

# Spirometry screening for post-tuberculosis lung disease among adolescents and adults in Mozambique

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<b>Registration date</b> 16/09/2024	<b>Overall study status</b> Completed	<input type="checkbox"/> Statistical analysis plan <input type="checkbox"/> Results
<b>Last Edited</b> 14/10/2024	<b>Condition category</b> Infections and Infestations	<input type="checkbox"/> Individual participant data <input checked="" type="checkbox"/> Record updated in last year

## Plain English summary of protocol

### Background and study aims

Despite receiving adequate treatment, many tuberculosis (TB) survivors are left with post-tuberculosis complications, possibly due to lung tissue damage incurred during the active period of the disease. Current TB programs worldwide deliver quality care throughout the course of active TB treatment, yet often fail to provide organized follow-up once treatment ends. Post-tuberculosis lung disease (PTLD) is a prominent, yet underrecognized cause of chronic lung disease, managed similarly to chronic respiratory diseases with pharmacotherapy and/or personalized pulmonary rehabilitation interventions. Basic pulmonary rehabilitation packages for people finishing TB treatment are still lacking in low- and middle-income countries (LMICs). This study offers a protocol to evaluate the implementation of spirometry and symptom screening for PTLD among people who have completed TB treatment in a rural district in Mozambique.

### Who can participate?

Patients aged  $\geq 15$  years of age enrolled in the NTCP at CHC with a GeneXpert-positive sputum

### What does the study involve?

This study involves spirometry and symptom screening amongst those recently considered cured of TB to determine the prevalence of PTLD. All participants enrolled in the study will receive this intervention at baseline (upon enrollment) and at six-month follow-up. Using spirometry, Forced expiratory volume in one second (FEV1) and Forced Vital Capacity (FVC) will be measured in all participants.

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

This study will not likely benefit participants directly, but the knowledge gained from this study will be used to assist decision makers in determining a course of action for increasing spirometry screening coverage, optimizing the intervention's impact, and translating our findings into evidence-based programming. There are no risks associated with participating in this study.

Where is the study run from?  
Tulane University

When is the study starting and how long is it expected to run for?  
February 2023 to June 2025

Who is funding the study?  
Fogarty International Center

Who is the main contact?  
Prof Troy Moon, tmoon2@tulane.edu

## Contact information

**Type(s)**  
Public, Scientific, Principal Investigator

**Contact name**  
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## Additional identifiers

**EudraCT/CTIS number**  
Nil known

**IRAS number**

**ClinicalTrials.gov number**  
Nil known

**Secondary identifying numbers**  
TW009745

## Study information

**Scientific Title**

Implementation of spirometry screening for post-tuberculosis lung disease (PTLD) among adolescents and adults enrolled within the National Tuberculosis Control Program of Carmelo Hospital in Chókwè District, Mozambique: A hybrid type III effectiveness-implementation study protocol

### **Study objectives**

Adaptations in the tuberculosis care and treatment care cascade that consider local, real-world inputs, will result in greater uptake in spirometry screening and subsequent treatment amongst persons recently completing tuberculosis treatment.

### **Ethics approval required**

Ethics approval required

### **Ethics approval(s)**

1. Approved 14/05/2024, Comité Nacional de Bioética para Saúde, CNBS (Ministry of Health, 2nd floor, Eduardo Mondlane Avenue #1008, Maputo, 00000, Mozambique; +258 82 406 6350; cnbsmocambique@gmail.com), ref: 285/CNBS/2024

2. Approved 30/11/2023, Tulane University Human Research Protection Office (1440 Canal Street, suite 1851, New Orleans, 70112, United States of America; +1 504 988-2665 ; irbmain@tulane.edu), ref: 2023-1198

### **Study design**

Hybrid type III effectiveness-implementation design

### **Primary study design**

Interventional

### **Secondary study design**

Non randomised study

### **Study setting(s)**

Hospital

### **Study type(s)**

Diagnostic, Screening, Efficacy

### **Participant information sheet**

Not available in web format

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

Pulmonary lung function screening (spirometry) in persons completing 6 months of treatment for active TB

### **Interventions**

This study involves pulmonary lung function screening (spirometry) in persons completing 6 months of treatment for active TB.

To document the prevalence of PTLD in patients enrolled at Carmelo Hospital (CHC), a prospective observational study will be conducted to introduce spirometry and symptom

screening within the National TB Control Program (NTCP) at baseline (completion of six-months of TB treatment) and six months after completion of TB treatment. Patient enrollment into the spirometry screening program will continue for approximately three months following study initiation. Enrolled participants will complete standardized respiratory symptoms and quality of life questionnaires at each visit. Spirometry will be performed at each visit using spirometers that meet the International Organization for Standardization (IOS) standards.

For the qualitative portion of the study, a total of approximately 16-19 semi-structured key-informant interviews will be conducted that will include a minimum of two participants at the central level of the NTCP in Maputo (Mozambique's capital city), two administrators of CHC, and one administrator at each of three selected peripheral health facilities. In addition, the study involves interviews with the three clinicians (1 physician, 1 medical technician, and 1 nurse) responsible for implementing the spirometry screening program at CHC, as well as all clinicians responsible for treating TB at each of the three selected peripheral health facilities (it is estimated there will be between two to three clinicians at each of the three health facilities).

### **Intervention Type**

Procedure/Surgery

### **Primary outcome measure**

Prevalence of post-tuberculosis lung disease amongst persons completing 6 months of treatment for active TB measured using spirometry and symptom screening at baseline (completion of 6 months of TB treatment) and at 6 months after completion of TB treatment.

### **Secondary outcome measures**

Site-, provider-, and individual-level determinants that either promote or inhibit the successful adoption, implementation, and maintenance of the spirometry screening program will be measured using semi-structured key-informant interviews evaluating constructs from the Consolidated Framework for Implementation Research (CFIR), including perceptions about the intervention characteristics (e.g., facilitators, potential challenges, eligibility, and cost); outer setting factors influencing use (e.g., perception of patient needs and resources, demand creation, commitment); inner setting factors impacting uptake and fidelity to the intervention (e.g., resources needed, workload, standard operating procedures, infrastructure); characteristics of individuals (e.g., knowledge, competency, belief it can be done with quality); and process factors of implementation (e.g., fidelity, execution, and evaluation) within each health facility. These interviews will be performed after the completion of the spirometry portion of the study.

### **Overall study start date**

13/02/2023

### **Completion date**

30/06/2025

## **Eligibility**

### **Key inclusion criteria**

Primary outcome:

1. Aged  $\geq 15$  years of age
2. Enrolled in the National TB Control Program (NTCP) at Carmelo Hospital (CHC) with a

GeneXpert-positive sputum

3. Completed six months of TB treatment and considered TB-cured

4. Ability to understand and comply with study procedures

Semi-structured key-informant interviews:

1. Participants at the central level of the NTCP in Maputo (Mozambique's capital city)

2. Administrators of CHC and at each of the three selected peripheral health facilities

3. Clinicians (physician, medical technician, and nurse) responsible for implementing the spirometry screening program at CHC, as well as all clinicians responsible for treating TB at each of the three selected peripheral health facilities

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

Patient, Health professional

### **Age group**

Mixed

### **Lower age limit**

15 Years

### **Upper age limit**

99 Years

### **Sex**

Both

### **Target number of participants**

115

### **Total final enrolment**

115

### **Key exclusion criteria**

1. Less than 15 years of age

2. Active respiratory symptoms at the time of screening that are indicative of a new acute respiratory illness

### **Date of first enrolment**

01/08/2024

### **Date of final enrolment**

30/11/2024

## **Locations**

### **Countries of recruitment**

Mozambique

### **Study participating centre**

**Carmelo Hospital of Chokwe**  
Chokwe  
Mozambique  
00000

## **Sponsor information**

### **Organisation**

Tulane University

### **Sponsor details**

1440 Canal Street  
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### **Sponsor type**

University/education

### **Website**

<https://tulane.edu/>

### **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

**Publication and dissemination plan**  
Planned publication in a peer-reviewed journal and through presentations at both domestic and international scientific conferences. The study findings will also be disseminated locally to stakeholders at CHC; the three selected peripheral health facilities: Centro de Saúde da Cidade, Centro de Saúde de Chalucwane, and Centro de Saúde Urbano; and to the NTCP/Ministry of Health and stakeholders in Maputo.

**Intention to publish date**  
01/07/2025

**Individual participant data (IPD) sharing plan**  
The datasets generated during and/or analyzed during the current study will be stored in a publicly available repository (Open Science Framework, <https://osf.io/>)

De-identified participant spirometry results; data will become available by June 30, 2025, and will continue to be available for 5 years from that date.

**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>		10/10/2024	14/10/2024	Yes	No