

Yield of systematic household contact investigation for tuberculosis in a high-burden metropolitan district of South Africa

CITATION

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ABSTRACT

Background: Systematic household contact investigation (SHCI) is recommended as an active-case-finding (ACF) strategy to identify individuals at high risk of tuberculosis (TB) infection, in order to enable early detection and treatment. Reluctance to implement SHCI in sub-Saharan African and South African high-burden contexts may stem from uncertainty about the potential yield of this strategy when targeting specific categories of TB index cases. In order to inform and motivate scale-up, this pilot study investigated the effectiveness of SHCI when targeting the World Health Organization's (WHO) recommended categories of infectious index cases.

Method: Data were gathered in September and October 2016. Household contacts of infectious TB cases who attended 40 primary health care facilities in Mangaung Metropolitan District were recruited. The categories of TB index cases included 1) children <5 years, 2) HIV co-infected pulmonary TB (PTB) cases (≥5 years), 3) HIV-negative PTB cases (≥5 years), and 4) multidrug-resistant (MDR) TB cases. Contacts were screened for TB symptoms and symptomatic individuals and all children <5 years were referred for clinical evaluation. Data were analysed to establish the yield and factors associated with new TB diagnosis.

Results: Of 259 contacts screened, just under half (47.1%) underwent TB clinical investigation, during which 17 (6.6%) new TB cases were diagnosed, which represents a prevalence rate of 6564 per 100,000 population. Fifteen contacts needed to be screened to detect one new TB case. The proportion of new TB cases was the highest among contacts of HIV-negative PTB index cases (47.9%). The likelihood of TB diagnosis was higher among male contacts (odds ratio [OR]: 4.8; 95% confidence interval [CI]: 1.54–14.97) and those reporting coughing (OR: 4.3; 95% CI: 1.11–16.43).

Conclusion: The high yield of new TB observed in this pilot study demonstrates that targeted SHCI may be an effective ACF strategy in Mangaung and similar high-burden settings in South Africa. Targeting different index case categories produced variable yield – the highest among contacts of HIV-negative TB index cases. SHCI among household contacts of all four the WHO-recommended categories of infectious TB index cases – and male and coughing contacts, in particular – should be maximised.