DIGITAL SCREENING FOR EARLY TUBERCULOSIS DETECTION IN PRIMARY HEALTH CARE: PILOT IMPLEMENTATION IN TASHKENT, UZBEKISTAN

R. Usmanova[1,2]
N. Parpieva[1]
I. Liverko[1]
L. Kalandarova[2]
[1]Republican Specialized Scientific Practical Medical Center of Phthisiology and Pulmonology named after Sh. Alimov, Tashkent, Uzbekistan,
[2]Tashkent City Center of Phthisiology and Pulmonology, Tashkent, Uzbekistan
https://doi.org/10.5281/zenodo.20922143

Background. Timely tuberculosis (TB) detection remains a major challenge, particularly during periods of health system disruption when access to care is reduced and symptoms are frequently overlooked. Digital health tools may strengthen symptom screening and support early identification of individuals requiring further diagnostic evaluation.

Methods. A pilot implementation study was conducted in September–October 2025 in two primary health care facilities in Tashkent, Uzbekistan. A digital screening tool was developed using an algorithm based on WHO-recommended TB symptoms and predefined risk factors. Adults aged ≥18 years completed self-screening. Based on symptom and risk-factor assessment, participants were stratified according to predefined criteria and referred for chest X-ray (CXR) and/or Xpert MTB/RIF testing when indicated.

Results. A total of 441 individuals initiated screening through the digital tool. After excluding 14 participants aged <18 years, 427 adults were included in analysis, of whom 394 (92.3%) completed the full screening pathway (table).

Table. Key outcomes of digital screening and patient routing

Indicator	n	%
Adults included in analysis	427	100.0
Completed screening pathway	394	92.3
Referred for diagnostic evaluation	76	17.8
Sputum-based referral (Xpert MTB/RIF + CXR)	22	28.9*
Symptom-based referral without sputum (CXR)	32	42.1*
Referral based on risk factors only (CXR)	22	28.9*
Confirmed pulmonary TB	2	2.6*
CXR findings suggestive of TB	7	9.2*
*Among referred individuals (n=76)		

Based on the routing algorithm, 76 individuals were referred for diagnostic evaluation. Confirmed pulmonary TB cases were detected exclusively among individuals assigned by the algorithm to the highest diagnostic priority group. Medical staff assistance during referral was requested by 96 participants (23.9%), while 18 referred individuals (23.7%) did not attend diagnostic evaluation.

Conclusion. The digital screening tool was feasible for use in primary health care and supported standardized symptom screening and targeted referral for TB diagnostic evaluation. Identification of confirmed TB cases exclusively among individuals assigned to the highest

diagnostic priority group highlights the potential of this approach to strengthen early detection and help reduce diagnostic delays.