

Increased Case Finding among high risk groups by Mobilizing Frontline Health workforces in Kathmandu Valley

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ABSTRACT

Abbreviations: SS+: Sputum Smear Positive; TB: Tuberculosis; MDRTB: Multidrug-Resistant TB; WHO: World Health Organization

Mini Review

Among garbage collectors, people living with TB symptoms, street children and contacts with Tuberculosis Patients total 157652 were screened, out of total screened, 32879 (21%) were identify with TB sign and symptoms. Out of total people living with TB symptoms, 83% (27346) were identified in the community and private pharmacies visited for the sputum examination. Among total examine 284 people were diagnosed as Sputum Smear Positive (SS+). Two third of diagnosed cases were male and their mean age was 37. The intensive community engagement activities and door-to-door visits has improved the health seeking behavior of the target groups. Among total diagnosed cases 269 (95%) cases enrolled to treatment from the nearby DOTS centers. This intervention contributes to identify 15% (284/1859) of the additional TB case finding in the Kathmandu valley.

Out to total people living with TB symptom, 284 were diagnosed tuberculosis. Among them 193 (68%) were referred from the private sector Private Pharmacists contributed to the early diagnosis of TB by referring people living with TB sing and symptoms, who had visited in their pharmacy. They also have a critical responsibility towards ensuring a consistent supply of medicines, promoting rational use of drugs and providing information to patients and this

should be no different for anti-TB medicines. The private and public sector need to work together if TB is to be brought under control. NTP needs to involve the private sector in tuberculosis control programmes, so as to ensure a more comprehensive management of TB patients.

Global Scenario of TB

Tuberculosis is a global pandemic, killing someone approximately, every second nearly 1.5 million in 2014 alone. One-third of the world's burden of tuberculosis (TB), or about 4.9 million prevalent cases, is found in the World Health Organization (WHO) South-East Asia Region (WHO, Tuberculosis in the WHO South-East Asia Region, 2010) [1]. The disease, which is most common among people in their productive years,1 has a huge economic impact [2]. For instance, in 2006, TB caused India to lose an estimated 23.7 billion United States dollars [3]. Fortunately, multidrug-resistant TB (MDR-TB) still occurs in fewer than 3% of new cases and 18% of re-treatment cases in the region [4]. However, the high TB incidence makes even these low percentages translate into a large number of patients. Extensively drug-resistant TB has also been reported in Bangladesh, India, Indonesia, Myanmar and Thailand [5]. More than 2 million patients are diagnosed annually by national TB pro-

grammes in the South East Asia Region, which thereby contribute greatly to global case detection. India alone notifies nearly 25% of all cases in the world. According to WHO estimates, TB prevalence, incidence and mortality in the region have declined steadily since 1990. However, these efforts will not suffice to achieve the TB targets set under Millennium Development Goal 6, which are to halve TB prevalence and mortality and reverse TB incidence by 2015 [6].

Globally, in 2014, 9.6 million people fell ill with TB and 1.5 million died from the disease TB occurs in every part of the world. In 2014, the largest number of new TB cases occurred in the South-East Asia and Western Pacific Regions, accounting for 58% of new cases globally. However, Africa carried the most severe burden, with 281 cases per 100 000 population in 2014 (compared with a global average of 133). In 2014, about 80% of reported TB cases occurred in 22 countries. The 6 countries that stand out as having the largest number of incident cases in 2014 were India, Indonesia, Nigeria, Pakistan, People's Republic of China and South Africa [7]. The Millennium Development Goal target of halting and reversing the TB epidemic by 2015 has been met globally. A total of 278 TB suspects were identified on enquiring on the presence of symptoms suggestive of TB. Out of them 221(79.5%) patients got tested for sputum examination [8].

TB Burden in Nepal

In Nepal, in 2014/2015 total of 34121 TB cases were notified and enrolled for treatment in National Tuberculosis Program, expected New cases 45,000 per year [9], ironically, there is gap between case notification rate and expected new TB cases, there is hidden cases in our society. On other hand, empirically we can say, childhood TB is expected around 10% of all cases, so we can say there still missing huge amount of Childhood TB. Baseline information has decisive impact to advocate, design and implement program activities to address case finding related activities.

Objective

To evaluate the increase in case notification of smear-positive TB by active case finding at community-based microscopic camps

Operational Framework (Figure 1)

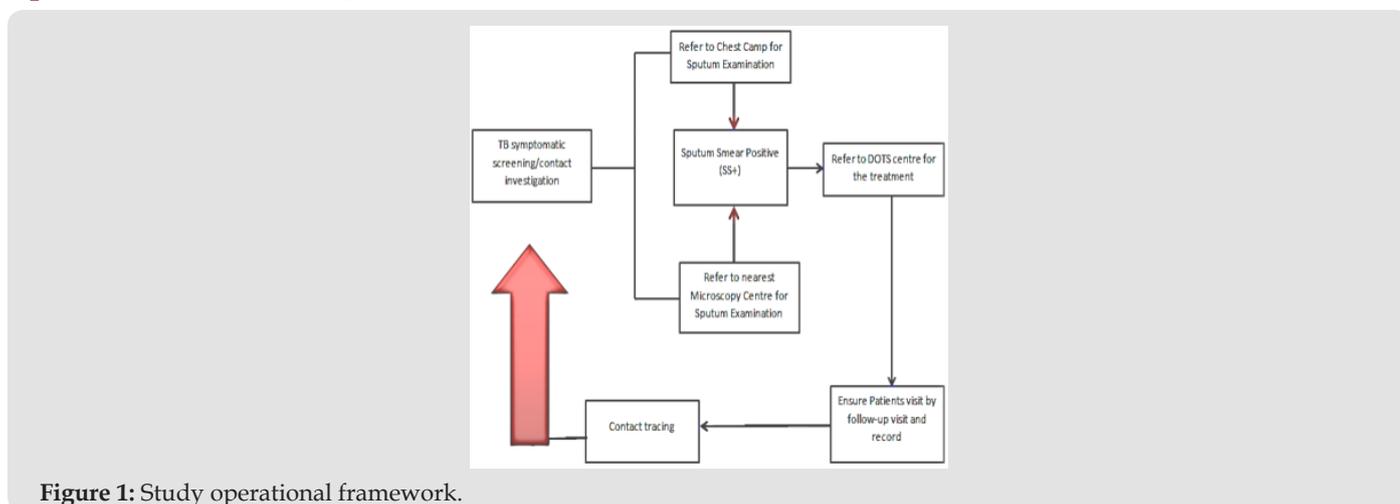


Figure 1: Study operational framework.

by engaging the private providers, Community Health Workers and NGO's Volunteer.

Study Location

We evaluated an active case detection intervention in three urban districts of Kathmandu Valley of Nepal.

Study Design

A cross-sectional study of TB case detection associated with a project using door-to-door visit and Microscopic camps.

Methodology

Study Population

The study was conducted in Kathmandu Valley (Lalitpur, Bhaktapur and Kathmandu), and sample population were garbage collector, school children garbage collectors, people living with TB symptoms, street children and contacts with Tuberculosis Patients.

Screening and Enrollment of Target Population

The survey design is cross-sectional and conducted in Kathmandu valley, and sample sub population were garbage collectors, people living with TB symptoms visited to Private pharmacies, street children and contacts of Tuberculosis Patients. The trained community health workers and volunteers conducted intensive community mobilization activities, performing door-to-door visit, refer the people living with TB symptoms found in community to nearby microscopy centers or mobile microscopic camps for the sputum examination.

Sputum Examination and Diagnostic of TB

Two sputum samples including one early morning and one the spot specimen was collected in same day and examine sputum in line with international standard and protocol of TB diagnosis. Diagnostic testing includes sputum AFB microscopic test.

Data Collection and Analysis of Data

Standard lab recording tools was developed, feed data in Excel from the Lab Register. Data analysis was done and presented in Bar Gram, Pie Chart, Scatter and Double Chart etc.

Lessons Learnt

Household-level screening for prolonged cough was effective to assess and identify people living with TB symptoms. Intensive Volunteer mobilization for door-to-door visit and for identification of presumptive TB is obviously, efficient and effective model, however, educational level and age factor of Volunteer is challenging issues. In inception phase of the study, private health care providers and private pharmacy were reluctant to involve, however, after series of meeting with them, they involved and their involvement helps to identify the people living with TB sign and symptoms, who are visits to private pharmacy for early sputum examination. Without accurate data, early detection of rising tuberculosis rates is challenging; so, mapping and situation analysis should be done to collect basic information in terms of target group, risk group's habitants, stakeholders etc. Door-to-door visit, Microscopic Camp and contact tracing of TB patient contacted person are the effective and efficient model for the active case finding, however, due to cause of funding gap, continuation of program is challenging issues.

Result

Screening and Sputum Examination

A total 157652 were screened for active TB, among them 76706 (49%) were male and 80946 (51%) were female. A total of 32879

(20.95) were presumptive TB patient among them 15877 (48%) were male and 17002 (52%) were female. A total of 27346 had attended in the microscopic camp among them 12702 (46%) were male and 14644 (54%) were female. A total of 284 (1.04%) were diagnosed as bacteriologically confirmed TB patient, among them 167 (59%) were male and 117 (41%) were female. Among the total diagnosed TB patient 269 were enrolled in the treatment among them 159 were male and 110 were female (Figure 2). According to Figure 3, of total 284 persons diagnosed TB, 159 (56%) were male and 125 (44%) were female. A total of 6 were years of age 5-14, followed by 103 were years of age 15-24, 44 were years of age 25-34, 37 were 35-44 years of age, 32 were 45-54 years of age, 26 were 55-64 years age, 36 were >65 years of age. Out to total people living with TB symptom, 284 were diagnosed tuberculosis. Among them 193 (68%) were referred from the private sector, among them 82 were female and 111 were male. A total of 67 (24%) tuberculosis patients were referred from the community/volunteers, among them 21 were female and 46 were male. A total of 24 (8%) tuberculosis patients were diagnosed from contact tracing, among them 14 were female and 10 were males (Figure 4). This reveals that establishing referral mechanism with private sector can increase case finding in the urban areas.

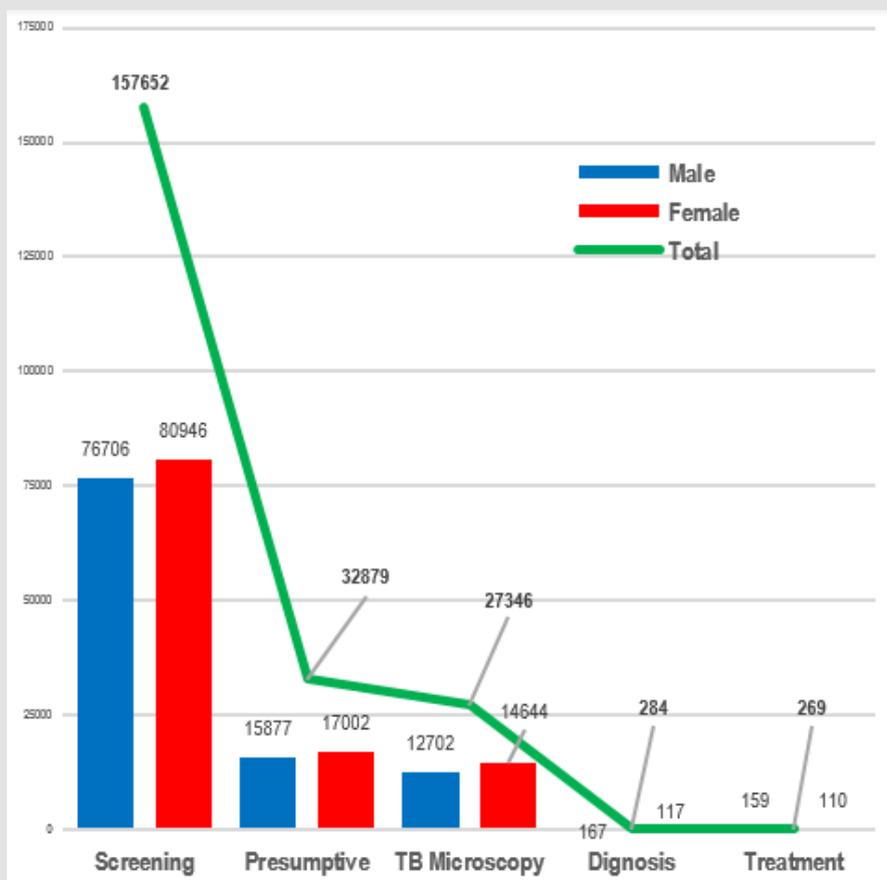


Figure 2: Distribution of screening and sputum examination (N).

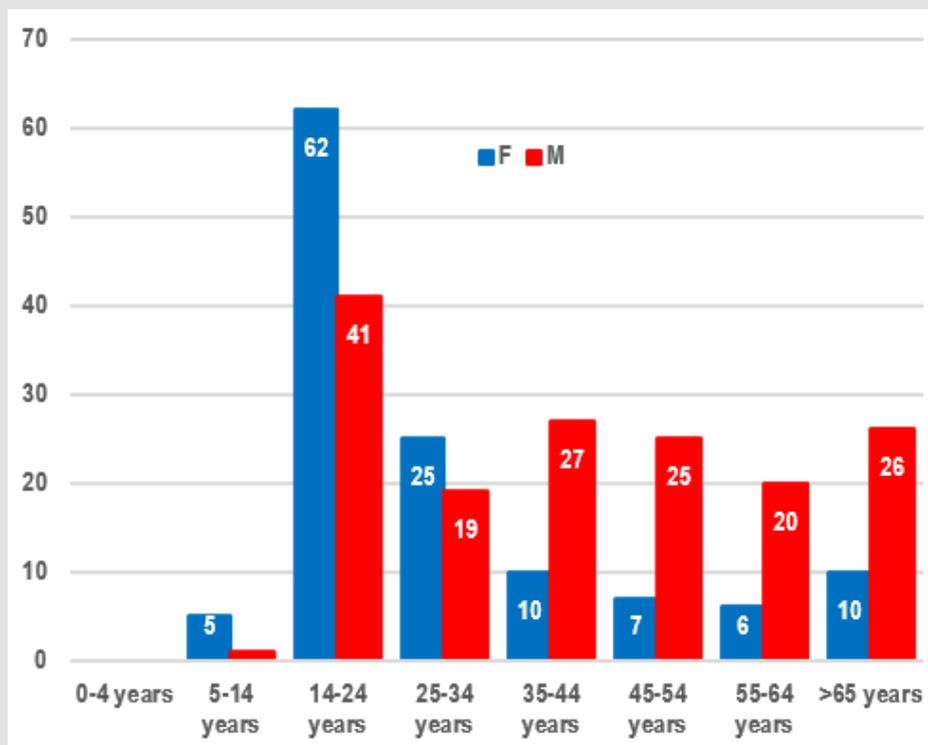


Figure 3: Distribution of age (N).

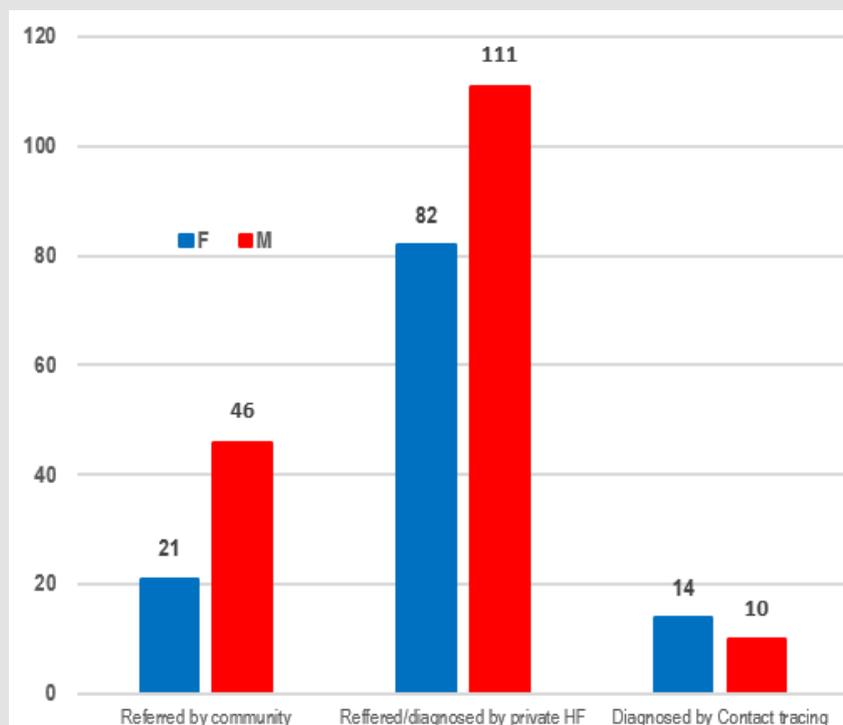


Figure 4: Private Sector contribution for early case finding.

Discussion

Door-to-door visit is one of the primary interventions for the study, 157652 targeted risk people were screened by using standard people living with TB sign and symptom identification forms,

a total of 32879 were identified as a people living with TB sign and symptoms. Out of total identified people living with TB sign and symptoms, of all the attendees, 27346 (83 %) were examined by sputum smear microscopy. The proportion of smear-positive results was significantly higher among those from engaged private

providers than among those referred from camps. Out total tested sputum by microscopic method, 284 were diagnosed as bacteriologically confirmed TB patient. Out of screened total population 21 % were people living with TB symptoms, Tuberculosis positivity rate is 1.04 % among garbage collectors, people living with TB symptoms visited to Private pharmacies, street children and contacts of Tuberculosis Patients. Sub-population Tuberculosis vulnerability factors is different than other population, so positivity rate might not be applicable in the case of the general population and other vulnerable groups. In addition, this study could not cover the vulnerability factors associated with TB among study population.

Out of total diagnosed TB patients (284), 193 (68%) were referred from the private sector, literally private sectors mean private pharmacy and drug sellers. Functional and operational involvement, collaboration and partnership with private pharmacy and health care providers could be effective and efficient approach to identify hidden TB cases especially in urban areas. However, continue and consistent partnership with private pharmacy is challenging issues due to funding gap. According to Indian experiences, of 350047 presumptive pulmonary TB cases (cough of >2 weeks) identified, 187586 (54%) underwent sputum smear examination and 14447 (8%) were found to be smear-positive. major challenge [10]. Figure 2 revealed that 83.2 % identified people living with TB sign and symptom were participated on the sputum examination process. Comparison with the sputum collection number is high, due to causes of door to door visit and local volunteer mobilization. On other hand positivity rate is quite higher in Indian experience (8%) rather than Nepali context (1.04). Risk factors associated with risk groups, accessibility of service and geographic variation might be factors associated with the positivity rate.

According study conducted by Global Fund-supported Project Axshya, in India, of 350047 presumptive pulmonary TB cases identified, 187 586 (54%) underwent sputum smear examination and 14 447 (8%) were found to be smear-positive [11]. In terms of positive rate and sputum collection rate is substantially different between Indian and Nepali context, there may have contextual differences, however risk and vulnerability factors, and methodology is another factor which gave different results. Fifty (29.6%) pharmacies reported that they had referred 125 clients to public sector clinics during the previous 3 months. In total, 164 (96.5%) pharmacies reported that they always referred all TB symptomatic clients to DOTS (directly observed treatment, short course) clinics (Referral of tuberculosis symptomatic clients from private pharmacies to public sector clinics for diagnosis and treatment in Cambodia, 2105) [12]. Figure 4, reveals that, out to total people living with TB symptom, 284 were diagnosed tuberculosis, among them 193 (68%) were referred from the private sector.

Finding of the both surveys, approved the contribution of private pharmacy especially in establishing referral mechanism and referring people living with TB symptom for early TB diagnosis.

Since a large proportion of people living with TB sign and symptoms in Kathmandu Valley across all economic and social strata consult private health service providers at some time during their illness, planners and policy makers of TB control program, need to consider both the health-care seeking behavior of people with TB and the clinical behavior of private providers, in order to secure early detection of TB, early initiation of appropriate treatment, and continuation and completion of appropriate treatment. Literally active case finding is approach to increase early case finding. Similarly, we have two different model using to identify people living with TB sign and symptoms, First: close active case finding tools (cough more than two week), Second: flexible active case finding tool (any two TB symptoms and risk factors).

If we used close active case finding tools, positivity rate is very high but high possibilities of unscreened people living with TB, who had other symptom rather than cough more than two weeks. On other hand, if we used flexible active case finding tools and technique, positivity rate may be low and high chances of screening people living with TB, who had not cough more than 2 weeks. Survey conducted in Cambodia, of the 40423 eligible subjects, a total of 37417 (92.6%) participants (17007 males and 20410 females) were screened for active pulmonary tuberculosis. Of these, 12.8% (4780/37417) were considered eligible for sputum examination. At least one sputum specimen was provided by 96.5% (4612/4780) of those eligible. A total of 114 (2.5%) subjects were smear-positive; 222 were smear- negative but culture-positive [13]. Based on the findings of Cambodian survey the positivity rate is quite high (2.5%) comparison to survey results of Nepal (1.04%). Ironically, degree of positive rate is highly depending on people living with TB identification tools and technique. In addition, there a gap between no first sputum sample and second sample collection, due to multiple reason; low motivation of suspect person, stigma and discrimination, some sort of panic in terms of disease status and misconception about TB. Challenges gap of NTP unusual distribution of health staff, inadequate laboratory facilities, and weak procurement, supply chains, lack of effective and efficient monitoring, supportive supervision, and funding gap and surveillance systems. These challenges need to be effectively addressed. Doing so would help national TB programmed to depend less on the vertical systems that they established to overcome these constraints, while expanding DOTS programmed, over a decade ago [14-16].

Acknowledgement

None.

Conflict of Interest

No conflict of interest.

References

- (2010) WHO, Tuberculosis in the WHO South-East Asia Region. Bulletin of the World Health Organization.

2. (2009) World Health Organization G, Epidemiology, strategy, financing: WHO report.
3. Goodchild MSS (2010) The health and economic burden of tuberculosis in India. Int J Tuberc Lung Dis.
4. (2008) WHO, Anti-tuberculosis drug resistance in the world: fourth global report.
5. (2010) WHO, Tuberculosis control in the South-East Asia Region; the regional report.
6. (2014) WHO, Tuberculosis in the WHO South-East Asia Region. Bulletin, 88
7. WHO (2016) Fact Sheet.
8. SR S (2012) Tuberculosis : Active Case finding survey in an urban areas of India, India.
9. NTC(2016) Annual Report. Kathmandu : National Tuberculosis Centre.
10. BM P (2012) Experience of active TB Case Finding in India.
11. Global Fund-supported Project A (2011) Experience of active TB case finding in India.
12. (2015) Referral of tuberculosis symptomatic clients from private pharmacies to public sector clinics for diagnosis and treatment in Cambodia. Journal of Evaluation in Clinical Practice.
13. Tan EangMaoAK (2012) Cross-sectional studies of tuberculosis prevalence in Cambodia between 2002 and 2011. Tuberculosis prevalence in Cambodia.
14. The Pandemic, A Global Threat.
15. <http://www.tballiance.org>. (n.d.). why-new-tb-drugs/global-pandemic.
16. (2008) Organization WH, WHO/IUATLD Global Project on Anti-tuberculosis Drug Resistance Surveillance. Anti-tuberculosis drug resistance in the world: fourth global report. WHO/IUATLD Global Project on Anti-tuberculosis Drug Resistance Surveillance. Anti-tuberculosis drug resistance in the world: fourth global report. Geneva: World Health Organization.

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