

Planning for the invisible: projecting resources needed to identify and treat all patients with MDR-TB

THE REPORT by Royce et al. in this issue of the *Journal* estimates the burden of multidrug-resistant tuberculosis (MDR-TB) among notified new cases of TB in countries with high MDR-TB caseloads.¹ Previously, the MDR-TB burden among new TB cases was estimated by multiplying the MDR fraction (derived from population representative resistance surveys) by the estimated total incidence of new TB cases (i.e., including both cases who are and those who are not notified).² Royce et al. produce estimates of MDR-TB among TB cases who could have been detected under existing program conditions if drug susceptibility testing (DST) had been available for all notified new cases. They sharpen the focus on expected numbers of cases of MDR-TB among TB patients who present to notifying facilities. In addition to revealing the important role of transmission of MDR-TB in these high-burden settings, their paper highlights the urgent need to improve access to DST and effective treatment for MDR-TB among notified cases.

What is not reflected in these estimates is the substantial number of patients whose TB—and MDR-TB—goes undetected, for whom diagnostics and drugs are not purchased, budgeted, manufactured, or even projected. Although the number of invisible patients is uncertain, recent estimates are that up to a third of global TB cases are not notified³ and therefore would lack access to appropriate diagnosis and care, even if universal DST for notified cases were implemented. These invisible patients will continue to transmit TB (and MDR-TB) to their families and communities until their disease resolves spontaneously or they die.

As the authors note, improved surveillance systems—in which the number of notified cases approximates the true number of incident cases—would permit the true burden of cases requiring second-line treatment to be known. This longer-term solution requires investment in public health infrastructure so that all TB cases can access the health system and all diagnostic centers have adequate capacity to diagnose and notify TB. The World Health Organization, and several of the authors cited in the article by Royce et al.,¹ are among those actively working to improve TB surveillance within countries.⁴

In parallel, solutions are urgently needed to bring appropriate care to the full half million—visible and invisible—patients newly suffering from MDR-TB each year. Unprecedented opportunities exist to improve the diagnosis and treatment of MDR-TB, with new interest in enhanced TB screening,⁵ innovative efforts to diagnose TB cases that might previously have gone undiagnosed,^{6,7} new technologies that allow for rapid

detection of drug resistance in the periphery,⁸ and promising new drugs on the horizon.⁹ Use of the new technologies can also provide important updates to estimates of drug resistance prevalence. Twenty-one of the 29 country estimates used in the paper by Royce et al. rely on survey data from 2007 or earlier. In a number of these settings, planned or ongoing implementation of drug resistance surveillance systems—with rapid diagnostics—provides an opportunity to update these dynamic figures and inform planning for global drug supply and financial needs. We believe that projections of the resources required to confront this problem should be based on the best estimates of true numbers of patients suffering from MDR-TB, and not only those who are currently notified and visible to TB programs. Failure to secure resources that permit access to diagnosis and effective MDR-TB treatment for all patients, even if invisible, will result in continued transmission and needless deaths.

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