

**Title:** Driving Away the Twindemic of Diabetes and Tuberculosis in Andhra Pradesh

**Authors:** Trevor Barker, Sonola Burrja, Rebecca Korenberg, Hikari Tanaka, Sam Woo

**Background:** Known as the diabetes capital of the world while also having the highest tuberculosis (TB) disease burden in the world, India faces significant challenges in its management of these twin epidemics. (International Diabetes Federation, 2021; World Health Organization, 2021). Diabetes mellitus (DM) not only increases the risk of developing active TB but also compromises TB treatment outcomes (Pardeshi et al., 2024; Hayashi et al., 2018), leading to higher mortality rates and increased healthcare costs (Huangfu et al., 2019). Early screening can reduce transmission and improve health outcomes (Geneva, World Health Organization, 2021).

For this proposal we are focusing on Andhra Pradesh, an Indian state where 31% of the population currently has a dual comorbidity of DM and TB (Viswanathan et al., 2012). 70% of the population lives in a rural area, which poses challenges with healthcare accessibility (Planning Department, Government of Andhra Pradesh, 2023). Mobile medical units (MMUs) have been successfully providing healthcare in remote, low-resource areas (Kumar et al., 2009; Akhtar et al., 2023). Additionally, Andhra Pradesh has been recognized for their use of electronic healthcare tracking with their CORE Dashboard system. The success of these health care initiatives in Andhra Pradesh has motivated us to continue bolstering screening and electronic monitoring to tackle the twindemic of TB and DM.

**Our Solution:** Screening for latent TB among diabetic patients in rural Andhra Pradesh by deploying mobile medical units, training community health workers, and tracking positive results.

**Methods:** Our solution contains three main pillars: 1) dispatching Mobile Medical Units (MMUs) to screen for latent TB among diabetics, 2) training local community health workers from Andhra Pradesh on proper TB-diabetes management and 3) leveraging electronic platforms to improve case tracking and patient care. Currently, Andhra Pradesh has 1,215 MMUs in operation, which we plan to continue using to screen and treat patients for TB. In our proposal, we are focusing on detecting and treating latent TB specifically among the high risk group of diabetic patients. In addition to current services, our proposal will implement latent TB screening for diabetic patients using the CyTb blood test, which is both cost effective and able to detect latent and active TB. This innovative approach involves MMU nurses administering the Cy-TB skin test. The next component of our plan is stationing local community health workers (CHWs) in remote communities. CHW will work among a community they are familiar with to follow up with positive patients, collect tracking data and educate patients on relevant health risks. Lastly, we will utilize Andhra Pradesh's electronic tracking system, CORE Dashboard to track cases and centralize data across private, public and local healthcare providers. We plan to develop an accompanying phone application where providers can directly communicate with patients, and where patients can receive healthcare education. This integrated approach addresses the pressing healthcare needs of rural communities, particularly focusing on early detection and intervention.

**Impact:** Our solution targets the challenges of accessing remote communities by focusing on improving care accessibility and standardization through mobile medical units. We address the problem of outdated and unstandardized care and documentation through consolidated electronic records. Lastly, we recognize the heightened risk of TB among patients with diabetes and are therefore focusing our efforts on detecting latent TB to prevent future outbreaks. Our strategy is leveraging technology and local relationships to promote long-term health within the communities we service.

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