

## **Abstract**

Tuberculosis is an ancient disease which has infected mankind for centuries. It affects human beings physically, mentally as well as socially. It is endemic in Sri Lanka and existing control and preventive measures seems inadequate as evidenced by increasing incidence of the disease reported by the National Programme for Tuberculosis and Control of Chest Diseases. Therefore, it is timely to explore additional strategies that may be used concurrently with current practices. The present study was designed with the objective of studying epidemiology of pulmonary and latent tuberculosis among household contacts of recently diagnosed tuberculosis patients in Colombo district, Sri Lanka.

The study consisted of three components. First component is a descriptive cross sectional study to describe selected aspects of present contact screening activities in the district. The study participants were recruited retrospectively based on the Colombo district tuberculosis register. Second component also was a cross sectional study to describe the rates of active and latent infection among household contacts of smear positive patients. Study participants were prospectively recruited and household contacts of them were subjected to selected tests. To study the risk factors for a positive Mantoux reaction among contacts residing in the same house, a nested case control design was employed. Focus group discussions were employed to describe opinions and perceptions of household contacts on contact screening activities. The third component of the study was laboratory based and sputum samples from the tuberculosis patients recruited for the second component of the study were used.

The present study found that current contact tracing practices were very poor. Of 402 index patients recruited only 9% had brought their contacts for screening. There were 1585 household contacts for 402 patients and only 7% of them have undergone screening. Non compliance for screening was commoner among males, urban residents, Tamil ethnicity and those with low level of education.

Active tuberculosis disease found among the contacts, were 480 per 100,000. Estimated prevalence of latent tuberculosis was 32.9%. Being a female, being more than 45 years of age, being currently married, being unemployed and being the spouse of the index

patient were the risk factors associated with latent tuberculosis infection among household contacts.

When confounding was accounted for, being currently married and having education below GCE (O/L) were the significant risk factors associated with latent tuberculosis infection.

Focus Group Discussions revealed that stigma associated with TB infections still plays a major role in keeping the community away from presenting to health institutions, especially those designated as chest clinics.

Molecular studies estimated the recent transmission of tuberculosis infection as 27% and reactivation of latent tuberculosis infection as 73%.

Common spoligotyping patterns observed in the present study were East African Indian (73%) family which is known as ancient TB, U family (6%), and T family (4%). There was one isolate which belong to Beijing family (2%). Genetic diversity of the *M. tuberculosis* strains observed in the present study was 37.5%.

The findings highlight the need for screening of household contacts of sputum positive cases of pulmonary tuberculosis. There is a need for specific activities and programmes directed towards minimising the stigma attached to the disease. It is necessary to consider ways of increasing accessibility to screening services so as to encourage persons to come for screening. The high reactivation rates found in the study indicate that the treatment of latent tuberculosis may be a useful option in reducing the burden in the community and the control of the disease and the National Programme for Tuberculosis Control and Chest Diseases Programme needs to consider such an option.