Decentralized Tuberculosis Surveillance for Advocacy, Local planning, and Action: A case study from Kerala, India

India is committed to achieve the sustainable development goals targets related to ending tuberculosis (TB) by 2025, 5 years ahead of the global timeline.[1] For achieving such ambitious targets, community engagement is of top priority in the proposed National Strategic Plan 2020–25 for India.[2] In the End TB Summit 2018, the Prime Minister of India urged the state governments and local bodies to make TB-Free cities and villages at their own level.[3] Local governance is established in rural India through a three-tier Panchayati Raj system and in cities and towns through urban bodies (municipal corporations and municipalities) as local self-government (LSG), consequent to the 73rd and 74th amendments to the constitution. Peoples’ representatives to the local bodies are elected through the democratic electoral process. The role of these local bodies is increasing in local health care delivery and community engagement.

The Government of Kerala, the southern Indian state, has launched “Kerala TB Elimination Mission” in 2018 as “people’s Movement against TB” through community ownership and social mobilization.[3] The state has 941 Grama (village) Panchayats, 87 Municipalities and 6 Corporations. Kerala TB Elimination Mission is being implemented through the stewardship of LSG bodies with the theme “My TB free panchayat/municipality/corporation.” TB Elimination Task Forces, chaired by the elected head of the LSG with other elected representatives, officials of all government departments including health, community volunteers and TB survivors were formed at LSG level. Task forces plan, implement, and review TB Elimination activities of that LSG area. Implementation include awareness generation, mapping of TB vulnerabilities of LSG’s citizens, vulnerability reduction interventions such as nutritional supports and ant-tobacco campaigns, active case finding, social support for treatment adherence and rehabilitation of survivors. When activities for TB eliminations are planned, implemented, supervised, and monitored at the most peripheral LSG level in Kerala, there was a need to capture and analyze TB data at that level.

Presumptive TB examination rates and TB notification rates (total, pediatric, drug-resistant), and outcomes of treatment were calculated LSG wise. The residential address of each presumptive TB was captured manually from laboratory (microscopy/GeneXpert) registers since these registers have not been digitalized when the decentralized surveillance started. Address of diagnosed TB patients was captured from NIKSHAY, the web-based, case-based surveillance tool of the National TB Elimination Program, and is coded against the name of LSG. This gives an indirect understanding on the efforts for TB detection and progress towards TB Elimination in each LSG. Thematic maps of presumptive TB per 1000 population and notified TB/100,000 population were compared at the district/state level. Figure 1 shows examples of various maps created by program managers. Such simple maps have helped the program managers and LSGs in the following ways:

1. Identify areas where presumptive TB examination rates are lower, explore reasons and plan interventions. For example, program manager looking at Figure 1a could identify the areas where presumptive TB examination rates are lower. 127 new Designated Microscopy Centers were started in the state based on this mapping in the last 2 years.

2. Identify hot spots and silent spots of TB cases, explore reasons for the same and plan interventions: For example, as shown in Figure 1b and 1c, program managers could identify areas with high incident TB cases and plan for interventions to reduce transmission. Looking Figure 1b along with 1a could tell whether the lower notification of TB in some of the areas were due to poor case finding efforts. Steps may be taken in such areas to improve the case finding efforts. Areas with lower incident TB cases despite having a high presumptive TB examination rate could be considered for accelerating the impacts for TB elimination.

3. Insights to Local TB Epidemiology: With the same district, there are geographical areas with wide variations in TB epidemiology. To cite an example, certain blocks in Idukki district [Figure 2] had significantly low incident TB cases despite high case finding efforts when compared to other areas in the same district. This reiterated that “one size shoe may not fit for all” and “local planning and customization of strategies are important.”

4. To understand the trend in TB indicators and prioritize areas for actions. Figure 2 compares the block based incident TB notification of Idukki district over the years. This has helped to identify areas where incident TB cases were reducing, increasing or remaining stagnant over the years.

5. Identify areas with high lost to follow-up rates. Treatment support groups were formed in priority areas with high lost to follow up rates. This helped to reduce state’s lost to follow-up rates from 4% to <2%.

6. Advocacy for community ownerships: Out of 1034 LSGs (Grama Panchayat/Municipality/Corporation), 561 LSGs had zero pediatric TB, 709 LSGs had ZERO Drug.
Resistant TB and 688 LSGs had ZERO lost to follow-up for 12 consecutive months in 2019, despite having a high presumptive TB examination rate. Awards were given to all such LSGs on October 02, 2020 by Health Minister of the State. This sustains their motivation and instills competitive spirits. With a robust scientific methodology, a plan for subdistrict certifications could be developed.

Decentralized capturing and analyzing TB surveillance data are possible. It will help to identify trends and program performance for developing local plans and solutions for TB elimination. It will also help program managers to prioritize and target specific geographical areas for interventions. Further, it may develop healthy competition among local bodies to ensure political stewardship and foster community ownership which will lead to social mobilization.

There are some limitations for such kind of surveillance. The program managers and people who use these information need to understand that while doing analysis for small population denominators, subtle changes in numerators can have marked variations while calculating the rates. Furthermore, such kind of surveillance may not be practical in geographical areas with high in and out migration. More importantly, the national digital surveillance system for TB should use geographic markers to enable preparation of spot maps and thematic maps to identify hotspots and clusters for local action by a single local body or by a cluster of local bodies.

Kerala state has planned decentralized surveillance based on Panchayats. Other states may appropriately decide the geographical boundaries for which they need to capture the information depending on how and for what they want to use the information. Review of such surveillance information by Village Health, Nutrition and Sanitation Committee for local planning and action will be an opportunity. Engendering community leadership and forging collaborations at local level will be the cornerstone for TB-free villages, blocks, districts, states, and nation.

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P. S. Rakesh, Shibu Balakrishnan, Sunilkumar Mrithunjayan, Sairu Philip
National TB Elimination Program, WHO, State TB Cell, National TB Elimination Program, WHO, State TB Cell, Thiruvananthapuram, Department of Community Medicine, TD Medical College, Alappuzha, Kerala, India

Address for correspondence: Dr. P. S. Rakesh, National TB Elimination Program, WHO, State TB Cell, Thiruvananthapuram, Kerala, India. E-mail: rakeshrenjini@gmail.com

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