

Ms. Jennifer Merte and colleagues' May JADA article, "An Epidemiologic Investigation of Occupational Transmission of *Mycobacterium Tuberculosis* Infection to Dental Health Care Personnel: Infection Prevention and Control Implications" (Merte JL, Kroll CM, Collins AS, Melnick AL. JADA 2014;145[5]:464-471), highlighted the crucial need for health settings, including dental settings, to have robust organizational systems in place to detect tuberculosis (TB) early and protect staff and patients from transmission.

The "stone-in-pond" principle is widely used to guide the extent and direction of contact tracing of an infectious TB case, such as occurred in the article.¹ The routine use of molecular TB typing in most developed country settings has evolved our current understanding of TB transmission, revealing unexpected transmission between individuals with minimum or no reported exposure duration.^{2,3} Increasingly, a social network-informed approach which emphasizes the importance of locations in informing which individuals to contact trace is required to break chains of transmission.⁴

We experienced an outbreak of TB involving four patients in a dental unit in Birmingham, United Kingdom, a city with a high burden of TB (incidence 58 per 100,000 in 2009).⁵ Transmission was confirmed by identical 24-loci mycobacterial repetitive unit-variable number tandem repeats (MIRU-VNTR).

The first case was a 24 year-old pediatric dental nurse who was infectious from April to December 2010. Contact screening at the time involved close contacts outside the workplace, close colleagues within the workplace and patients with prolonged (>8 cumulative hours) contact. Six of nine non-workplace contacts (three latent cases, three active cases, all UK-born) and one of 20 colleagues (latent case, UK-born) were found to have infection. No patient with prolonged contact was identified.

In March and September 2011, a 15-year old patient and the mother of another pediatric patient, who had attended five to six appointments of 20 minutes duration each at the unit between September and December 2010, but who were not direct-care patients of the index case, presented with pulmonary and meningeal TB and cervical lymph node TB, respectively.

Finally, in August 2012, a 22 year-old dental nurse who worked in the same unit, but within a different department, presented with osteomyelitis of the iliac crest.

All cases were UK-born and were of differing ethnic groups.

The contact investigation undertaken by Ms. Merte and colleagues was meticulous and is to be applauded. In our case, evidence of high infectivity of the index case from the close contact investigation prompted "inform and advise" letters to all direct-care patients and their primary care providers, notifying them of their possible TB exposure and recommending they seek medical attention early should symptoms of TB develop.

This traditional, name-based contact identification strategy missed the latter three cases who had no documented contact with the index case and we assume contracted TB due to casual transmission. We believe enhanced interviewing of the index case at the time using a social network approach to explore locations and potential casual contacts would have been beneficial. However, regular risk assessment and training and education of healthcare staff in recognizing TB symptoms are of prime importance. As detailed by Ms Merte and colleagues, outbreaks in dental settings rarely have been reported in the literature. Their article is therefore welcomed and reminds us that dental care settings should be vigilant as TB outbreaks, as occurred in our setting, are extremely costly.

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