

Tuberculin surveys conducted by National Tuberculosis Control Project (Phase I and II)

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Setting: Terai and hill districts, and urban areas, of Nepal.

Objective: To determine the prevalence of TB infection and Annual Risk of Infection (A.R.I.) and estimate TB prevalence and incidence in various geographical situations in Nepal.

Design: Nine tuberculin surveys were conducted in several districts from congested urban area to hilly rural area in Nepal.

Result: Annual Risk of Infection (ARI) in Nepal ranged from 5.8% in Kathmandu district in 1991 to 1.07% in Tanahu district in 1995. ARI is highest in Kathmandu and higher in Terai area districts (Saptari, Morang and Chitwan district) than hilly area districts (Tanahu, Dhading and Kavre district).

Conclusions: Through tuberculin surveys by this project, TB situation in various areas in Nepal is now known. In order to evaluate impact of National TB control Programme and influence of other factors such as urbanization and HIV epidemic, tuberculin surveys in same area will be necessary in future years.

INTRODUCTION:

Tuberculin survey is one of valuable investigation methods to know the prevalence and its trend of TB infection in the community. Annual Risk of Infection (ARI) derived from obtained prevalence of TB infection can be used to estimate incidences of sputum smear positive patients. Before starting this project in 1987, there were only few data of tuberculin survey in Nepal. That was one of difficulties in planning and evaluation of case-finding activity. In order to collect epidemiological information of the magnitude of TB in Nepal, this project did technical support for NTC staff and totally 9 tuberculin surveys have been done through this project.

MATERIAL & METHOD

Districts for these surveys were mainly selected from Operational Research area. Pote and Patan were selected to know the magnitude of TB incidence in the most congested and urban area in Nepal. Dhading, Chitwan and Kavre were all Operational Research areas. Terai area of Far-Western region (Kailali, Kanchanpur and Doti) and Eastern region (Saptari and Morang) were selected to obtain TB epidemiological information in Terai area. Tanahu and Nawalparasi were selected to obtain baseline data of TB incidence in selected model areas. Materials are all school children younger than 18. PPD-S was used in Kathmandu and Patan survey, and RT 23 was used in other studies.

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RESULT & DISCUSSION

The table shows the result of the 9 tuberculin surveys. In 1991 Kathmandu, Patan and Dhading were surveyed. ARI in Kathmandu district was the highest among tuberculin surveys in Nepal and this will be due to highly congested population and high social activities. ARI in Dhading district was higher than other tuberculin studies in other hilly districts done by INGOs. Kagawa (JAT) noticed this might be due to selection of school children in this survey. As this survey was done in the capital of Dhading district and commercial activity between this capital and Kathmandu is high, high TB prevalence in Kathmandu might reflect to a little higher ARI in this survey. In 1992 Chitwan and Kavre were surveyed. In the

as 2.5%, Hills as 1.5% and Mountains as less than 1% with several data of tuberculin survey and INGO/GO's case-finding reports. ARI in Morang and Saptari district was around 2.5% and these data will support this estimation of ARI. However governmental schools in the capital and near the main road were selected in Nawalparasi. ARI in this district was relatively lower than Onozaki's estimation. This might be due to the lower population density in that district in comparison with Morang and Saptari and relatively lower accessibility to city area. ARI in Tarai area may varied from 1% in lower population density and low accessibility area to 2.5% in higher population density and high accessibility area.

Table: Year of Tuberculin surveys in different geographical areas conducted by NTCP (Phase I and II)

Year	Area	Geography	Total number	BCG scar (+)	A.R.I.(%)
1991	Bode, Kathmandu	Urban/city	486	240(49%)	5.8%
1991	Patan	Urban/city	544	352 (64%)	4.7%
1991	Dhading	Hilly	302	217 (71%)	2.3%
1992	Chitwan	Terai	1167	770 (65%)	1.8%
1992	Kavre	Hilly	455	236 (51%)	2.2%
1993	Far-western	Terai	4,466	1876 (42%)	2.1%
1994	Saptari	Terai	2,463	1626 (66%)	2.49%
1994	Morang	Terai	1,329	561 (42%)	2.38%
1995	Tanahu	Hilly	1,476	760 (51%)	1.07%
1995	Nawalparasi	Terai	1078	468 (43%)	1.15%

Survey in Chitwan district, the material included many children from private schools. Considering the economic difference between private school children and governmental school children, selection bias might lead to an underestimate of TB incidence in Chitwan district. In 1993 Tarai area of far-western region was surveyed. ARI in far-western Tarai area was lower than Kathmandu but higher than hilly area. This data was reasonable in consideration of population density and accessibility to urban area. Onozaki (JAT) estimated ARI in urban area as 4%, Tarai area

REFERENCE

1. A comprehensive report on the Nepal-Japan technical cooperation project for NTP (August 1987-April 1993), HMG of Nepal, MOH, JAT for NTP.
2. The tuberculin sensitivity and ART in far-western region in Nepal, Bam, DS., NTC.
3. General report of NTCP (Phase I), Hoshino, H., JAT for NTP.