

Digital Assistance Tools Improves Timely Access to Tuberculosis Preventive Therapy: A Retrospective cohort Study in Southern Nigeria

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Background

In January 2023, the Accelerating Control of Epidemic (ACE5) project, with funding from PEPFAR/USAID developed a digital assistance tool (DAT) to serve as a TPT initiation reminder system for health care worker.

Aim

This study examines the time to TPT initiation after the introduction of the tool.

Methods

This retrospective cohort study included PLHIV who did not receive TPT at ART initiation due to delays for TB testing, across 225 health facilities in Akwa Ibom and Cross River States, Nigeria. DAT was designed to pull aggregate data from DHIS2 at scheduled intervals. This data was linked to Power BI using direct API (Application Programming Interface) connections. Healthcare providers used the tool to visualise TPT initiation gaps arising from a confirmed negative TB test real-time, triggering a tracking process to provide TPT to the client (Figure 1). Data on ART initiation dates and TPT initiation dates were collected

over 12 months before (January-December 2022), and (July 2023 to June 2024) after the roll-out of the tool. Only PLHIV on ART until June 2024 were included. Time to TPT initiation (weeks between ART initiation and TPT initiation) was analysed by site type (TB diagnostic hub or non-TB diagnostic hub), age group (children 0-14years, or adult), and client residence. All data were analysed using STATA 14.

Results

A total of 8,975 and 9,300 PLHIV initiated ART pre- and post-digital tool roll-out respectively, with 37.3% (3351/8975) and 16.0% (1486/9300) PLHIV not receiving TPT at ART initiation respectively. Within the 12months follow-up, TPT initiation among those who missed TPT was 88.6% (2969/3396) and 68.3% (1015/1496) pre- and post-digital tool roll-out respectively. The mean time to TPT initiation was 5 weeks (SD±10.2) pre-roll-out and 2 weeks (SD±6.4) post-roll-out ($p<0.001$). Mean time to TPT initiation reduced significantly by 4 weeks among children (7weeks vs 3weeks) compared to 3weeks among adults ($p<0.001$). Table 1.

PLHIV Characteristics	Child	Adult	Initiated ART at TB diagnostic hub	Initiated ART at Non-TB diagnostic hub	Resident in same Local Government as health facility	Resident in different Local Government from health facility
Time to TPT initiation (Pre-intervention)	7 weeks (SD:±14)	5weeks (SD:±10)	8 weeks (SD=±12)	5 weeks (SD:±10)	5weeks (SD:±10)	5weeks (SD:±11)
Time to TPT initiation (Post-intervention)	3weeks (SD:±8)	2 weeks (SD:±6)	2 weeks (SD:±7)	2 weeks (SD:±6)	2weeks (SD:±6)	2 weeks (SD:±7)

Table 1: Time to TPT initiation by PLHIV characteristics pre- and post-roll-out of the digital assistance tool (DAT)

Conclusions and recommendations

The use of a digital assistants showed that while reducing TPT initiation time improves efficiency, identification gaps may remain. Closing linkage gaps in treatment programs should adopt a multifaceted approach and interventions adjusted dynamically.

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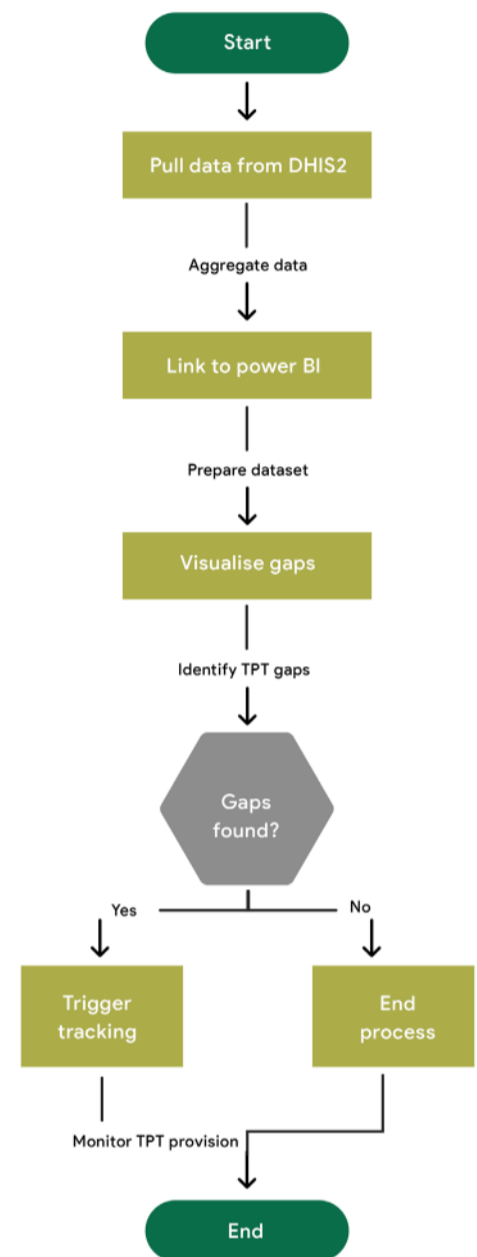


Figure 1: Digital assistance tool (DAT) process flowchart

Using a digital assistance tool helped reduce initiation time for Tuberculosis preventive therapy