

Leveraging Ayushman Arogya Mandir to Strengthen Decentralized TB Services: A successful model in Himachal Pradesh, India

Background: Himachal Pradesh is one of the high TB burden states (208/100 000 population against national average of 199/100 000 population) of the country. With remote and difficult-to-reach areas and mountainous terrain, early diagnosis and management of TB becomes essential to break the chain of transmission. Ayushman Arogya Mandir (AAM), introduced under India's Ayushman Bharat initiative, are designed to extend essential primary healthcare including TB programme services to the community level. In this context, the state has strongly leveraged these peripheral health institutions for decentralized holistic TB programme service delivery to not only improve access but also ensure continuum of care. The objective of the study is to evaluate the performance of AAMs in key TB programmatic indicators as well as the access to TB services in the community.

Methods: In June 2022, the state has designed and implemented targeted interventions through AAMs, combining trained human resources, community-based outreach and case detection efforts. As per Table 1, the state implemented a structured policy framework within the AAMs based on the 4 pillars of the National Strategic Plan focused on capacity building, case finding and case holding, community engagement, TB Preventive services and post-TB care. The parameters assessed for AAMs for 2024 vis-e-vis 2022 using z-proportion test were: i) referral for persons with presumed TB ii) person with TB case holding capacity iii) diagnostic yield additionally, iv) Sunday ACF outcomes v) post-TB follow-up outcomes vi) access measured by median distance. The data source is Ni-kshay (India's digital TB surveillance system) and data collected using state-specific mobile application and analysed in SPSS ver 22.

Results: Over 2,073 AAMs across the state were trained and equipped to provide TB services. Comparing 2024 against 2022, the referral of persons with presumed TB has increased from 10% to 27% [$z=128.6661$ ($p<0.05$)] showing extensive case finding efforts and moreover, the diagnostic yield has improved by 3.2%. The case holding capacity of the AAMs to manage and follow-up persons with TB has improved from 18.6% to 37% [$z= 36.503$ ($p<0.05$)], suggesting improved case management and continuity of care at the grassroots level. The Sunday ACF conducted in 2024 screened over 17 lakhs (25% of the total state's population), with 4% presumed TB identified and tested for upfront NAAT and with a 2% contribution to the total state's TB notification. For the post-TB follow up, the CHOs have conducted 85% of the door-to-door screening among eligible post-TB treatment (32,004) population with 20% presumed with TB and tested and 2.4% diagnosed with recurrent TB in this population. The median distance to the nearest secondary health centre (with diagnostics) dropped from 16 km (IQR: 20.5 km) to 4 km (IQR: 3 km) for AAMs, a change that was statistically significant ($p < 0.05$), reflecting enhanced service accessibility.

As per Government of India guidance to engage AAM Centres in NTEP activities, I initiated discussions with the Deputy MD-NHM to decentralize services at the CHO level in Himachal Pradesh. State-level orientation was conducted for district NTEP staff and CHOs, followed by district-wise training sessions. With strong coordination, CHOs actively took up key responsibilities at AAM level, including drug distribution, ACSM activities, patient registration, treatment initiation, counselling, and maintaining

treatment records. CHOs also entered data in the TB Mukht Himachal application and became fully active on social media through official AAM handles.

These efforts were implemented even before national guidance during the 100-day campaign, and now most activities are being carried out at the AAM level. Additionally, ACSM-NTSU developed a standardized sunboard highlighting CHO roles and responsibilities, which has been installed at all 2,073 AAM centres across the state, with budget support from NHM. This model has significantly strengthened decentralized TB services and community engagement

Conclusions: Himachal Pradesh through its successful implementation framework for decentralised TB services through AAMs has strongly proven that building grassroots services not only closes the TB service delivery gaps but also promotes a replicable model to accelerate the achievement of end-TB goals in similar remote and hard-to-reach geographies.

Table 1: Implementation framework for decentralized TB services at the HWC

Build - Community Health Officers (CHOs), in-charges at AAMs undergo a two-day intensive training on the National TB Elimination Programme (NTEP) guidelines - CHO performance was reviewed monthly, with recognition for high-performing centres to promote accountability and motivation. - CHOs facilitated TB awareness during Jan Aarogya Samiti (JAS) meetings and 'TB free Panchayat' forum meetings to improve outreach and community engagement.	Detect - CHOs monitor Sunday Active Case Finding by community volunteers and mobilise vulnerable population for X-ray based screening. Refer and collect sputum samples of persons presumed with TB for NAAT testing and supervise sample transportation through community volunteers. - CHOs carry out home-based contact tracing of household and close contacts of persons with TB. - CHOs carry out community-based Post-TB Treatment Follow-up to ensure continuum of care.
Treat - CHOs to carry out 15-days clinical follow-up and treatment management of persons with TB. - CHOs to manage Adverse drug reactions through telemedicine services. - CHOs to monitor treatment adherence and nutrition status of the person with TB.	Prevent - CHOs to refer household contacts of persons with TB for evaluation of TB preventive treatment (TPT). - CHOs to offer Cy-TB test (TB Infection test) to vulnerable population with normal chest X-ray and further evaluated for TPT. - Nutrition and air infection control counselling to the TB-affected families.