

**ACUTE HIV-1 INFECTION IN CHILD BEARING WOMEN DURING
PREGNANCY AND POST PARTUM PERIOD IN TANZANIA, ZAMBIA
& BOTSWANA: STUDIES ON INCIDENCE AND TRANSMITTED
VIRUSES**

Background

- TanZamBo Capacity Building for HIV Prevention Research Network is composed of the Botswana Harvard AIDS Institute Partnership (BHP) in Gaborone, Botswana, the Kilimanjaro Clinical Research Institute (KCRI) in Moshi, Tanzania and the Tropical Diseases Research Centre (TDRC) in Ndola, Zambia.
- Northern partners namely Mc Gill University AIDS Centre in Montreal Canada and Harvard University, School of Public Health in Boston, USA.
- The main objective of this network is to expand the capacity of researchers to conduct various HIV/AIDS prevention trials and research including vaccines.
- The team members plan to use their comparative advantage in expertise and technology to strength the capacity of weaker institutions in HIV prevention interventions.

PROBLEM AND JUSTIFICATION

- In order to strengthen the networking and capacity building of young researchers under the philosophy of learning by doing, there is a dire need to have a joint research project among the TanZamBo consortium
- Therefore, we now propose to study “***Acute and early HIV infection during pregnancy and postpartum period among childbearing women in Tanzania, Zambia and Botswana***”
- The adult prevalence rate of HIV in Tanzania is between 5.7% and 8.2% among women attending antenatal care (ANC) according to the 2010 UNAIDS and UNICEF factsheet.
- Tanzania has multiple HIV 1 subtypes (subtype A, C, D and circulating recombinants forms-CRF) which may vary from region to region (Nyombi et. al. 2008; Vasan et., al. 2006).

PROBLEM AND JUSTIFICATION

- Zambia and Botswana have predominantly HIV subtype C infection. The adult HIV prevalence rates are 13.5% and 24.8%; and HIV prevalence rates among women attending ANC are 19% and 33% respectively
- In recent years, mother to child transmission rates have reduced substantially (from 40% to less than 10%) in the SADC region with the introduction of antiretroviral prophylaxis and highly active antiretroviral therapy (HAART) for childbearing women.
- However, there are still unmet needs in prevention of MTCT of HIV among pregnant and postpartum women with primary HIV infection after the initial HIV negative test at antenatal clinic

Objectives

1. To determine the rate of primary HIV1 infection and sero-conversion rates among pregnant and postpartum women in Tanzania, Zambia and Botswana.
2. To determine the rates of mother to child transmission of HIV1 among sero-converted women during pregnancy and postpartum period.
3. To investigate if there are any transmitted drug resistance viruses among women who sero-converted during pregnancy and postpartum period.
4. To establish if there are any socio-demographic characteristics associated with sero conversion and MTCT rates.
5. To determine viral dynamics among women with primary infection in relation to HIV subtypes, clinical and immunological parameters.

Secondary Objectives

1. Establish if there is any association between HIV1 subtypes and MTCT.
2. To compare sexual and risk behavior patterns, knowledge, attitude and practice across the 3 countries.
3. To compare levels of breast milk viremia among those women who transmit
4. Compare viral diversity in breast milk and blood between transmitters and non-transmitters

Methodology

- *Study Design and population sample size:* This will be a prospective cohort study of women who are 18 years and above (consenting age) attending antenatal care in Tanzania, Zambia and Botswana.
- HIV negative women ,in their first or second trimester, will be enrolled and followed-up for subsequent visit and HIV testing in third trimester.
- The women will be followed-up to delivery and postnatal care for HIV testing including their infants.
- After the first postnatal visit, HIV negative women will be followed-up and screened for HIV every two months for six months and thereafter every three months for a year.

Methodology

- Acute and early sero-converters during pregnancy and during postpartum will be followed-up closely with their infant pair every 2 months for 6 months and every three months for 1 year and every 6 months for 2 years
- The approximate sample size for each country is about 600 ANC women enrolled at various clinics giving us a total samples size of 1800.
- Blood samples will be collected for immunological parameters, viral load, DNA PCR (for infants) and HIV sub typing.
- Baseline socio-demographic and clinical history data will be collected using a questionnaire and also hospital or clinic records.

Methodology

- *Statistical Analysis:* Data entry will be done according to database system of each participating institution, but statistical analysis will be done using SPSS software package.
- *Capacity building and Training:* The project will provide an opportunity for young researchers in TanZamBo to develop new and novel research questions from this baseline study.