

Field experiences encountered during the conduct of Disease Prevalence Survey by National Tuberculosis Institute, Bangalore

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National Tuberculosis Institute (NTI), Bangalore carried out a Disease Prevalence Survey (DPS) for estimating prevalence of pulmonary TB among adults of Nelamangala Taluk of Bangalore rural district during the year 2007 -2010. The field work was executed by specially recruited field staff trained by National Institute for Research in Tuberculosis (NIRT), Chennai. The supervision of field work was performed by the staff of Epidemiology, X-Ray, Laboratory, Statistics and Transport sections NTI. Standard Disease survey field methodology was used during the field survey.

Nelamangala taluk is a pre-dominantly rural taluk with total population being 1,74,445 of which 2,49,239 is rural and 25,206 is urban. The Disease Prevalence survey was carried out in 158 villages under 15 randomly selected panchayats. The survey villages were spread over about 60 kms radius in and around Nelamangala taluk. The field procedures involved enumeration and registrations of households, screening by symptoms elicitation and mobile X-Ray unit followed by collection of sputum from eligible individuals. The salient features of each field activity are briefed as under:

Planning

Prior to the start of the survey, as a part to the desk planning communication letters were sent to Deputy Commissioner of the District, Tehsildar, District Health Officer, District Tuberculosis Officer, Taluk Medical Officer/MOTC, CEO Zila Panchayat and Executive Officer Taluka Panchayat Office.

The planning team personally contacted the panchayat secretaries of selected villages and elicited census information of study population, size of village, demarcation of physical boundary and number of households and briefed about the survey purpose and benefits in order to ensure their fullest cooperation and support to carrying out the survey. They were requested to instruct all their subordinate officials at village level to extend the necessary assistance to the field teams.

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Village planning was undertaken 3-4 days prior to the proposed dates for the survey in the village. The planner recorded all the required information in the planning sheet which included numbers of hamlets attached to the village, road description, no of houses, population as per 2001 census, present population according to the panchayat and its distance from the headquarters. A rough sketch of the village including hamlets was also drawn.

Enumeration and symptoms elicitation:

Enumeration and symptoms elicitation was done on house to house basis. The criteria for enumeration was residentship in the study areas for >6 months. Registration was carried out in a clockwise pattern and household numbers was allocated by paint or permanent markers. All eligible individuals (≥ 15 yrs) were registered by the enumerator and screened for the presence of symptoms suggestive of pulmonary TB, such as persistent cough for \geq two weeks, Fever for \geq one month, Chest pain for \geq one month, Haemoptysis within the last 6 months, History of previous anti-TB treatment at the time of survey. As per ethical committee directions an informed written consent from study participants was obtained at the time of their registrations.

Screening by mobile X-ray unit:

All eligible individuals were required to be subjected to undergo radiological screening of chest by mobile MMR X- ray unit. Pregnant women and bed ridden were excluded from MMR screening.

Sputum collections:

All individuals who were either chest symptomatic or had abnormal shadow on X-ray as read by either of two independent readers were subjected to sputum examination. Two sputum specimens (one spot and one overnight) were collected from each of these persons and transported to NTI's laboratory for bacteriological examination. Pre-numbered sterilized sputum cups were used for sputum collection and cold chain was maintained throughout.

Persons identified either sputum smear positive or culture positive during the survey were referred to nearest DOTS centre for further investigation and Anti TB treatment.

Strict adherence to study protocol and standard operating procedures were followed throughout the field work and quality assurance was maintained in all the stages of field work by the field supervisors. Though it was a quite pleasant experience for the field teams in terms of implementing field procedures and maintaining good rapport with the study subjects and local health authorities, there were some difficulties encountered by the field teams during the conduct of field work. Some of them are summarized as under:

Operational difficulties:

1. Prior to the field work, a planning visit was undertaken to all the villages under selected panchayats. The planning team faced lot of difficulties, like locating villages and their hamlets. It was such a herculean task that if all the hamlets attached to a particular village were not properly identified and included as a part of the village, the population as per the census records was not matching. Migration of villagers to other places, towns and cities for their livelihood was also another issue which in turn resulted many of the villages / hamlets to become abandoned places and the planning team had to take a note of this. The team had to visit each village repeatedly during the odd hours i.e., early morning or late evenings to meet the village leaders and punchayat secretaries as per their availability for seeking their co-operation.
2. Mobile X-ray machine was usually had to be setup at the central point of the village for making it to convenient to the village population. Availability of electricity for X-ray center was also kept in mind before setting of the x-ray unit. If hamlet is distant from the village the x-ray centre was shifted and set-up at the hamlet or nearest location.
3. Registration of eligible population followed by symptom elicitation was done by different teams by house to house visits. The major hurdles in executing this process was availability of household members, as many of the members were not available at the time of registration and many time houses were found locked. To counter this problem multiple visits were taken to each house. Since the study area is adjacent to industrial belt, most of the working group including women was employed in these factories and

they used to work in different odd shift. To overcome this situation the field teams took repeated visits to each households and also worked late evening, early morning, on public holidays and Sundays. Field work during late in the evening was a big challenge as there used to frequent power cuts and non availability of street lights in most of the villages which had made the field teams to use torch and emergency lights. Avoiding drinkers and street dog nuisance was extremely troublesome. During rainy seasons the field team used to work using umbrellas and wearing rain coats. Since field teams used to take repeated visit to each household for coverage, this was opposed by the some villagers and they used to indulge unnecessary arguments with the team members.

4. Mobilization for x-ray screening after symptoms elicitation was too a great challenge. It was observed that about 40% of the individuals were self motivated for x-ray screening. By repeated house hold visits, motivation and mobilization, another 20% population was reporting for x-ray. X-raying remaining 40% populations was sometime very difficult and time taking as most of the elderly and higher socio-economic people were refused for x-ray. People on work or out of station were also difficult to get x-rayed. In spite of all these issues, a good representative coverage was achieved due to continuous efforts and dedication of the field teams. During rains all measures were taken to ensure the safety of machine. During power cuts mobile generator sets were used and all efforts were undertaken to ensure availability of x-ray centre close to the households.

Sociological aspects:

Tuberculosis disease has a great impact as far as social stigma is considered. In most of the rural Indian settings patients suffering from this disease are sociologically deprived by the communities and neighbours. This resulted not revealing the correct information from the patients suffering from the disease during the time of symptomatic screening and registration. This was more prevalent among the girls of younger age group. To counter this field team took very serious steps in terms of maintaining confidentiality of such cases in public domain. The pregnant women were not eligible for x-ray as per the study procedures, in many instances the information about pregnancy status was not revealed properly if they are screened by the male symptom elucidator, therefore we ensure that these women are properly probed for TB symptoms and pregnancy status by deploying

female symptom elucidators. Religious sentiments do played a leading role as some people refused to come for x-ray screening *e.g.* Practices of mangalsutra, burkas and malas.

Patients identified during the course of our survey were contacted personally. This information was restricted from their neighbours and relatives to avoid sociological aspects involved in rural settings and they were referred to the nearby DOTS centres for treatment. Some of the patients referred didn't turn up to the health centre for treatment even after repeated motivation. In this situation field team members visited the entire concerned health centres and listed these cases and undertook revisits to these patients' houses and made arrangements to bring them personally to the health centre.

Transportation:

The study area is situated about 35 kms away from the office headquarter, Bangalore. The start of field survey coincided with the 4 lane widening and construction of the only approaching road *i.e.* NH-4, Bangalore-Pune highway. This had resulted tremendous hurdles as far as commuting on this road was concerned, as in many places only a single road was available for two-way traffic, huge traffic jams, uneven way etc. The travel time for study vehicles used to be about 2 to 3 hours due to all these constrains.

In many of the villages, conditions of the roads were very bad. During rainy reasons it was again very difficult to commute on these country roads. In many places x-ray camp was set-up in a distant place as the x-ray vehicle could not reach in these places. All these resulted in extra efforts and time spent for day to day field work. Many hamlets were not at all accessible to field vehicles and the study team use to walk and reach these places and after the registrations and symptom elicitation they brought the study population to the place where x-ray centre was established.

Break down of field vehicles on several occasions in remote areas had also created lot of hurdles for the study team; field teams used to wait for the repair. Sometimes it was not possible to repair vehicles by village mechanics and the field team used to park the break

down vehicle in safe places like nearby police station, panchayat office or Government hospitals and forced to travel by public transport to reach head quarter.

In spite of above hurdles the field teams were able to manage the work quite efficiently and conducted the survey with in time with great dedications. All the operational issues arised during the implementation of field work were discussed on details by organizing periodical meetings at office headquarter and instant solutions were rendered to the field teams. It had also improved the efficiency of the survey team involved in terms of organization, implementation and management of community based large scale surveys. The experience gained will be very useful for undertaking such kind of future endeavors.