



Building a Healthy Future Together

Institution: Botswana-UPenn Partnership
Gaborone, Botswana
<http://www.upenn.edu/botswana/>

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LAB RESOURCES

Please describe the laboratory facilities available in your research institute, including the items listed below (if applicable):

Lab space and equipment (general):

- Lab space at Botswana's National Laboratory in Gaborone, walking distance to Princess Marina Hospital (nation's largest)
- Equipment: microscope, refrigerated centrifuge, computers, hood, -80C freezer, 4-8C freezer, secure cabinets, CO2 incubator, perform elispots in Botswana, perform cryptococcal cultures & colony forming units, GeneXpert

Flow cytometry equipment:

- Yes, working with the Botswana-Harvard partnership at their facility

Please list the research groups in your institute, including the size and areas of expertise for each group:

Note: These are the main projects, some of the people listed work on more than one project at a time. Total research team is 16 people, not counting admin support team.

- HIV/TB immunology in ATT/HAART naïve adults commencing ATT and HAART (5 people, prospective cohort)
- Efavirenz pharmacogenetics and treatment outcomes in HAART initiating adults (5 people, prospective cohort)
- Risk factors for MDR TB (3 people)
- RCT of early HAART vs standard therapy in HIV+ adults with cryptococcal meningitis (3 people, prospective cohort)
- Developing a cough algorithm for adults admitted to hospital (2 people, prospective cohort)
- HPV, HIV and cervical cancer: HPV types, outcomes (3 people, prospective cohort)
- Risk factors for poor outcome in children admitted with gastroenteritis (2 people, prospective cohort)
- Case control study of vitamin D levels in children with and without TB (3 people, cross sectional)
- Vitamin D supplementation study in HIV-infected adults and children (2 people, prospective)

BIOLOGICAL SPECIMEN REPOSITORY

Please provide a description of the biological specimens stored at your institute. Do you have a database of all stored samples?

- PBMC's from adults initiating HIV-TB treatment - have database
- DNA from adults commencing efavirenz HAART - have database
- Stool from children with gastroenteritis - have database
- Cervical cancer specimens - have database

Please provide details on methods for biological specimen storage (e.g., are Standardized Operating Procedures used?)

- Yes, PI-approved SOP's are used for all stored samples.

Please provide details on the equipment/facilities available for sample storage at your institute, including items listed below (*if applicable*):

- Equipment available: microscope, refrigerated centrifuge, computers, hood, -80C freezer, 4-8C freezer, secure cabinets, CO2 incubator, perform elispots in Botswana, perform cryptococcal cultures & colony

forming units, GeneXpert, have access to dry ice and nitrogen tanks through collaboration with Botswana-Harvard Partnership

TRAINING AND EDUCATION

Please describe the training initiatives your institution has in place for individuals prior to working in clinical studies:

- Training in Good Clinical Practice is required, as well as training in the management of hazardous biological material.
- All individuals complete CITI training and are mentored on site by a more experienced research nurse or doctor. Formal further training (i.e. degree granting) is encouraged and an educational stipend is provided for this. This is done in employee's own time.

Please describe the training initiatives your institution has in place for individuals prior to working in the laboratory:

- Training in Good Clinical Practice is required, as well as training in the management of hazardous biological material.
- All individuals complete CITI training. Where needed to learn new skills lab team will either be taught on site by a more senior lab specialist (e.g. PI or post-doc) or they will spend time in the US learning skills at a lab in Philadelphia. Have a post doc PhD basic scientist on site 50% of time to teach and build capacity.

What assays/techniques do you excel in at your institute? What training could you provide to visiting scientists?

- On-site elispot tests (for TB immunology study)
- PBMC isolation and storage (with colleagues at Botswana-Harvard)
- Cryptococcal culture, crag and colony forming units
- GeneXpert

What rank are the majority of your trainees? (e.g., approximate numbers of undergraduate students, Masters, PhD, post-doc, MDs)

- Research staff: 16 people – 1 data entry, 4 diploma nurses, 2 degree nurses, 1 masters nurse, 1 diploma lab tech, 1 degree lab tech, 2 post-doc, 4 MD's
- In addition have 10 MD's doing mainly clinical work who also do some clinical research
- Trainees: 2 medical students, 6-8 week visits by undergrad students, 2 post-doc, 2 MD's, also doing clinical research mentoring of 2 academic pharmacists.
- At any time we have approximately 5 students, 4 residents, 2 MPHs, 2 PhDs, and 8 faculty.

Do you offer training classes/courses for any of the following?

Grant Writing - No

Manuscript/abstract writing - No

Computer skills, excel, prism, endnote, word, powerpoint - Yes

Presentation skills - No

Epidemiology - Yes

Biostatistics - Yes

Training is one by our in-country epidemiologist and research MDs.

Does your institute receive funds to support training initiatives? Yes

Please provide details about the funds your institute receive to support training initiatives:

- UPenn School of Medicine, Children's Hospital of Philadelphia (CHOP), and Doris Duke Charitable Foundation.
- PEPFAR, Fogarty, Howard Hughes.

Does your institution send trainees abroad for additional training? Yes

Please indicate the number of trainees sent abroad per year, the source of funding, the location of training, and the type of training received.

- Ad hoc basis and depends on project – e.g. research doctor went to Penn and trained in clinical trials (supported by Doris Duke research project);

lab tech went to Penn and learnt PBMC and Elispot techniques (R01 and discretionary funding).

What Masters and/or Doctoral programs does your institution offer?

- Those offered by the University of Botswana and UPenn. In addition employees can use their educational stipend to choose another training institute if preferred.

COLLABORATIONS

Please list and briefly describe your current collaboration with any African institutions for either research or training purposes.

- University of Botswana (research, training)
- Botswana-Harvard Partnership (research – HIV/TB)
- Botswana-Baylor (research – pediatric HIV/TB)
- BOTUSA (CDC in Botswana – research, training)
- ACHAP (Gates-Merck-Botswana Government – training, research)
- University of the Witwatersrand, Johannesburg (research – vitamin D studies, pediatric HIV)
- University of KwaZulu Natal, Durban (research – TB, training – TB)
- University of Stellenbosch, Cape Town (research – TB, training – TB)

Plans for future collaborations within Africa (additional groups, sites, countries, etc.)?

- We are exploring opportunities as they arise and at meetings such as this.

Please list and briefly describe your institution's collaborations with entities outside of Africa (e.g., e.g., organizations and networks in the USA, Europe, etc. – including CFARS, NIH clinical trials networks, HPTN, HVTN, AMC, leDEA, USAID, PEPFAR, etc.):

University of Pennsylvania
Children's Hospital of Philadelphia
Wistar Research Institute
CDC and PEPFAR
NIH

Doris Duke Charitable Foundation
In sickness and in health
Tiffany Foundation
Gates Foundation

CLINICAL COHORTS

Do you have access to existing clinical cohorts in Africa or USA? Yes

Please describe each cohort that you have access to, including specifics like “HIV-TB infected HAART naïve adults”, sample size, sample type, sex, age, and whether clinical samples are currently being collected and/or stored (specify which samples).

- We have enrolled every single MDR TB patient diagnosed in Botswana in a clinical cohort. We are also following a large cohort of women (approximately 2,500) screened for cervical cancer.

Botswana

- a. TB-HIV infected HAART naïve adults, 500, elispots and PBMC's, currently enrolling
- b. HIV-infected HAART naïve adults commencing efavirenz, 940, DNA, currently enrolling
- c. Cryptococcal meningitis RCT in HIV-infected adults, 50, PBMC's, currently enrolling
- d. Children admitted with gastroenteritis, 500, stool, currently enrolling

USA (Philadelphia)

- a. Access to CFAR's stored sample repository of HIV-infected adults and children. See UPenn CFAR website for details.

Are you planning to establish any new clinical cohorts over the next 5 years? Yes

Please describe the clinical cohorts that you are planning to establish, including specifics such as “HIV-TB infected HAART naïve adults”, sample type, sex, and age.

- Each of the above cohorts will be expanded and better characterized.

- Adults with TB, children with TB, adults with cryptococcal meningitis, perhaps women with carcinoma of the cervix, perhaps adults and children with invasive S.aureus disease, perhaps adults and children with invasive pneumococcal disease, children with pneumonia

DATA MANAGEMENT

Please describe the DATA MANAGEMENT FACILITIES available in your research institute, including the items listed below (if applicable):

Data management expertise, including staff complement (general):

- On-site data entry clerk (1), data manager (1), epidemiologist (1), IT support through private sector, data management support/consultation through Penn and CHOP

On-site database design, implementation and trouble-shooting:

- Able to do so on-site in excel, access and openMRS

Details of off-site support (by whom):

- Informatics colleagues at Penn's Center for Clinical Epidemiology and Biostatistics, CHOP's Center for Biomedical Informatics

BIostatistical SUPPORT

Please describe the BIostatistical SUPPORT available in your research institute, including the items listed below (if applicable):

- Available through the Penn CFAR biostatistics core.

Biostatistical expertise, including staff complement/composition of PhD and Masters level biostatisticians:

- No in-country biostatisticians in our group. However do work with Masters and PhD -level biostats colleagues at University of Botswana



Specific areas of biostatistical expertise/excellence:

- These are those of the Penn CFAR biostats core. In addition we have access to the biostatisticians at Penn's Center for Clinical Epidemiology and Biostatistics (CCEB)

Details of off-site support (by whom):

- These are those of the Penn CFAR biostatistics core. In addition, we have access to the biostatisticians at Penn's Center for Clinical Epidemiology and Biostatistics (CCEB).