

# Improvement in cryptococcosis diagnosis among HIV-infected patients in Mozambique

<b>Submission date</b>	<b>Recruitment status</b>	<input checked="" type="checkbox"/> Prospectively registered
04/08/2024	No longer recruiting	<input checked="" type="checkbox"/> Protocol
<b>Registration date</b>	<b>Overall study status</b>	<input type="checkbox"/> Statistical analysis plan
06/08/2024	Ongoing	<input type="checkbox"/> Results
<b>Last Edited</b>	<b>Condition category</b>	<input type="checkbox"/> Individual participant data
27/05/2025	Infections and Infestations	<input checked="" type="checkbox"/> Record updated in last year

## Plain English summary of protocol

### Background and study aims

Laboratory diagnosis for cryptococcal disease among HIV-infected patients remains a challenge in most low- and middle-income countries (LMIC). Difficulties with sustained access to cryptococcal rapid tests are cited as a major barrier to the routine screening for cryptococcus in many LMICs. Thus, clinicians in these countries often resort to empirical treatment based solely on clinical suspicion of cryptococcosis. To address this challenge, this study aims to evaluate the re-introduction of India ink microscopy testing for the diagnosis of cryptococcosis among HIV-infected patients in southern Mozambique. India ink testing was historically a common first choice, low-cost, laboratory diagnostic tool for cryptococcal infection.

### Who can participate?

Clinicians attending adult HIV-infected patients in screening or consultation rooms and laboratory technicians

### What does the study involve?

This study involves a multicenter study that will employ a mixed-methods approach, guided by an implementation science framework the Dynamic Adaptation Process (DAP). It will be carried out in three phases (pre-implementation, implementation, and post-implementation). The intervention will be rolled out in six hospitals using a stepped-wedge trial approach. Using a modified RE-AIM, the study will assess the intervention's implementation at two levels: individual (healthcare providers) and organizational (hospitals and their healthcare system).

### What are the possible benefits and risks of participating?

Possible benefits of participating include increasing the opportunity for screening cryptococcosis among HIV-infected patients and making available an etiologic diagnosis to reduce empirical treatment practices among clinicians. The intervention is deemed of negligible risk because a diagnostic tool that offers no risk to healthcare providers is being re-introduced.

### Where is the study run from?

University Eduardo Mondlane (Mozambique)

When is the study starting and how long is it expected to run for?

December 2022 to July 2026

Who is funding the study?

Fogarty International Center (USA)

Who is the main contact?

Jose Langa, josecaroslanga@yahoo.com.br

## Contact information

### Type(s)

Public, Scientific, Principal investigator

### Contact name

Mr Jose Langa

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## Additional identifiers

### Clinical Trials Information System (CTIS)

Nil known

### ClinicalTrials.gov (NCT)

Nil known

### Protocol serial number

Nil known

## Study information

### Scientific Title

Re-introduction of India ink microscopy testing as a low-cost laboratory diagnostic for cryptococcosis among HIV-infected patients in Southern Mozambique: An implementation research protocol

### Study objectives

The re-introduction of a low-cost laboratory diagnostic for cryptococcosis HIV-infected patients in Southern Mozambique can improve the diagnoses of cryptococcoses in the intervention sites

## **Ethics approval required**

Ethics approval required

## **Ethics approval(s)**

approved 26/10/2023, National Bioethics Committee for Health of Mozambique (Ministry of Health, 2nd Floor, Avenue Eduardo Mondlane, Salvador Allende, Maputo, 00000, Mozambique; +258 824066350; cnbsmocambique@gmail.com), ref: 622/CNBS/23

## **Study design**

Multicenter stepped-wedge implementation science trial

## **Primary study design**

Interventional

## **Study type(s)**

Diagnostic, Screening

## **Health condition(s) or problem(s) studied**

Re-introduction of India ink microscopy testing as a low-cost laboratory diagnostic for cryptococcosis among HIV-infected patients

## **Interventions**

Following completion of the pre-implementation phase assessments and local stakeholder adaptation meetings, each study facility will roll out India Ink microscopy for cryptococcosis diagnosis as per the stepped-wedge design. Upon initiation of implementation, HIV care clinicians will identify suspected cryptococcosis patients based on clinical suspicion. Urine will be requested and submitted to the laboratory on the same day for microscopy testing using India Ink. Once at the laboratory, the urine sample will be analyzed by laboratory technicians trained in the diagnosis of cryptococcosis by the study, and to standardize the procedures they will follow the India Ink microscopy technique on urine samples SOP (Standard Operating Procedure) provided in all the laboratories of the study.

The results will be available on the same day and be transferred from the laboratory back to the clinician through the sample and information flow adapted in this study to enhance the interaction between clinicians and laboratory staff.

## **Intervention Type**

Other

## **Primary outcome(s)**

Increase opportunity for screening of adult HIV-infected patients suspected of having a cryptococcal disease in study sites measured using microscopy testing with India Ink at one time point

## **Key secondary outcome(s)**

1. Empirical treatment practice time among clinicians managing cryptococcal infections measured using record keeping during the sample and information flow
2. Clinician satisfaction with the availability of the tool for clinical decision support measured

using an in-depth interview record and a 5-point Likert scale at 9 months of the adaptation-intervention period (the end of the intervention phase)

#### **Completion date**

31/07/2026

## **Eligibility**

#### **Key inclusion criteria**

Healthcare providers: clinicians attending adult HIV-infected patients in screening or consultation rooms and laboratory technicians

#### **Participant type(s)**

Health professional

#### **Healthy volunteers allowed**

No

#### **Age group**

Mixed

#### **Lower age limit**

18 years

#### **Upper age limit**

99 years

#### **Sex**

All

#### **Key exclusion criteria**

1. Clinicians attending to pediatric patients
2. Clinicians who are not engaged in HIV/AIDS care and treatment
3. Laboratory technicians who are not engaged in laboratory diagnostic testing for cryptococcosis

#### **Date of first enrolment**

01/09/2024

#### **Date of final enrolment**

31/12/2025

## **Locations**

#### **Countries of recruitment**

Mozambique

#### **Study participating centre**

**Maputo Central Hospital**

Maputo

Mozambique

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**Study participating centre**

**Mavalane General Hospital**

Maputo

Mozambique

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**Study participating centre**

**Jose Macamo General Hospital**

Maputo

Mozambique

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**Study participating centre**

**Matola Provincial Hospital**

Matola

Mozambique

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**Study participating centre**

**Xai-Xai Provincial Hospital**

Xai-Xai

Mozambique

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**Study participating centre**

**Carmelo Hospital of Chokwe**

Chokwe

Mozambique

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## **Sponsor information**

**Organisation**  
Tulane University

**ROR**  
<https://ror.org/04vmvtb21>

## Funder(s)

**Funder type**  
Research organisation

**Funder Name**  
Fogarty International Center

**Alternative Name(s)**  
Fogarty, Fogarty at NIH, John E. Fogarty International Center, John Edward Fogarty International Center, NIH John F. Fogarty International Center, NIH's Fogarty International Center, NIH Fogarty International Center, Fogarty International Center at NIH, Fogarty International Center, U.S. National Institutes of Health (NIH), Fogarty International Center AT THE NATIONAL INSTITUTES OF HEALTH, FIC

**Funding Body Type**  
Government organisation

**Funding Body Subtype**  
Research institutes and centers

**Location**  
United States of America

## Results and Publications

### Individual participant data (IPD) sharing plan

The de-identified datasets generated during and/or analyzed during the current study will be stored in a publicly available repository at <https://osf.io/r2kw4>. Consent from participants was required and will be obtained. An original consent form is attached to this registration. Participants will be de-identified through codes. All identifying information will be kept locked in a file at the Faculty of Medicine of Eduardo Mondlane University in Maputo.

**IPD sharing plan summary**  
Stored in publicly available repository

### Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
<a href="#">Protocol article</a>		23/05/2025	27/05/2025	Yes	No

<a href="#"><u>Participant information sheet</u></a>		04/10/2023	06/08/2024	No	Yes
<a href="#"><u>Protocol file</u></a>	version 04	11/10/2023	06/08/2024	No	No