



LETTER TO EDITOR

Assessing the utility of contact tracing in reducing the magnitude of tuberculosis

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In the modern era, tuberculosis (TB) is the leading cause of morbidity and mortality resulting from an infectious disease (1). In fact, recent global estimates suggest that almost 11.6 million new cases of TB have been diagnosed and approximately 1.3 million people succumbed to the disease-related complications in the year 2012 (1). In addition, the health status of the masses has been further endangered by the emerging epidemic of multi-drug-resistant TB, extensively drug-resistant TB, extra-extensively drug-resistant TB, and even total drug-resistant TB (1, 2).

Worldwide, early detection and initiation of effective and prompt treatment of TB patients have been recommended as the most successful strategy in prevention and control activities (1, 3). Furthermore, the globally recommended strategy – Directly Observed Treatment and short-course chemotherapy does not appear to have been as successful as expected in some of the high-prevalence settings (4). Thus, strategy of ‘contact tracing’ can play a crucial role along with the other multiple strategies advocated by the national governments and international health agencies to reduce the burden of TB (5). Although, passive case finding approach is recommended in most of the developing nations owing to resource constraints, contact tracing is a promising strategy to identify (viz. active case search) and to treat recently infected persons (4, 6). The ultimate goal of contact tracing is to significantly minimize the time required to detect and treat a case of TB and thereby reduce the risk of transmission to susceptible contacts (6).

However, the practical execution of contact tracing essentially involves consideration of multiple parameters – need of the same (depending on the burden of TB in local settings), identification of relevant contacts, proxi-

mity to the index case, duration of exposure, extent of tracing required, tools/technique to perform tracing, and assessment of other risk factors that may affect the infectiousness of the case or the susceptibility of the contact (4, 7). Contact tracing has been of great significance in increasing case detection rates of both pulmonary and non-pulmonary TB; initiation of prompt treatment; early detection of multi-drug-resistant TB cases; and in ensuring exhaustion of the reservoir of future cases by preventing reactivation (4, 6). In fact, definite evidence is available to suggest that implementation of contact tracing strategy has resulted in reduction in the incidence of TB cases in different settings (5, 8).

The strategy of contact tracing finds application in the control of many other notifiable communicable diseases as well (8). However, its universal application is restricted owing to the time-consuming process; execution by the overburdened health care professionals; and inefficiencies in data collection, storage, and retrieval as contact tracing is conducted either by interviewing or using paper forms (7, 8). In order to address these limitations, multiple strategies such as conducting home and workplace visits instead of interview (viz. useful in improving adherence to screening procedures and identification of more number of at-risk contacts) (9); adoption of mobile health applications to promote digitalization and easy retrieval of data (7); and employment of different technologies (viz. interferon gamma release assays and tuberculin skin test in adults and children aged under-5) to facilitate the overall process of contact tracing (10) have been implemented in different settings.

In conclusion, contact tracing in collaboration with additional preventive and control strategies can substantially

reduce the magnitude of different types of TB, especially in low- and middle-income countries.

Keypoints

1. Program managers working in the field of TB should emphasize on the need of contact tracing in order to reduce the magnitude of the disease to a significant extent.
2. The health professionals should sensitize the outreach workers about the rationale and importance of contact tracing in TB control. In addition, adequate monitoring and supervision is required for not only ensuring that contact tracing becomes a routine practice but also to allow provision of appropriate guidance to the outreach workers.

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The authors declare they have no conflicts of interest.

References

1. World Health Organization (2013). Global tuberculosis control report 2013. Geneva: WHO Press.
2. Udhwadia Z, Vendoti D. Totally drug-resistant tuberculosis (TDR-TB) in India: every dark cloud has a silver lining. *J Epidemiol Community Health* 2013; 67: 471–2.
3. Shrivastava SR, Shrivastava PS, Ramasamy J. Fostering directly observed treatment in tuberculosis: a program manager's perspective. *Int J Health Policy Manag* 2014; 2: 51–2.
4. Begun M, Newall AT, Marks GB, Wood JG. Contact tracing of tuberculosis: a systematic review of transmission modelling studies. *PLoS One* 2013; 8: e72470.
5. Kasaie P, Andrews JR, Kelton WD, Dowdy DW. Timing of tuberculosis transmission and the impact of household contact tracing. An agent-based simulation model. *Am J Respir Crit Care Med* 2014; 189: 845–52.
6. Jurcev Savicevic A. Five “W” in tuberculosis contact tracing: why, when, who, where, and what? *Lijec Vjesn* 2011; 133: 65–8.
7. Ha YP, Littman-Quinn R, Antwi C, Seropola G, Green RS, Tesfalul MA et al. A mobile health approach to tuberculosis contact tracing in resource-limited settings. *Stud Health Technol Inform* 2013; 192: 1188.
8. Tian Y, Osgood ND, Al-Azem A, Hoepfner VH. Evaluating the effectiveness of contact tracing on tuberculosis outcomes in Saskatchewan using individual-based modeling. *Health Educ Behav* 2013; 40: S98–110.
9. Duarte R, Neto M, Carvalho A, Barros H. Improving tuberculosis contact tracing: the role of evaluations in the home and workplace. *Int J Tuberc Lung Dis* 2012; 16: 55–9.
10. Diel R, Loytved G, Nienhaus A, Castell S, Detjen A, Geerdess-Fenge H et al. New recommendations for contact tracing in tuberculosis. *Gesundheitswesen* 2011; 73: 369–88.