



Sub-Saharan SeqNet

Sub-Saharan African Network for genomic diagnostics and surveillance of lung pathogens

Context

Lung diseases are an increasing cause of morbidity and mortality world-wide. Every year, approximately 10 million new cases of tuberculosis (TB) are recorded, resulting in approx. 1.5 million deaths. (Multi-) drug-resistant strains further complicate global TB control and challenge the WHO's goal to end the TB epidemic by 2030. Moreover, the COVID-19 pandemic caused millions of deaths and resulted in an unprecedented global scale of severe acute respiratory syndrome and post-COVID sequelae. Strengthening molecular diagnostics (including genome sequencing approaches), surveillance and the translation of these approaches into clinical and public health practice have emerged as promising tools for combating lung diseases. Next generation sequencing (NGS) technologies are a unique tool for improving diagnostics and integrated molecular surveillance. Building on experiences from previous projects – in which modern sequencing technologies for rapid TB resistance diagnostics and surveillance were established, the project continues to implement and anchor genome sequencing for pathogen diagnostics and surveillance in partner countries. Predominantly, it targets National Reference Laboratories as well as the relevant laboratories working in pathogen diagnostics and surveillance in Eswatini, Mozambique, and Namibia by training their staff to carry out genome sequencing. Moreover, public health officials are trained to trace chains of infection and clinicians are enabled to understand molecular resistance profiles and develop and apply individualised therapeutic regimens based on international guidelines. This enables more efficient therapy concepts and contributes to the well-being of patients by shortening their treatment times and improving treatment outcomes.

Objective

Implementing and anchoring state-of-the-art sequencing technologies – such as next generation sequencing – for the diagnosis and surveillance of drug-resistant or multidrug-resistant pulmonary pathogens (especially tuberculosis and SARS-CoV-2).

Thematic focus

Strengthening of public health systems

Outbreak management

Surveillance and reporting

Infection prevention and control

Laboratory diagnostics

Clinical management

Key facts

Duration

1 January 2023 to 31 December 2025

Budget

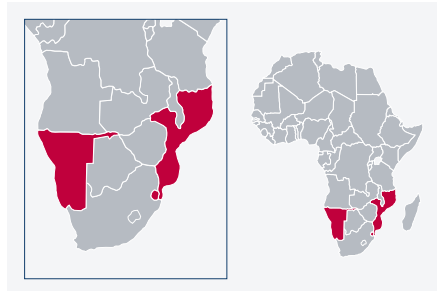
~ EUR 2.3 million

Partner countries

Eswatini, Mozambique, Namibia

Region

Southern Africa



Implemented by

Research Center Borstel, Leibniz Lung Center (FZB)

Commissioning party

German Federal Ministry of Health (BMG)

Activities



STAFF DEPLOYMENT AND EXCHANGE

Training laboratory staff in the partner institutions in genome sequencing and data analysis



CAPACITY DEVELOPMENT

Establishing workflows for prospective pathogen surveillance; supporting and implementing sequencing technologies as well as integration of these technologies into diagnostic workflows



NETWORKING AND COOPERATION

Strengthening established networks through scientific events in Africa and Europe; establishing clinical advisory committees to support translation into the clinic

In cooperation with

- Ospedale San Raffaele (OSR), Italy
- Inselspital Bern (ISB), Switzerland
- Ministry of Health (MoH Eswatini), Eswatini
- National TB Reference Laboratory (NTRL Eswatini), Eswatini
- COVID-19 National Laboratory (COVIDLab Eswatini), Eswatini
- National TB Control Programme (NTCP Eswatini), Eswatini
- Baylor College of Medicine (BCM Eswatini), Eswatini
- Baylor College of Medicine Houston (BCM Houston), USA
- Instituto Nacional de Saúde (INS), Mozambique
- University of Namibia School of Medicine (UNAM), Namibia

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GHPP, the Global Health Protection Programme of the German Federal Ministry of Health, promotes networking, exchange and cooperation between specialized German and international public health actors. By reducing health risks and strengthening health systems at the national, regional and international level, in particular relating to pandemic and epidemic preparedness and response, the GHPP fosters public health protection – worldwide.



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