EDITORIAL

Knowing how many children to find is the first step in finding them

James A. Seddon

<http://dx.doi.org/10.5588/pha.16.0040>

Over fifty years ago, large-scale studies undertaken in the United States established that following the diagnosis of tuberculosis (TB) in a source case, household contact investigations were a highly effective strategy to identify previously undiagnosed prevalent cases of TB. Six thousand households were examined, and nearly five hundred contacts had prevalent TB at baseline. Over twenty-five thousand disease-free contacts were then enrolled in a trial comparing isoniazid to placebo. The provision of isoniazid to well household contacts was demonstrated to dramatically reduce the risk of those contacts developing TB disease themselves.¹ At about the same time, Katharine Hsu carried out a series of studies in Houston, evaluating TB-affected families identified either through a child with TB or through a child identified as being infected following the diagnosis of TB in an adult. She concluded in 1963 that: '...tuberculosis exists in "pools" involving large numbers of cases. Public health efforts should be directed to these pools of infection, and contact investigation has proved very efficient in finding pools.'² Therefore, we have known for over fifty years that both household contact investigations and preventive therapy for high-risk contacts work effectively. In most high-burden settings, high risk is usually taken to be children aged under five years and those with immune suppression. These strategies are recommended by the World Health Organization (WHO),^{3,4} and the majority of national TB programmes advise that they are carried out. Yet, in the majority of countries they do not take place, and it is unclear why.

Household contact investigations can be seen as time-consuming and resource-intensive. They are often not seen as a priority compared to treating cases of infectious TB. Giving daily preventive therapy for six months to well children is not always easy, and may seem unnecessary to many health care workers and families. Data on the number of household contact investigations undertaken or the number of contacts given preventive therapy are not requested by TB programmes or by the WHO, perhaps sending the message that these activities are unimportant. Finally, health care workers have no idea how many contacts they should be looking for and how many they should be finding.

The study by Yuen and colleagues in this issue of *Public Health Action* addresses this final aspect and provides realistic and tangible targets at a global and national level for the number of children that should be screened and the number that could be expected to have prevalent *Mycobacterium tuberculosis* infection and disease.⁵

This is a significant development and one that could be used by local clinic staff, district TB managers, national TB managers and global TB experts to improve the care of children exposed to TB. Not only does knowing the expected number of children that require screening and treatment help to inform resource planning, it also allows an assessment of the programme. By comparing the numbers screened and treated with the numbers expected to need screening and treatment, shortfalls can be identified and addressed. These shortfalls can be compared between clinics, between districts or between countries so that examples of 'good' practice (small shortfalls) can inform those with less good practice (larger shortfalls).

Yuen and colleagues estimate that seven and a half million children each year live in households with diagnosed cases of infectious pulmonary TB. These children should be screened. Although this is a large number, these children are the low-hanging fruit: the yield from screening in this context is higher than almost any other strategy for trying to find cases of *M. tuberculosis* infection and disease. Currently only about a third of the one million children who develop TB disease globally each year are diagnosed and treated.⁶ A far smaller proportion of the children who are eligible for preventive therapy receive it. It is difficult to see how we will improve on these rates without household screening; if we want to find and treat more children we really do not have any other options.

References

- 1 Ferebee S H, Mount F W. Tuberculosis morbidity in a controlled trial of the prophylactic use of isoniazid among household contacts. *Am Rev Respir Dis* 1962; 85: 490–510.
- 2 Hsu K H. Contact investigation: a practical approach to tuberculosis eradication. *Am J Public Health Nations Health* 1963; 53: 1761–1769.
- 3 World Health Organization. Recommendations for investigating contacts of persons with infectious tuberculosis in low- and middle-income countries. WHO/HTM/TB/2012.9. Geneva, Switzerland: WHO, 2012. http://apps.who.int/iris/bitstream/10665/77741/1/9789241504492_eng.pdf?ua=1 Accessed May 2016.
- 4 World Health Organization. Guidelines on the management of latent tuberculosis infection. WHO/HTM/TB/2015.01. Geneva, Switzerland: WHO, 2015. http://www.who.int/tb/publications/lbti_document_page/en/ Accessed May 2016.
- 5 Yuen C M, Jenkins H E, Chang R, Mpunga J, Becerra M C. Two methods for setting child-focused tuberculosis care targets. *Public Health Action* 2016; 6: 000–000.
- 6 Dodd P J, Gardiner E, Coghlan R, Seddon J A. Burden of childhood tuberculosis in 22 high-burden countries: a mathematical modelling study. *The Lancet Global Health* 2014; 2: e453–e459.

AFFILIATIONS

Centre of International Child Health, Imperial College London, London, UK

CORRESPONDENCE

Centre of International Child Health
Imperial College London
Norfolk Place
London W2 1PG, UK
e-mail: james.seddon@imperial.ac.uk

Conflicts of interest: none declared.

PHA 2016; 6(2): 52
© 2016 The Union