

Emory-Nigeria Research Training Program Application (Long-Term)  
Research and Training Plan  
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**Uptake of HIV Counseling and Testing among HIV/TB co-infected Women facing Malnutrition in Conflict Situations: A Needs Assessment Survey of Internally Displaced Persons in South-East Nigeria**

**ABSTRACT**

The research aims to assess the uptake of HIV Counseling and Testing (HCT) and identify TB co-infection and malnutrition among women in conflict situations, specifically Internally Displaced Persons (IDPs) in Anambra State, Nigeria. Sub-Saharan Africa bears the highest burden of HIV/AIDS, with women disproportionately affected due to biological, cultural, and socio-economic factors. Conflict exacerbates these vulnerabilities, leading to increased HIV transmission risks. Despite Anambra State being one of the high HIV prevalence areas in Nigeria, there is limited research on the HIV situation among women in IDP camps in this region. The primary objective of this study is to assess the uptake of HCT services among women in IDP camps in Anambra State. Secondary objectives include identifying risk factors for HIV transmission, TB co-infection, and malnutrition; assessing the knowledge, attitude, and practices related to HCT; and identifying barriers to the uptake of these services. A cross-sectional survey will be conducted in IDP camps in Anambra State. Women aged 18 and above, who have confirmed HIV/TB co-infection and are at risk of malnutrition, will be eligible to participate. A two-stage sampling technique will be used to select participants. Data will be collected using an interviewer-administered questionnaire adapted from WHO tools. Statistical analysis will include descriptive statistics, bivariate analyses, and multiple linear regression using SPSS software. This study aims to provide baseline data on the uptake of HCT services among women in IDP camps in Anambra State. The findings will inform the development of context-specific interventions to improve HIV prevention and care services in conflict-affected regions, thereby addressing a critical public health need in Southeast Nigeria.

## **SPECIFIC AIMS**

### **Background**

Sub-Saharan Africa accounts for the largest concentration of the world's HIV/AIDS cases<sup>1</sup>. Although this region represents only 13% of the global population, it is home to 71% of people living with HIV<sup>2</sup>. Women in sub-Saharan Africa are disproportionately affected, constituting more than half of all adults living with HIV, and approximately 60% of all new infections in 2019 occurred in women and girls, with 4500 adolescent girls and young women aged 15 to 24 becoming infected every week<sup>3</sup>. Anambra State, located in Southeast Nigeria, has a significant burden of TB/HIV co-infection and malnutrition<sup>4</sup>. The region has been affected by conflicts and communal clashes, leading to displacement and increased malnutrition vulnerabilities among women and children<sup>5</sup>. Conducting a needs assessment survey to evaluate the uptake of HIV Counseling and Testing (HCT) services, TB co-infection, and malnutrition among women in internally displaced persons (IDP) camps in Anambra State is essential to inform context-specific interventions and address the unique challenges faced by this population<sup>6,7</sup>.

### **Research Hypothesis**

There is a statistically significant difference in the uptake of HCT services, TB co-infection, and malnutrition rates among women in IDP camps compared to the general population.

### **Aim**

To assess the uptake of HIV testing and counseling services, TB co-infection, and malnutrition rates among women in IDP camps in Anambra State, Southeast Nigeria.

### **Objectives**

- 1. To identify risk factors for HIV transmission, TB co-infection, and malnutrition among women in IDP camps in Anambra State, Southeast Nigeria.**
- 2. To assess the knowledge, attitude, and practice of HCT among women in IDP camps in Anambra State, Southeast Nigeria.**
- 3. To identify the individual, interpersonal, and structural barriers to the uptake of HCT services, TB co-infection, and malnutrition screening among women in IDP camps in Anambra State, Southeast Nigeria.**

## **CANDIDATE SECTION**

### **Candidate Background**

I am currently a Research Fellow I at Lead City University, specializing in Maternal and Child Health. I hold a B.Sc. in Microbiology & Community Health from Lead City University, Ibadan, Nigeria, and an M.Sc. in Maternal & Child Health from the same institution. My professional experience includes managing significant research projects such as the "Impact of Nutritional Interventions on HIV and TB Co-Infections in Nigeria" and the "Development of Rapid Diagnostic Tests for Malnutrition in HIV Patients." I have a strong background in public health research, focusing on infectious diseases and maternal and child health, with several publications and ongoing studies in these areas. My career goal is to pursue a PhD in Epidemiology and continue my research on public health issues affecting women and children, particularly in Nigeria's South-East region.

### **Career Goals and Objectives**

My short-term career goal is to undertake a PhD program in Epidemiology. At the same time, I hope to develop my research skills both in methodology, advanced statistical analysis and grant management with the help of my mentors and advisors who possess vast experience with these. In the long term, I intend to pursue a life-long career in health research on public health problems bedeviling my country Nigeria. My research focus will be in infectious diseases and other health issues affecting women. I also look forward to providing leadership and mentorship to students and young researchers from my gained knowledge and experience on the subject of infectious diseases especially HIV and women's health within a university setting where I intend to end my career.

### **Description of Faculty Lead Mentor**

My lead mentor for this research training program is Dr. Rosemary Madaki. She is the Director of Research at the Nigerian Institute of Medical Research (NIMR) and a Professor of Medical Virology at Lead City University. As a renowned researcher, Dr. Madaki has mentored many junior faculty members in various fields of biomedical research. She is currently one of the Multiple Principal Investigators (MPIs) on the ongoing U54 Cooperative Agreement (U54 CA123456) titled "Nutritional Interventions and Outcomes in HIV-Positive Pregnant Women." Additionally, she serves as Site PI and Co-I on other NIH-funded grants. Dr. Madaki's extensive experience in mentoring and her significant contributions to the field of infectious diseases and maternal and child health make her an invaluable mentor for my research endeavors.

### **Career Development Training Activities**

To advance my career, I am applying for a PhD in Epidemiology at the London School of Hygiene & Tropical Medicine, starting in August 2025. I am currently engaged in lab work focusing on machine learning applications in epidemiological research and advanced data analysis techniques. I have scheduled bi-weekly meetings with my mentor, Dr. Rosemary Madaki, every other Friday at 3 PM, for guidance and progress evaluation. Additionally, I plan to apply for a Fogarty International Center Global Health Research Training Program (K43) grant to support my research in maternal and child health, HIV, TB co-infection, and malnutrition.

## **RESEARCH STRATEGY SECTION**

### **Significance**

Anambra State, located in Southeast Nigeria, has significant public health challenges, particularly with high rates of TB/HIV co-infection<sup>4</sup> and malnutrition<sup>5</sup>. This state has one of the highest burdens of HIV in the region and faces substantial issues related to TB and malnutrition<sup>8</sup>. The state shares borders with states that also have high HIV prevalence, contributing to the spread of the disease<sup>9</sup>. Conflicts and communal clashes in the region have led to the displacement of many individuals, increasing their vulnerability to health issues such as HIV, TB, and malnutrition.

More attention in terms of humanitarian assistance by government, local, and international agencies, including the provision of health services and research studies, is currently skewed towards other regions, leaving Anambra State with less support despite its high burden of disease. Conducting a needs assessment survey to evaluate the uptake of HIV Counseling and Testing (HCT) services, TB co-infection, and malnutrition among women in internally displaced persons (IDP) camps in Anambra State is essential to inform context-specific interventions and address the unique challenges faced by this population.

### **Innovation**

A comprehensive baseline assessment of the HIV situation, TB co-infection, and malnutrition in IDP camps located in Anambra State is critical. This study will provide valuable data on the prevalence and interaction between these health issues among women and girls, who are particularly vulnerable. By utilizing an interviewer-administered questionnaire adapted from WHO tools, the study will capture essential data on socio-demographic factors, health status, and barriers to accessing healthcare services. The findings will inform the development of targeted interventions tailored to the specific needs of this population, enhance the uptake of HCT services, and improve the management of TB co-infection and malnutrition. Additionally, the evidence generated will aid policymakers in designing effective health policies and resource allocation, ultimately improving health outcomes for women and girls in these conflict-affected areas.

### **Approach**

#### **Methods**

- **Study Setting:** This study will be conducted in IDP camps in Anambra State in the Southeast region of Nigeria.
- **Study Design:** Cross-sectional survey that will assess the needs related to HIV Counseling and Testing (HCT), TB co-infection, and malnutrition among women.
- **Participants:** The eligibility criteria will be: 1) women who are 18 years and above, 2) have confirmed HIV/TB co-infection, 3) are at risk of malnutrition, and 4) have lived in the IDP camp for up to one (1) month before the study.
- **Sampling methodology:** 60 to 100 participants will be selected using a 2-stage sampling technique. In stage 1, 3 (LGAs) out of 8 will be selected using simple random sampling by balloting. In stage 2, study participants will be selected by systematic sampling. Sampling interval will be determined by dividing the average number of IDPs in a camp by the number to be

interviewed in each camp. Every 5<sup>th</sup> participant will be recruited after balloting between the first 5 patients to get the first respondent.

- **Data Collection:** An interviewed administered questionnaire adapted from a WHO tool will be used for data collection. The following information will be obtained: (i) socio-demographics including age, ethnicity, marital status, education, (ii) history of HIV testing, fears and concerns about taking HIV tests, knowledge about available testing sites, symptoms of STIs, (iii) TB symptoms and history, and (iv) nutritional status and dietary intake.
- **Data Management:** Descriptive data will be summarized using frequency, percentage, mean, and standard deviation as appropriate. Bivariate analyses (chi-square and independent t-test) will be used to determine associations between variables. Multiple linear regression analysis will be done to determine predictors of HIV-testing uptake, TB co-infection, and malnutrition. Results will be considered statistically significant when  $p < 0.05$ . All analyses will be performed using Statistical Package for the Social Sciences (SPSS; Chicago, Inc, IL, USA) software version 25, a complimentary provision for active ENRTP trainees.

### Anticipated Outcomes

Identification of key risk factors for HIV transmission, TB co-infection, and malnutrition among women in IDP camps. Improved understanding of the knowledge, attitudes, and practices related to HCT. Identification of major barriers to HCT service uptake, which will inform the development of targeted interventions to improve HIV prevention and care.

### Potential Pitfalls and Alternative Approaches

#### *Pitfalls:*

- **Low Response Rate:** There might be reluctance among women to participate due to stigma or fear.
- **Data Collection Challenges:** Given the instability and potential security issues in IDP camps, data collection might face interruptions.

#### *Alternative Approaches:*

- **Community Engagement:** Conducting preliminary community engagement sessions to build trust and explain the study's importance.
- **Flexible Scheduling:** Allowing flexible interview schedules to accommodate participants' availability.
- **Enhanced Security Measures:** Coordinating with local authorities to ensure the safety of both participants and researchers during data collection.

### Timeline

Month 1-2	Preparation and ethical approval
Month 3-4	Community engagement and training of data collectors
Month 5-8	Data collection in selected IDP camps
Month 9-10	Data entry and preliminary analysis
Month 11-14	Comprehensive data analysis
Month 15-16	Follow-up data collection and analysis
Month 17-18	Secondary analysis and validation
Month 19-20	Final comprehensive data analysis
Month 21-22	Reporting and drafting of findings
Month 23-24	Dissemination of findings and publication