

Original Research Article

Proportion of pulmonary tuberculosis cases diagnosed at different levels of health care across fourteen districts of Kerala

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Received: 08 July 2020

Revised: 15 August 2020

Accepted: 17 August 2020

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ABSTRACT

Background: It is estimated that 10.4 million cases and 1.7 million deaths occur due to tuberculosis (TB) globally. More than one quarter of TB cases and TB-related deaths worldwide occur in India each year. Kerala's TB incidence is estimated to be 67 cases per 100,000. Objective was to estimate the proportion of Pulmonary TB cases diagnosed at different levels of the health care system across all the fourteen districts of Kerala from January to September 2019.

Methods: A secondary data analysis was conducted on information obtained from the NIKSHAY portal from January to September 2019. Proportion of cases detected at PHC, CHC, THQ, District hospital and other tertiary care facilities was computed. Statistical analysis was performed using statistical package of social sciences (SPSS) version 23.0.

Results: The maximum number of new TB cases (70.8%) was being detected at the primary care level, while 20.3% of new cases were detected from tertiary care centres and 8.9% from secondary care centres. At the primary healthcare level, the maximum number of newly diagnosed TB cases was reported from Wayanad district (88.0%) while, in the secondary and tertiary care levels, Kollam district was found to diagnose the maximum number of new TB cases (24.0% and 48.4% respectively).

Conclusions: In this study, majority of the new TB cases were being diagnosed at the Primary health care level. However, in few districts the secondary and tertiary care centres were found to be diagnosing a greater number of cases.

Keywords: Kerala, Levels of healthcare, TB

INTRODUCTION

Globally it is estimated that there are 10.4 million cases and 1.7 million deaths occurring due to tuberculosis (TB).¹ The main strategies to control TB are early diagnosis and prompt treatment initiation.² Passive case-finding is the main approach currently applied by most national TB control programs (NTPs).³ More than one quarter of TB cases and TB-related deaths worldwide occur in India each year.⁴ In 2018, the 30 high TB burden countries accounted for 87% of new TB cases. Eight

countries account for two thirds of the total TB cases with India leading the count, followed by, China, Indonesia, the Philippines, Pakistan, Nigeria, Bangladesh and South Africa.⁵ The main cause of Mycobacterium tuberculosis spread is the delay in its diagnosis and thus preventing its elimination. Another major problem that the world is facing is that about one-quarter of its population is suffering from latent TB.⁶

However, Kerala's TB incidence is estimated to be 67 cases per 100,000 and it is aiming to be the first state in

India to achieve TB elimination.⁷ Numerous interventions and support systems have been put in place to do so. One of which is to strengthen the diagnosis of TB at all levels of healthcare especially at the primary level.⁸ Therefore the aim of the study was to estimate the proportion of pulmonary TB cases diagnosed at different levels of health care sectors across the 14 districts of Kerala in the year of 2019.

METHODS

A cross sectional study was carried out using the secondary data obtained from NIKSHAY portal, Kerala. The data was obtained from the state TB cell officer of Government of Kerala after Institutional Ethical Committee clearance.

NI-KSHAY- (Ni=End, Kshay=TB) is the web enabled patient management system for TB control under the National Tuberculosis Elimination Programme (NTEP). It is developed and maintained by the Central TB Division (CTD), Ministry of Health and Family Welfare, Government of India, in collaboration with the National Informatics Centre (NIC), and the World Health Organization Country office for India.

This study aims to estimate the Proportion of pulmonary TB cases diagnosed at different levels of health care across fourteen districts of Kerala, 2019. The proportions were detected at primary health care (PHC, 24-hr PHC, CHC), secondary health care (THQ), and tertiary health care (district hospital, DTC, GH, MC) facilities were computed.

Inclusion criteria

All registered cases in NIKSHAY portal who were suffering from Pulmonary TB from the month of January 2019 to September 2019 were included in the study. There were a total of 10,924 patients with pulmonary TB cases from all the 14 districts of Kerala.

Exclusion criteria

All extra pulmonary TB cases were excluded for the study.

The percentages and 95% confidence interval were estimated for all pulmonary TB cases diagnosed at all the different levels of health care sectors (primary, secondary and tertiary).

RESULTS

Out of the 10,924 patients, the maximum number of new TB cases (70.8%) was being detected at the Primary care level, while 20.3% of new cases were detected from tertiary care centers and only 8.9% from secondary level (Figure 1).

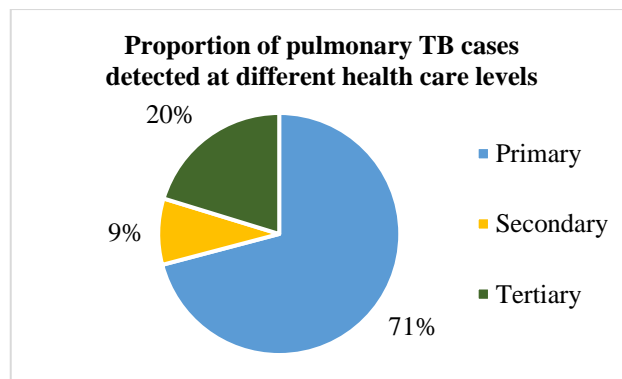


Figure 1: Proportion of pulmonary TB cases detected at different healthcare levels.

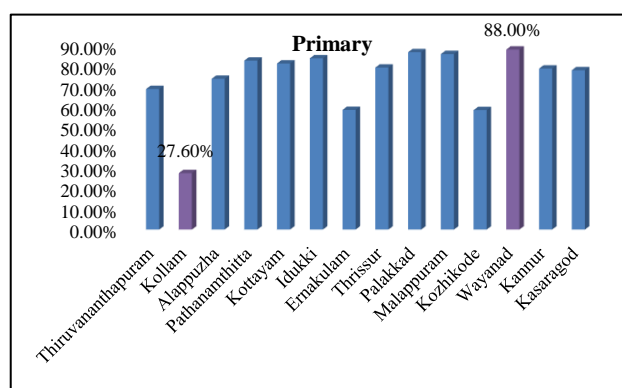


Figure 2: Proportion of TB cases detected at Primary health care centers across the 14 districts of Kerala.

At the primary healthcare level, the maximum number of newly diagnosed TB cases was reported from Wayanad district (88.0%) and the least from Kollam district (27.6%). While, in the secondary and tertiary care levels, Kollam district was found to diagnose the maximum number of new TB cases (24.0% and 48.4% respectively). Kasaragod district reported the least number of newly diagnosed TB cases (0.3%) at the secondary level and Malappuram district diagnosed the least number of new TB cases from the Tertiary level (5.8%). (Figures 2-4).

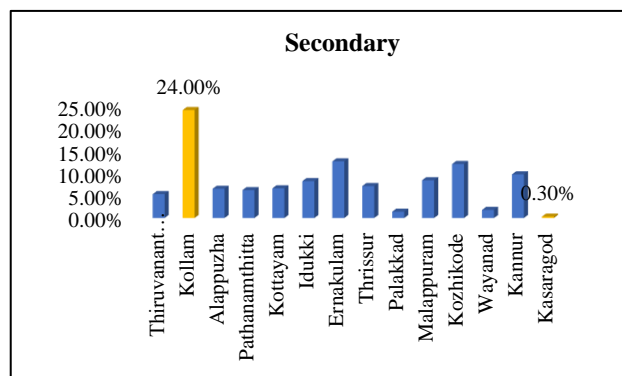


Figure 3: Proportion of TB cases detected at secondary health care centers across the 14 districts of Kerala.

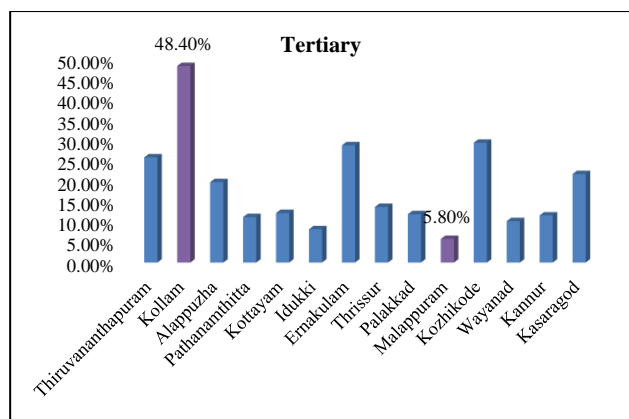


Figure 4: Proportion of TB cases detected at tertiary health care centers across the 14 districts of Kerala.

DISCUSSION

In this study it was observed that majority of the new TB cases were being diagnosed at the Primary health care level. Even though this was a promising finding, it was observed that more than one fourth of the cases were still being diagnosed at the tertiary and secondary healthcare centers. Indicating the fact that cases were being missed at the patient's first level of contact with the health system i.e. the PHCs. These missed patients were then only being diagnosed much latter when complications developed at the tertiary and secondary care levels. A study done by Veesa et al, on diagnostic pathways and direct medical costs incurred by new adult pulmonary tuberculosis patients prior to anti-tuberculosis treatment- Tamil Nadu, India, they found the majority of rural TB patients registering at PHCs visited private health facilities first and incurred substantial direct out of pocket medical costs and delays prior to diagnosis and anti-tuberculosis treatment initiation. This study highlights the need for PHCs to be made as the preferred choice for first point of contact, to combat TB more efficiently.⁹

Delay in diagnosis often results in further spread of TB and has been identified as a major barrier for TB elimination.¹⁰ Failure to diagnose TB at the primary care level also, results in the wastage of human resources at the secondary and tertiary healthcare levels.¹¹ Since, TB diagnosis and management can be easily carried out the primary care level and when this opportunity is missed it reflects a system failure.¹²

Since the study is based on the secondary data analyses of Pulmonary TB cases from the NIKSHAY portal only limited statistical analyses were carried out.

CONCLUSION

The study observed that for Kerala to achieve the goal TB elimination by 2025, it needs to further strengthen the healthcare system especially at the primary care level. There is an urgent need not only to create awareness at

the community level but also to empower our healthcare professionals regarding the recent updates on TB management so that diagnostic & treatment delays can be prevented. Imperative action needs to be taken at the earliest to ensure the complete implementation of the integrated four- step strategy of "Detect-Treat-Prevent-Build" in order to achieve the goal of a TB Free India.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Vinod VA, George LS, Joy A, Mathew MM, Vijayakumar K, Kunoore A, et al. Proportion of pulmonary tuberculosis cases diagnosed at different levels of health care across fourteen districts of Kerala. *Int J Community Med Public Health* 2020;7:3636-9.