Household screening and multidrug-resistant tuberculosis

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Of the estimated half a million people who develop multidrug resistant (MDR) tuberculosis each year, less than 7% are diagnosed and only 1 in 5 of these have access to effective treatment.[1] To control this epidemic, dramatically increased efforts are required to scale up case detection and treatment provision. In *The Lancet*, Mercedes Becerra and colleagues[2] report the yield of additional MDR tuberculosis diagnoses that are found by screening household contacts of index cases in Lima, Peru. This study—the largest of its kind to date—found that more than 2% of 4503 household contacts had active tuberculosis at the time the index case was diagnosed. Incident tuberculosis was also found at a rate of 1624 cases per 100 000 person-years over 4 years follow-up. These results support recommendations for active screening of household contacts of people with MDR tuberculosis,[3] and provide valuable lessons for other programmes striving to improve case detection and to reduce community transmission of MDR tuberculosis.

The drug-resistant tuberculosis programme in Lima was one of the first to show the feasibility and effectiveness of second-line treatment for MDR tuberculosis in resource-limited settings.[4] However, the index patients included in this study were diagnosed in the early phases of the programme in Peru, and there were often considerable delays in diagnosis and treatment initiation. A previous study from the same cohort suggested that index patients often received several years of largely ineffective, first-line tuberculosis treatment before their diagnosis with MDR tuberculosis, and more than half also had bilateral cavitary disease at diagnosis.[5] These patients might have therefore been highly infectious for long periods before diagnosis, with household contacts among those at greatest risk.[6,7]

The high rate of disease transmission in Lima reminds us that, in poor settings, a substantial proportion of community transmission probably occurs before diagnosis of drug-resistant tuberculosis. Thus, early diagnosis and treatment initiation is crucial to reduce the risk of household and community transmission. Prevention of additional cases through early detection will be a much more effective tuberculosis-control strategy, and less costly than treating cases as they emerge. Unfortunately, once diagnosed and started on treatment, many countries still emphasise the isolation of patients with MDR tuberculosis in hospitals as the main strategy to reduce community transmission. However, because of poor access to diagnostics for tuberculosis drug resistance, MDR tuberculosis diagnosis is often made only after first-line regimens do not work. Poor accessibility and long delays for drug-sensitivity testing often mean that patients spend long periods in the community; furthermore, restricted hospitalisation capacity results in additional delays after diagnosis. These practical realities, which are common in most resource-limited settings, render patient isolation a relatively ineffective infection control strategy, even before considering human rights concerns about involuntary detention.[8]

In view of the high rate of incident cases after diagnosis, and the initiation of largely ambulatory treatment in Peru, could a substantial transmission risk remain after treatment initiation? Because of long latency, it is not possible to assess when infection occurred—active tuberculosis cases might emerge over a long period among infected household contacts, particularly because, in this setting, cases and contacts are largely HIV uninfected.[9] However, as shown in today's study, the increased risk in incident contact cases associated with extremely drug-resistant (XDR) tuberculosis compared to MDR tuberculosis index cases might shed light on this question. Good treatment outcomes have been reported for patients with XDR tuberculosis in Peru and elsewhere.[5,10] However, in

Peru, XDR patients were treated for tuberculosis before diagnosis with drug-resistant tuberculosis, for a median of almost 1 year longer than patients with MDR tuberculosis. Patients with XDR tuberculosis also took substantially longer to convert to negative sputum cultures, and had higher rates of treatment failure than did those with MDR tuberculosis.[5] These findings suggest that in addition to an increased transmission risk before diagnosis and treatment initiation, XDR tuberculosis cases might also be associated with an increased transmission after treatment initiation. This increased risk after treatment is also likely to occur in any patients with drug-resistant tuberculosis who are slow to respond to treatment or in whom treatment does not work. Thus, the benefits of ambulatory treatment regarding increased capacity to provide treatment and improved outcomes might need to be balanced against the risk of ongoing transmission after treatment initiation.

Becerra and colleagues do not report whether index cases in these categories were responsible for an increased number of contact cases compared to patients who did well on treatment, and there might be too few cases for statistical discrimination. Nonetheless, these data highlight the need for both bacteriological monitoring of treatment efficacy to detect potential treatment failures with possible hospitalisation at this point, and for the implementation of simple infection control measures in the homes of patients with drug-resistant tuberculosis who are undergoing ambulatory treatment. Measures that include education on tuberculosis transmission, cough hygiene and, where possible, separate accommodation for patients until sputum cultures are negative, are certainly feasible in many settings and might be effective in mitigating the small transmission risk after diagnosis and treatment initiation.[11]

Becerra and colleagues' results from Peru confirm the previously suspected usefulness of contact screening, and highlight the urgent need for new diagnostics to enable early case detection and treatment initiation to prevent transmission. Along with previously published data, these data also suggest that ambulatory treatment is feasible and effective, albeit potentially associated with a risk of ongoing transmission.

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We declare that we have no conflicts of interest.

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European conference on chronic respiratory disease

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On Oct 19, 2010, the European Respiratory Society (ERS) organised, at the request of the Belgian European Union (EU) Presidency, a preministerial conference on chronic respiratory disease. The conclusions were presented to the ministerial conference of the 27 EU Member States, which was devoted to chronic disease in general. This first high-level conference on chronic respiratory disease was a valuable milestone in the Year of the Lung, declared by the Forum of International Respiratory Societies.[1] There was active participation by patients and their organisations (the European Federation of Allergy and Airway Diseases Patients' Associations).