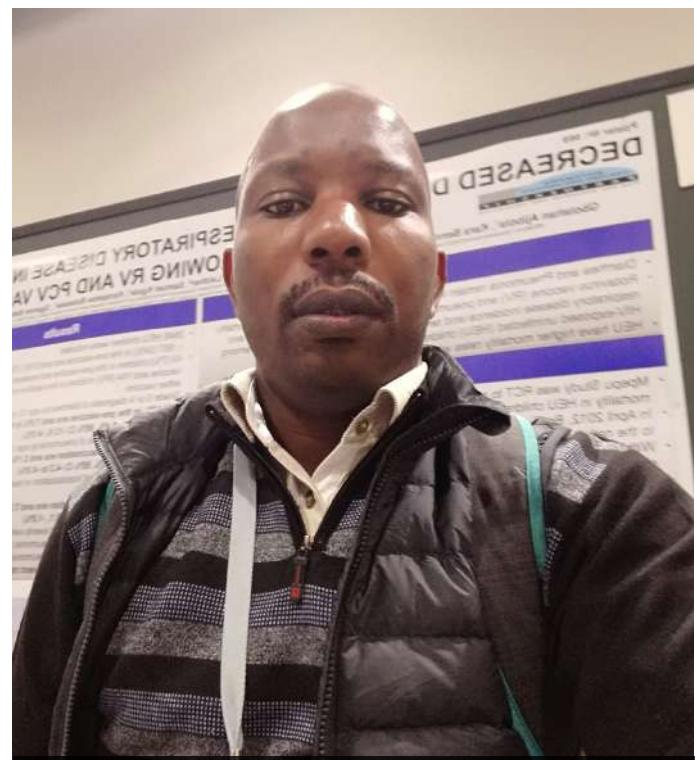
Including the parent in therapy helps the parent to cope, thus allowing the parent to support the child in this treatment framework. Dr Ponatshego further pointed out that practitioners of TI-CBT strive to give parents the resources and skills necessary to help their children cope with the psychological ramifications of the abuse or other traumas.

The study is sponsored by the International Maternal Paediatric Adolescent Aids Clinical Trials Network (IMPAACT) of the National Health Institute in the USA and shall be conducted at IMPAACT sites in Botswana, Republic of South Africa, Zimbabwe and Malawi.

Tatelo Study enrolls first participant



Tatelo Study Principal Investigator, Dr Roger Shapiro



One of Tatelo Study Coordinators, Dr Gbolahan Ajibola

A Clinical Trial to Evaluate the Impact of Broadly Neutralizing Antibodies VRC01LS and 10-1074 for sustaining HIV Suppression in a Cohort of Early-Antiretroviral Treated Children in Botswana dubbed “The Tatelo Study”, has enrolled its first participant on the 17th June 2019. The study, whose main objective is to determine the safety, pharmacokinetics, dosing and antiviral efficacy of VRC01LS and 10-1074 immunotherapy in early antiretroviral treated HIV-1 infected children in Botswana was officially activated by The National Institute of Health (NIH) Division of AIDS (DAIDS) on the 13th June 2019.

The study also aims to determine the effects of treatment with VRC01LS and 10-1074 on the size and cellular composition of residual viral reservoirs as well as the influence of VRC01LS and 10-1074 treatment on the magnitude and quality of antiviral innate and adaptive immune responses in children. The Project is led by Dr Roger Shapiro in collaboration with scientists in the United States of America and Botswana and is being conducted at two of BHP’s clinical research sites in Gaborone and Francistown.

The study Coordinator based in Gaborone, Dr Gbolahan Ajibola explains that “The study provides an opportunity to investigate a new treatment strategy in HIV positive children and like other HIV treatment approaches, the

aim of treatment is to maintain HIV viral suppression”.

Dr Ajibola further states: “Long-term viral suppression in children with ART is difficult to maintain over a lifetime and significant toxicities to ART may arise hence the need for a new effective Non-ART approach, thus the Tatelo study was designed to test a Non-ART HIV viral suppression strategy. To do this the study will use Broadly neutralizing antibodies (bNAbs) in place of ART in children who are HIV virally suppressed and monitor if they will remain suppressed while receiving two bNAbs (VRC01LS and 10-1074) for a period of six months.”

He underscored that Tatelo Study offers the use of a novel strategy in maintaining HIV viral suppression in children allowing time off ART. The study will take 56 -98 weeks and will enroll up to 36 children from the ongoing Early Infant Treatment (EIT) Study. In Francistown the Study is being conducted at the BHP Research site at the Nyangabwe Referral Hospital with Dr Kenneth Maswabi as the Study Coordinator.

The study name, “Tatelo” means follow-up. The name has been used in reference to following up or enrolling some of the children previously enrolled in another EIT study with the aim of advancing child HIV treatment.

BHP conducts PERHAPS Study

The Botswana Harvard AIDS Institute Partnership (BHP) is conducting a study that is evaluating if preterm birth (PTB) increases the risk of Mother to Child HIV Transmission (MTCT) and the safety of antiretroviral drug prophylaxis among HIV exposed children in Botswana.

The study titled: "Effects of preterm birth on HIV acquisition risk and antiretroviral prophylaxis safety in HIV-exposed infants in Botswana (PERHAPS)" is led by Dr Gbolahan Ajibola.

The study funded by the European and Developing Countries Clinical Trials Partnership (EDCTP) started in November 2018 and is expected to last 18 months.

"Prevention of mother-to-child transmission of HIV program (PMTCT) is one of the success stories of the Botswana HIV treatment and prevention programs with over 95% of pregnant women living with HIV accessing antiretrovirals (ARV). This has resulted in a mother-to-child (MTCT) transmission rate of less than 2%, one of the lowest rates in Sub-Saharan Africa," the Principal Investigator for the study, Dr Ajibola observes.

Dr Ajibola further states...."while this is an applauded achievement, it however means that an increasing number of infants are now exposed to ARVs in utero, potentially contributing to increased PTB in this population."

He revealed that PTB, (births at less than 37 weeks gestational age), among HIV-exposed infants in Botswana is approximately 21% in comparison to 13% among HIV-unexposed infants.

"Despite the reduced MTCT among HIV-exposed infants, we do not know if the timing or rate of HIV-acquisition for infants born preterm differs from infants born on or after 37 weeks gestational age. In our own work in the Early Infant Treatment study which enrolled infants born greater than or equal to 35 weeks gestational age who tested HIV positive at birth and initiated ART within 7 days of birth, 33.3% of the infants enrolled in the study were born between 35-36 weeks gestational age, a

prevalence that exceeds the background preterm birth rate of 21% for infants born to HIV-infected women, suggesting that preterm HIV-exposed infants may be at higher risk for in-utero HIV acquisition," explained Dr Ajibola.

He further clarifies that "an alternate explanation is that HIV infection may lead to PTB, but this potential for reverse causality has not been explored by comparing the gestational ages of in utero and intrapartum events." Expanding further on the study background, Dr Ajibola says that Botswana PMTCT guidelines currently recommends a triple ARV prophylaxis strategy in the first 4 – 6 weeks of life for HIV-exposed infants deemed to be at "high risk" of HIV-acquisition.

"In these guidelines, PTB is not recognized as a 'high risk' characteristic, in and of itself, hence in Botswana, preterm HIV-exposed infants, lacking any other risk factor, receive a low-risk HIV prophylactic regimen of single-dose nevirapine within 72 hours of birth and twice daily dosing of Zidovudine for the first 28-30 days of life," he said.

The Principal Investigator states that the PERHAPS study was therefore designed to be able "to describe the prevalence and timing (in-utero versus peripartum) of MTCT in HIV exposed infants delivered preterm versus those delivered at term in the setting of ART as well as assessing the hematologic safety of ARV prophylaxis among HIV-exposed infants born preterm in the first month of life, evaluating for anaemia and/or neutropenia."

He points out that the findings from this study will quantify the extent to which PTB presents an increased risk of mother to child transmission of HIV as well as provide information on the efficacy and safety of prophylactic ARV regimens in preterm infants, which will potentially inform public health policy in relation to HIV testing and prophylaxis strategies for preterm HIV-exposed infants.

Scott Rose visits BHP



Scott Rose reviewing study forms with Data Management Officer, Kelebogile Binda and Research Head Nurse Boitshepo Sankoloba

On April 15, 2019, HPTN 084 Clinical Research Manager, Scott Rose visited the Botswana Harvard AIDS Institute Partnership (BHP) for a site support visit and to appreciate the implementation of the HPTN 084 Study by the Gaborone Clinical Research Site.

The HPTN 084 "A Phase 3 Double Blind Safety and Efficacy Study of Long-Acting Injectable Cabotegravir Compared to Daily Oral TDF/FTC for Pre-Exposure Prophylaxis in HIV-Uninfected Women" is pre exposure (PrEP) antiretroviral study to evaluate the safety and efficacy of the injectable agent, cabotegravir (CAB LA) compared to daily oral tenofovir disoproxil fumarate/emtricitabine (TDF/FTC), for pre-exposure prophylaxis (PrEP) in HIV-uninfected women.

The study is sponsored by the HIV Prevention Trials Network of the National Institute of Health in collaboration with the HIV Prevention Trials network.

It is conducted in multiple Sub Saharan Countries and aims to enroll 3200 HIV negative women aged 18-45 years. The BHP site in Botswana aims to enroll 160 participants largely from BHP recruitment sites which include satellite clinics in Gaborone.

As part of his itinerary, the BHP HPTN site arranged for Scott to visit Old Naledi Clinic one of the recruitment clinics for him to appreciate the recruitment site and its structure, recruitment process and the interaction of BHP staff with the clinic personnel. The Old Naledi Clinic is currently the site where most of the current enrolled participants have been recruited from.

Scott met with the Clinic Matron where he expressed the HPTN study leadership's appreciation for its collaboration with the BHP. Scott Rose also listened to and observed a health talk given by HPTN recruitment Research Nurse, Victoria Maselwa and BHP Community

Engagement Coordinator, Ernest Moseki at the clinic. BHP CEO and HPTN Investigator of Record, Dr Joseph Makhema, HPTN Study Coordinator, Dr Emily Makunike-Shava, HPTN Study Coordinator, Dr Emily Shava, HPTN Research Head Nurse, Boitshepo Sankoloba were also part of the visit to the clinic with Mr Rose.

After the Old Naledi Clinic visit, Rose toured the HPTN's Study Clinic including the data management and pharmacy departments. He interacted with the clinic staff and held discussions with management. He implored the team to remain focused and committed in their recruitment drive despite being faced by challenges.

In Data Management Department, Rose had the opportunity to review various site generated study forms and gave advise on how to improve efficiencies in the clinic. He also visited the pharmacy to appreciate site study product preparation and management processes.

Rose thereafter met again with BHP management together with the HPTN staff for a detailed update presentations on recruitment and retention so as to appreciate fully the progress and challenges faced by the team. HPTN Study Coordinator, Dr Emily Makunike -Shava delivered the presentation, giving the status update of the study.

As at 30th June 2019 the Botswana HPTN 084 study had enrolled 73 participants whilst globally the study has enrolled 1703 participants by then cumulatively from sites in Malawi, Republic of South Africa, Uganda, Kenya, Swaziland and Mozambique.

HPTN Team visits Wits RHI



HPTN Visiting team posing for a picture with the Wits RHI team

On the 18th March 2019, a three-member team of the Botswana Harvard AIDS Institute Partnership (BHP) researchers implementing the HPTN 084 and 081 protocols visited the Wits Reproductive Health and HIV Institute (Wits RHI) at the University of the Witwatersrand in Johannesburg. The team was made up of HPTN Study Physician, Dr Alice Sehurutshi, Research Head Nurse, Boitshepo Sankoloba and Otwell Elias from the PBMC Laboratory.

The Main objective of the visit was to benchmark on recruitment and retention strategies. The team led by Dr Alice Sehurutshi met with the HPTN Study Coordinator at Wits RHI, Dr Ishana Naidoo, Study Physician, Dr Carrie Mathew and Recruitment Officer, Phumeza Mzizi who shared their experiences conducting the two studies in South Africa.

The HPTN 084 "A Phase 3 Double Blind Safety and Efficacy Study of Long-Acting Injectable Cabotegravir Compared to Daily Oral TDF/FTC for Pre-Exposure Prophylaxis in HIV-Uninfected Women" is pre exposure (PrEP) antiretroviral study to evaluate the safety and efficacy of the injectable agent, cabotegravir (CAB LA) compared to daily oral tenofovir disoproxil fumarate/emtricitabine (TDF/FTC), for pre-exposure prophylaxis

(PrEP) in HIV-uninfected women.

The study is sponsored by the HIV Prevention Trials Network of the National Institute of Health (NIH), in collaboration with the HIV Prevention Trials Network (HPTN) and it is conducted in multiple Sub Saharan Countries and aims to enroll 3200 HIV negative women aged 18-45 years. The BHP site in Botswana aims to enroll 160 participants in Gaborone.

The HPTN 081 is "A phase 2b study to evaluate the safety and efficacy of VRC01 broadly neutralizing monoclonal antibody in reducing acquisition of HIV-1 infection" is also conducted in Sub Saharan countries that include Botswana, South Africa, Zimbabwe, Kenya, Malawi, Mozambique and Tanzania.

Amongst issues discussed were the following;

1. Offering of rewards to participants for achieving certain milestones in the study.
2. Planning of retention social activities to build rapport with participants.
3. Creating a friendly environment at the site for participants.

4. Developing relations that allow openness, trust and reassures participants that their information will be managed with confidentiality.

"We learnt a lot on the different recruitment and retention activities, modalities of information dissemination and message packaging, which we believe the general public may understand well. We are particularly interested in whether we could adapt or implement strategies like creating a children friendly area, booking participants earlier than the target date to allow enough time to follow them up, seeing participants outside working hours including weekends, Plan retention activities and offering participant rewards for achieving certain milestones in the study," said Dr Sehurutshi.

The Botswana HPTN 084 study is facing challenges of recruitment and retention of study participants. Some reasons include lack of support for the participants from their family members and partners, fear of study drug side effects and the general lack of knowledge of Pre-Exposure Prophylaxis (PrEP) in Botswana.

Dr Sehurutshi noted that because both countries have more or less similar HIV epidemics and experiences, exchange between the two research sites was deemed appropriate to share experiences, complement strategies and to implement best practice for the efficient recruitment and retention of study participants.

HPTN Research Head Nurse, Boitshepo Sankoloba who also participated in the visit said "the experiences of the visit shall not only benefit the 084 and 081 studies but shall heighten our overall recruitment and retention research processes benefiting all our BHP enrollment strategies. We shall explore some of the Wits RHI strategies as a way of improving and advancing our research agenda but to also improve participant research experiences and overall benefit of participating in such research."

BHP holds successful Symposium on Viral Hepatitis in Botswana



Wonderful Choga



Kabo Baruti



Zachary Shaver

The Botswana Harvard AIDS Institute Partnership (BHP) recently held a successful second Symposium on viral Hepatitis in Botswana on the 22nd February 2019 at the BHHRL Conference Room. The symposium brought together different stakeholders from laboratory research, clinical research and management, policy makers, academics and international experts in the field of hepatitis for in-depth discussions on the state of viral hepatitis infection in the country.

The symposium was officially opened by the BHP Deputy-CEO Dr Mmalane who emphasized the importance of viral hepatitis research in Botswana as it is currently under researched despite the fact that it affects over 257 million people worldwide and the reported prevalence in Botswana ranges between 3.8% and 9.3%.

BHP Laboratory Director, Dr Simani Gaseitsiwe in his welcome remarks identified the following as the main objectives of the symposium:

1. To bring together stakeholders on Viral Hepatitis

management and research to share current knowledge on viral hepatitis from different perspectives.

2. Identify gaps in viral hepatitis knowledge.
 3. Identifying research questions for possible further studies .
 4. To provide a platform for stakeholders to identify current hepatitis knowledge and its impact on policy.
 5. To create awareness about hepatitis, stressing the importance of early diagnosis for better management and patient outcomes from the disease.
- The seminar started with an overview of the global viral hepatitis situation by Dr Jason Blackard from the University of Cincinnati, USA who opined that hepatitis has become a deadly epidemic killing more than 887,000 people worldwide annually and it is currently the 7th leading cause of death from infectious diseases

worldwide. His presentation covered the epidemiology of different types of hepatitis virus, their prevalence, diagnosis and treatment.

" Two million people have been exposed to Hepatitis B virus (HBV) with 60 million of them found in Africa. Hepatitis D (HDV) virus infects 20 million people with HBV co-infection because it cannot exist without HBV. This HDV/HBV co-infection causes more severe liver diseases than HBV mono-infection," said Dr Blackard.

Various speakers presented different studies on hepatitis from different perspectives to give a wider understanding of the virus. There were presentations from the Ministry of Health and Wellness (MoHW), presentations from a clinical perspective in both

government and private health sector, viral hepatitis from an academic perspective as well as a presentation on goals to eliminate viral hepatitis.

Dr Puna Gasennelwe from MOHW presented on the viral hepatitis situational analysis overview and highlighted that Government aims to assess current policies on HBV services in Botswana. She noted that the vaccination policy has been implemented on Hepatitis B, which includes a 4-dose schedule at 6, 10 and 14 weeks.

Regarding the treatment guidelines for HIV/ HBV co-infection, she revealed that the limitation is budget constraints for coordination of Hepatitis response, pointing out however that there are recommendations to establish a governing body that will develop national



Dr Jason Blackard, University of Cincinnati



Dr Puna Gasennelwe, MOHW



Dr Bornapate Nkomo, MOHW

guidelines for testing and treatment including training of health workers.

Dr Bornapate Nkomo also from MOHW said the treat-all strategy should also be adopted in the treatment for hepatitis virus and that the key intervention for Hepatitis elimination by 2030 includes vaccination. He revealed that there is high prevalence of HBV in Maun.

"The prevalence of HBV is very high in Maun as compared to Gaborone. Among female sex workers, we have recorded a prevalence of 12.2% in Gaborone and 20.2 % in Maun while men who have sex with men had an HBV prevalence of 4.2% in Gaborone and 15.2% in Maun," he said.

BHP Viral Hepatitis Group made up of Dr Motswedi

Anderson, Tshepiso Mbangiwa, Kabo Baruti, Lynnette Bhebhe, Wonderful Choga, Zachary Shaver, Bonolo Phinius and Pinkie Melamu presented on viral hepatitis in Botswana. Members of the group took turns, presenting on different studies that the group has undertaken to give an understanding of the viral hepatitis situation in Botswana.

The group presented data from studies that they conducted at BHP to better understand the hepatitis B virus (HBV) and hepatitis C virus (HCV) epidemic in Botswana. These studies explored various aspects of HBV such as clinical stage, its molecular characteristics, or its prevalence in particular groups, including pregnant women, infants, and the general population.

The following studies were presented:

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1. "Prevalence and Molecular Characterization of Viral Hepatitis Infections in Botswana" by Motswedi Anderson. Of the 300 participants screened for HBV, 28 (9.3%) were HBsAg positive and 72 (24%) were OBI positive.

2. "Chronic and Occult Hepatitis B Virus Infection in Botswana Pregnant Women" by Tshepiso Mbangiwa examined HBV in pregnant women and found a prevalence of 2.1% and 6.6% of chronic and occult HBV, respectively. High HBV DNA levels and hepatitis B e antigen positivity, which are markers for HBV mother to child transmission, were observed in HIV negative pregnant women. HBV DNA was detected in 9.8% of infants born to these mothers and the HBV DNA levels in the infants suggest occult HBV infections.

3. "HBV prevalence and HBV vaccine antibody titers in HIV exposed children in Botswana" by Kabo Baruti determined the HBV prevalence and antibody titers in 304 HIV exposed negative children in Botswana, and found a prevalence of hepatitis B surface antigen (HBsAg) of 0% in the infants, with a great majority of infants showing protective immunity due to vaccination, and 1.7% HBsAg prevalence was recorded in mothers.

4. "Prevalence of HBV among infants born to HIV positive mothers" by Zachary Shaver is an ongoing project testing HIV positive and HIV negative infants born to HIV positive mothers. The study will also test Hepatitis surface antigen (HBsAg). The study is being conducted using DBS due to low sample volumes and optimization

is ongoing to use DBS instead of plasma.

5. "Molecular characterization of HCV in liver disease patients in Botswana" by Wonderful Choga discovered that three HBV genotypes being A, D and E are circulating in Botswana. The study was conducted in HIV positive patients, blood donors and pregnant women.

6. "Molecular Characterization of HCV in liver disease patients in Botswana" by Lynnette Bhebhe was conducted to find out circulating genotypes of HCV and types 4(5A) and 2 (4B) were found in six samples. Based on these genotypes, the study recommends Ledipasvir/Sofobusvir and Daclatasvir/Sofobusvir medication for the country.

7. "Incidence of Hepatitis B Virus Infection Among Human Immunodeficiency Virus Infected Treatment Naïve Adults in Botswana" by Bonolo Phinius screened archived plasma samples from 435 HIV-infected treatment naïve participants from a longitudinal cohort for HBsAg and HBV core antibody (anti-HBc). HBsAg was evaluated annually over a four-year period, and HBV DNA levels of HBsAg-positive chronic and incident patients were quantified. 22 HBV incident cases occurred, representing an incidence of 3.6/100 person-years.

The symposium was successful in dissemination of research findings and provided updates deemed important in capacitating and influencing current clinical practices in hepatitis management as well as advocacy for transformation of policy.



Lynnette Bhebhe



Dr Motswedi Anderson



Pinkie Melamu



STAFF ANNOUNCEMENT



**Ms Tlhopho Kgotla
Human Resources & Operations Manager**

BHP is pleased to announce the appointment of Ms Tlhopho Kgotla as Human Resources & Operations Manager. She joins BHP from Botswana Power Corporation (BPC). Ms Kgotla has 14 years in the HR field from various organisations having served in different capacities. In her new role, Ms Kgotla will provide strategic and management leadership to effectively deliver HR services at BHP.

She holds a Masters Degree in Human Resources Management (HRM) and a Bachelor of Behavioural Sciences both from Griffith University in Australia. Her appointment is effective June 03, 2019.

SANHE Management visit BHP



Dr Denis Chopera, SANHE Executive Manager



Dr Victoria Kasprowicz, SANHE Senior Strategic Advisor

The management of the Sub-Saharan African Network for TB/HIV Research Excellence (SANHE) visited BHP during the BHP/SANHE Research Day on the 14th May 2019 as part of the evaluation for SANHE Research fellows and trainees. SANHE Executive Manager, Dr Denis Chopera and SANHE Senior Strategic Advisor, Dr Victoria Kasprowicz listened to the presentations of the BHP research fellows and trainees who are sponsored by SANHE for either MSc and or MPhil/PhD research projects.

The following SANHE Trainees/fellows presented their research projects;

1. Dr Kaelo Seatla - **Validation of a Cost Effective and Sensitive HIV-1C Integrase genotyping assay.**
2. Tuelo Mogashoa - **Molecular characterization of Mycobacterium tuberculosis isolates from TB patients in Botswana .**
3. Dorcas Maruapula - **Prevalence of minority HIV-1 drug resistant in antiretroviral-naïve HIV-1 infected patients in Botswana.**
4. Kesaobaka Molebatsi - **Estimation of HIV incidence rate in the presence of misclassification error in time**

to event; a semi-parametric approach.

5. Mompati Mogwele - **Molecular characterization of vertically transmitted HIV-1C strains in Botswana.**
 6. Natasha Moraka - **Virologic characteristics of vertically transmitted HIV-1C strains in Botswana and South Africa.**
 7. Lucy Mupfumi - **Immunological markers predict TB treatment outcomes in HIV-infected patients in Botswana.**
 8. Monkgomotsi Maseng - **Human Pharmacogenetics of EFV and NVP-based combination therapy ad possible associated risk of selecting for HIV drug resistant mutations in Botswana.**
- BHP Laboratory Director, Dr Simani Gaseitsiwe commended BHP Research interns who he said are now registered with various universities for their Master of Philosophy (MPhil) degrees. He noted that the interns have shown character and dedication in developing and establishing themselves as formidable researchers, indicating further that it is not common and easy for graduates to move straight into research after completing undergraduate studies.



Dr Kaelo Seatla



Tuelo Mogashoa



Dorcas Maruapula



Kesaobaka Molebatsi



Mompati Mogwele



Natasha Moraka



Lucy Mupfumi



Monkgomotsi Maseng

Speaking at the end of the presentations, Dr Chopera told SANTHE fellows and trainees that they should take constructive criticism as that would help them improve the quality of their research projects.

"The importance of the sites research days is meant to find out challenges faced by the various SANTHE fellows in conducting their research projects so that we can measure the impact of the projects and offer advice as the projects must be relevant. I urge all of you to therefore to take criticism as very useful in helping you produce quality research," he said.

He pointed out that such projects are not done just for the sake of publishing but should have a positive impact on the body of science and the fight against HIV and TB. He emphasized that the funders insist on the relevance of the research topics to add value in the fight against

HIV and TB as well as advancing science.

Dr Victoria echoed the same sentiments, also advising that: "the quality of the presentation slides is often overlooked but can distract the audience resulting in losing the concentration of the audience. The quality of the slide should match the quality of the science being presented."

All this advice would come in handy, as the fellows would sometime be defending their thesis where quality is expected in every aspect of the presentation.

Two of the trainees, Patricia Rantshabeng and Tshepiso Mbangiwa have since successively defended their MPhil thesis at the University of Botswana on the 10th June 2019 and 5th July 2019 respectively. The two scientists are set to graduate in October this year.

2019 BHP, BHP Associated Research, and Associated Investigators Publications (January to June 2019)

1. [Outcomes Following Pregnancy Conception on Antiretroviral Therapy: A Call for More Data.](#)Lockman S, De Gruttola V.Clin Infect Dis. 2019 Jan 7.
2. [Understanding Causal Pathways in Cryptococcal Meningitis Immune Reconstitution Inflammatory Syndrome.](#)Jarvis JN, Harrison TS.J Infect Dis. 2019 Jan 9.
3. [Correction to: AMBIsome Therapy Induction OptimisatioN \(AMBITION\): High Dose AmBisome for Cryptococcal Meningitis Induction Therapy in sub-Saharan Africa: Study Protocol for a Phase 3 Randomised Controlled Non-Inferiority Trial.](#)Lawrence DS, Youssouf N, Molloy SF, Alanio A, Alufandika M, Boulware DR, Boyer-Chammard T, Chen T, Dromer F, Hlupeni A, Hope W, Hosseiniipour MC, Kanyama C, Lortholary O, Loyse A, Meya DB, Mosepele M, Muzaora C, Mwandumba HC, Ndhlovu CE, Niessen L, Schutz C, Stott KE, Wang D, Laloo DG, Meintjes G, Jaffar S, Harrison TS, Jarvis JN.Trials. 2019 Jan 14.
4. [Reply to Rajasingham and Boulware.](#)Jarvis JN, Harrison TS.Clin Infect Dis. 2019 Jan 29.
5. [Prevalence of high-risk human papilloma virus in women with high-grade squamous cell intraepithelial lesions in Botswana using Abbott RealTime HPV assay.](#)Rantshabeng P, Kasvosve I, Ndlovu A, Gaseitsiwe S, Moyo S.PLoS One. 2019 Jan 30.
6. [Impact of Routine Cryptococcal Antigen Screening and Targeted Preemptive Fluconazole Therapy in Antiretroviral-naive Human Immunodeficiency Virus-infected Adults With CD4 Cell Counts <100/ \$\mu\$ L: A Systematic Review and Meta-analysis.](#)Temfack E, Bigna JJ, Luma HN, Spijker R, Meintjes G, Jarvis JN, Dromer F, Harrison T, Cohen JF, Lortholary O.Clin Infect Dis. 2019 Feb 1.
- 7.
8. [Integrating noncommunicable disease services into primary health care, Botswana.](#)Tapela NM, Tshisimogo G, Shatera BP, Letsatsi V, Gaborone M, Madidimalo T, Ovberedjo M, Jibril HB, Tsima B, Nkomazana O, Dryden-Peterson S, Lockman S, Masupe T, Hirschhorn LR, El Halabi S.Bull World Health Organ. 2019 Feb 1.
9. [Molecular characterization of hepatitis B virus in blood donors in Botswana.](#)Choga WT, Anderson M, Zumbika E, Moyo S, Mbangiwa T, Phinius BB, Melamu P, Kayembe MK, Kasvosve I, Sebunya TK, Blackard JT, Essex M, Musonda RM, Gaseitsiwe S.Virus Genes. 2019 Feb;55(1)
10. [Emerging concepts in HIV-associated cryptococcal meningitis.](#)Lawrence DS, Boyer-Chammard T, Jarvis JN.Opin Infect Dis. 2019 Feb;32(1).
11. [Low rates of NRTI and NNRTI drug resistance among participants in the Botswana combination prevention program \(BCPP\) trial.](#)Moyo S, Gaseitsiwe S, Zahralban-Steele M, Maruapula D, Nkhisang T, Mokaleng B, Mohammed T, Ditlhako TR, Bareng OT, Mokgethi TP, van Widenfelt E, Pretorius-Holme M, Mine MO, Raizes E, Yankinda EK, Wirth KE, Gaolathe T, Makhema JM, Lockman S, Essex M, Novitsky V.AIDS. 2019 Feb 7.
12. [Effect of Xpert MTB/RIF on clinical outcomes in routine care settings: individual patient data meta-analysis.](#)Di Tanna GL, Khaki AR, Theron G, McCarthy K, Cox H, Mupfumi L, Trajman A, Zijenah LS, Mason P, Bandason T, Durovni B, Bara W, Hoelscher M, Clowes P, Mangu C, Chanda D, Pym A, Mwaba P, Cobelens F, Nicol MP, Dheda K, Churchyard G, Fielding K, Metcalfe JZ.Lancet Glob Health. 2019 Feb;7.
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Gorata Ruth Kenyaditswe flanked by her BHP colleagues as they welcomed her at Sir Seretse Khama International Airport as she touched down from the 2019 European Artistic Dance Championships held in Moscow, Russia in March 2019. Gorata and her dance partner Gilbert Mosweu scooped 5 medals while another Botswana dance couple, David Kabo Moatlhodi and Kesego Lopang also got 5 medals, making the team from Botswana the overall champions.

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