Background and Reading Materials for Session 6: Innovations in Africa

The draft slides from Stop TB Partnership presented by Jacob Creswell are uploaded in this folder. Jacob will present an update on Stop TB's support of TB innovation broadly across several different teams since the Board meeting in Brasilia, with a focus on TB REACH work. The presentation concludes with an update from TB REACH Wave 10 and 11 and thinking about what lies ahead. The Stop TB presentation will be followed by eleven short (5 minutes each) presentations by innovators across the African continent highlighting different areas of work.

- Tuberculosis Reference Laboratory Bamenda, at the Center for Health Promotion and Research in Cameroon, will discuss using sputum pooling to address Xpert supply chain and cartridge shortages to improve access to molecular testing. Less than half of people with TB receive a rapid molecular test at diagnosis. This is due to many factors including insufficient budgets, poor supply chain management in-country, and competition for module space with other disease areas. Pooling is a method that can save 40% or more on cartridge costs and laboratory time and has been used in other disease responses such as HIV, STIs, and COVID-19. Cameroon is currently implementing the largest-scale pooling initiative worldwide, which has been integrated into routine care. This innovation has enabled twice as many people to access Xpert testing compared to what would have been possible without it. References on the results of pooling from Cameroon and Nigeria are in the links.

- While the TB community has benefited from a relatively large pipeline of new diagnostic solutions, the new tests can also create confusion for laboratory information systems and managers trying to coordinate specimen flows, transport, service machines and document results. MedX is a Ugandan company that supports countries across the continent with connectivity solutions. They will talk about their work around Digital Monitoring of Equipment Maintenance: A Case Study in Ethiopia

- The USAID-funded Introducing New Tools Project supported the introduction of several new technologies across 11 countries globally including the largest coordinated rollout of Truenat, several types of digital adherence technologies, ultraportable X-ray with AI, and others. One talk from KNCV Nigeria will provide a quick overview of taking these different technologies to scale, while a presentation from Kenya will present how Centre for Health Solutions Kenya moved from innovation to national policy.

- Lesotho has a challenging natural landscape and high rates of TB and drug resistance with major barriers for diagnosis, care and treatment for people with TB. Partners in Health (PIH) Lesotho has embarked on a mission to support people with DR-TB to end TB in Lesotho, with a comprehensive package of care. This includes establishing mini laboratories in supported sites in rural locations, renovated X-ray rooms, and expanding maternal waiting homes. PIH also provides social support to people with DR-TB including food packages, transport, housing, and medical bills support, and will share the results of this work.

- Last year, Stop TB organized a media tour to a TB REACH project in Mozambique that provided care to people deprived of their liberty in three prisons in the country. Some of the articles can be found here and here. The Mozambique National Penitentiary Service will

present how they are working with the NGO Health Through Walls to provide integrated screening for TB and other health conditions to a key and often forgotten population.

- Active case finding has long been a major component of TB REACH projects – reaching people with diagnostic services closer to where they live and work. In Northeast Nigeria Janna Health Foundation (JHF) is not just providing outreach services but using state of the art technology to reach marginalized and stigmatized groups like nomads, and thousands of internally displaced people fleeing the Boko Haram. This work has been facilitated by a Starlink system, an ultra-portable X-ray system and AI. JHF has been working with these populations for several years and different results can be found at the following links: one, two and three.

- Since the 2021 WHO Screening Guidelines recommended the use of AI to interpret chest X-ray (CXR) for TB screening and triage, there has been an explosion of interest both from implementers and developers of the technology, which is often coupled with portable X-ray to assist in active case finding initiatives. Vertice is a South African company that provides end-to-end solutions for screening with chest X-ray and AI across the continent and will discuss Vertice's integrated TB screening solutions for Africa as well as a collaboration with Google to develop an AI software to help high TB burden countries screen people. Stop TB conducted a evaluation of the Nexus product which can be accessed here.

- Although the WHO 2021 screening guidelines incorporating AI for TB screening were groundbreaking, one population stands out for being not included – children. Children with TB are missed at a far higher rate than adults, and many children die because they cannot get a diagnosis and lifesaving treatment. CXR for pediatric diagnosis is a critical tool, but in so many high TB burden countries, having trained human readers for pediatric CXR is limited to a few sites in reference hospitals. The CIDRZ team from Zambia has been working on AI for CXR reading since an early Wave 1 project – long before the flood of interest in the technology came to the global stage. CIDRZ is working on a comprehensive analysis of the performance of AI for CXR in children which, along with other's work, may be able to direct global policy for children who could benefit from the technology. Two of the few studies on AI for children can be found here and here with an editorial about how the global community needs to think about evidence generation here.

- Part of the high-level meeting (HLM) targets is putting more people onto TB preventative treatment (TPT). Although great process has been made for PLHIV, the number of household contacts and children under 5 is quite low globally. Several of TB REACH's Wave 10 projects worked to get more people onto TPT using different approaches and different TPT regimens. One way interventions aim to increase the number of people on TPT is by providing tests for TB infection to help demonstrate the need for treatment and encourage uptake. TB REACH projects from Uganda and Zambia will share their experiences using new tests for TB infection to improve uptake of TPT. Stop TB's Global Drug Facility announced earlier this year that one of the tests is now available in the GDF catalog.