

Guidelines for TB contact tracing in Pacific Island countries and territories

Background

Tuberculosis (TB) continues to be a public health issue of major significance around the world. The World Health Organization (WHO) estimates that in 2007, worldwide, there were 9.27 million new cases of TB, of which 44% (or 4.1 million) were infectious.¹

TB is spread through the air from infectious patients to people in close proximity. After exposure to an infectious case, approximately 1%–2% of contacts will develop TB disease, one third will be infected with TB (i.e. have latent TB, but will not have TB disease) and two thirds will remain uninfected. For the one third who are infected, there is an average 5–10% lifetime risk of developing TB disease, with the highest risk in the first two years after exposure. The risk of developing active TB is significantly higher for children under five years of age and for people who have HIV or another condition that suppresses immunity.

TB control priorities

The primary focus of all national TB programmes is to detect infectious cases early and, with supervised treatment, cure the patient and minimise the extent to which the infection is transmitted. A national TB programme that is functioning effectively and uses the international recommended TB control strategy brand-named DOTS (derived from Directly Observed Treatment, Short-course) is essential to underpin this objective.

The next priority is investigation of the closest contacts of a person with infectious TB, as this process can identify a significant number of new cases of TB in an accessible group where high rates of recent infection are expected.

Where adequate resources exist and most TB cases are being successfully treated, contact tracing is important. This activity can identify and treat new TB cases early and prevent additional cases by offering preventive therapy to people who may have been recently infected.

Rationale for TB contact tracing

The WHO, the International Union Against Tuberculosis and Lung Disease (IUATLD) and the International Standards for Tuberculosis Care (ISTC) recommend as a minimum:

- screening household and close contacts of smear positive pulmonary tuberculosis cases to detect new TB cases;
- for children under five years of age and all people with HIV without symptoms suggestive of TB, providing isoniazid preventive therapy (IPT).^{2 3 4 5}



In addition, it is important to follow closely the contacts of patients with multidrug-resistant (MDR-TB) or extensively drug-resistant tuberculosis (XDR-TB) in order to prevent further spread of drug-resistant TB.² In an effectively functioning and well-resourced DOTS programme, screening can be expanded to include other contacts.²

The rationale for these recommendations is twofold. Firstly, contact tracing can detect additional cases of TB and prevent ongoing transmission of infection, both in the household and in the community. In addition, young children living in the same household as a person with smear positive pulmonary TB are more susceptible to being infected with TB and subsequently developing severe forms of TB disease, such as TB meningitis. Infected children under five years of age, in particular those in the first year of life, have a high risk of progression to TB disease.⁵ The use of preventive therapy has been shown to be up to 90% effective in limiting the risk of future disease.⁶ People with HIV infection have a significantly higher risk of progressing from latent to active TB than those who are HIV negative, and isoniazid can decrease this risk by as much as 33%.⁷

A systematic review of contact tracing activities in low- and middle-income countries supports contact tracing as an important strategy to detect and prevent additional cases of TB.⁸ This review shows that, when an average of 4.4 household contacts per index case (i.e. the first TB case to be detected) were investigated, 4.5% of all evaluated household contacts had active TB.⁸ The implication of this finding is that, to identify one case of active TB, contacts in approximately five households need to be screened. In the same study, latent TB infection was found in just over half (51.4%) of all contacts evaluated and the median number of contacts evaluated to find one case of latent TB was two. The highest proportion of active TB was found in children under five years of age, which supports the recommendation to prioritise contact tracing in this age group (Table 1).

Table 1: Yield of contact tracing by age group in low- and middle-income countries

Age group	TB* (%)	Latent TB infection^ (%)
< 5 years	8.5	30.4
5–14 years	6.0	47.9
All < 15 years	7.0	40.4
Adults (>15 years)	6.5	64.6

Notes:

* Proportion of examined contacts with clinical and confirmed TB

^ Proportion of examined contacts with latent TB infection

Source: Morrison et al. 2008. Tuberculosis and latent tuberculosis infection in close contacts of people with pulmonary tuberculosis in low-income and middle-income countries: a systematic review and meta analysis. *Lancet Infectious Diseases* 8: 359–368.

In the Pacific context, published data on TB contact tracing is scarce, although 2009 data presented at a regional TB meeting in 2010 indicated that many of the 19 Pacific Island countries and territories (PICTs) who attended the meeting are implementing TB contact tracing activities.⁹ The data highlighted approximately 12 people who were contact traced for each pulmonary sputum smear positive TB case.⁹ In addition, of the approximately 4084 contacts screened, 82 new cases of TB disease were diagnosed (a yield of 2%) and a further 584 were offered IPT (14.3% of all contacts screened).⁹

TB contact tracing activities in the Pacific Islands region

Training

A TB contact tracing workshop involving participants from PICTs was held in 2007 in Noumea, New Caledonia.¹⁰ Workshop participants agreed on a set of recommendations to guide the introduction of contact tracing in selected areas. Participants also identified the need to develop guidelines for contact tracing that would be appropriate to the Pacific context.

Following on from this workshop, five PICTs have received formal training in TB contact tracing and a number of other national TB programmes are implementing contact tracing activities.

Guidelines

Although contact tracing can be resource intensive, the accepted minimum standard is to focus on those most at risk of contracting and developing the more severe forms of TB (those under five years of age and the HIV-infected). This approach relies on clinical assessment to identify new cases of TB and the provision of IPT to the asymptomatic at-risk people, and is consistent with WHO recommendations and the International Standards for Tuberculosis Care.^{2 3 4}

A guideline on TB contact tracing developed by SPC titled *Guidelines for tuberculosis contact tracing in Pacific Island countries and territories* has adopted this approach with the key purpose of standardising contact tracing in PICTs. Several PICTs, especially the French territories, introduced contact tracing into their national TB programme many years ago. The French territories have harmonised their contact tracing protocols and procedures, which are presented in the annex of the guidelines.



The guidelines contain important information for national TB programmes on:

- the rationale for contact tracing;
- how and when to incorporate contact tracing;
- the identification, assessment and management of contacts;
- how to better record and evaluate contact tracing activities.

The guidelines can be downloaded from the SPC website <http://www.spc.int/tb/>

The guidelines are based on the best available international evidence and incorporate the International Standards of TB Care.

Conclusion

In national TB programmes that are functioning effectively, the addition of contact tracing to the programme's activities can increase TB case detection and prevent further cases of TB in people most at risk. The guidelines provide guidance on how national TB programmes can integrate contact tracing into their TB programme to further decrease the impact of TB on individuals and communities in the Pacific Islands region.

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