DRUG-RESISTANT (DR) TB
is a public health crisis – in 2018, it was estimated that 500,000 people developed TB that was resistant to rifampicin, the most effective first-line drug, and 78% of those people had multidrug-resistant TB. Yet only 187,000 DR-TB cases were detected. The spread of DR-TB is exacerbated by the lack of rapid, accurate diagnostic tests for comprehensive drug susceptibility testing (DST). Culture-based DST is the current standard of care, but it is slow and comes with significant biosafety hazards and minimal potential for cost reductions.

NEXT-GENERATION SEQUENCING (NGS)
refers to sequencing technologies that can rapidly read and process millions of DNA sequences in parallel, to decode the genome of a person or bacterium. Sequencing of MTBC can identify genetic mutations that are associated with drug resistance – thus, comprehensive drug-resistance profiles can be effectively identified for accurate diagnosis and management of DR-TB. NGS techniques are already well established and used to inform personalized treatment decisions in oncology.

Targeted NGS has the potential to revolutionize the DST landscape as it can provide faster, safer and more comprehensive results that can inform clinical decision-making for existing, repurposed and new DR-TB treatment regimens.

Seq&Treat – bringing next-generation TB care to underserved communities – is a project designed by FIND to generate evidence and boost in-country capacity to support the global adoption of commercial, targeted NGS for affordable, scalable and rapid TB DST.

THE SEQ&TREAT PROJECT AIMS TO:
- Generate clinical evidence to support WHO global guidance for the use of targeted NGS for DR-TB diagnosis so that patients can be linked to the most appropriate care as quickly as possible.
- Establish a WHO global TB clinical knowledgebase.
- Evaluate proof-of-principle delivery models for integrating targeted NGS into existing diagnostic work streams.
- Facilitate adoption and scale-up of recommended NGS solutions in low and middle-income countries through knowledge-sharing and global procurement mechanisms.

Seq&Treat is a FIND project, made possible by funding and support from Unitaid, and builds on earlier sequencing work that has been supported by the Bill & Melinda Gates Foundation, the Australian government, and UK aid from the British people.

Unitaid accelerates access to innovative health products and lays the foundations for their scale-up by countries and partners.

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