

of meningococcal isolates and typing should continue and include sequencing of genes that encode factor H binding protein to monitor the emergence or expansion of any escape variants.

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## Tuberculosis control: business models for the private sector



In many countries, the private health-care sector is a major provider of medical care. In India and Pakistan, for example, 70–80% of first contact care happens in the private sector. Private health care in these countries is a heterogeneous mix of qualified and unqualified providers, modern and alternative health systems, and facilities that range from corporate to charitable institutions. Quality of care, therefore, is highly variable.

The private health sector is part of the problem with tuberculosis control: diagnostic and treatment practices are suboptimum in Pakistan and India,<sup>1,3</sup> resulting in delays in case identification, irrational or unsupervised therapy, and unnecessary expenditure for patients.<sup>4</sup> These factors can lead to drug resistance and continued transmission of tuberculosis.<sup>5</sup> Also, private providers generally do not report or notify tuberculosis cases. However, the private health sector is also part of the solution. In view of their dominant role in tuberculosis care, engagement with private providers is crucial for achievement of tuberculosis control targets.<sup>6</sup>

Attempts to engage private health-care providers in tuberculosis control on a large scale have yielded disappointing results. Although small-scale, public-private mix models have worked in many studies,<sup>7</sup>

there are almost no examples of large-scale, successful, sustained engagement of the private health sector in tuberculosis control.

Private sector engagement has been addressed in WHO’s Stop TB Strategy<sup>8</sup> and the International Standards of Tuberculosis Care,<sup>9</sup> but the reality is that private sector providers are largely uninterested in partnering with national tuberculosis control programmes. Mutual mistrust between public and private sectors, lack of appropriate incentives, poor regulation and accountability, and perverse market-driven forces are barriers for meaningful partnerships.<sup>6</sup> Pakistan’s national programme has worked to overcome such barriers, and an estimated 25% of all tuberculosis patients are recruited from public-private projects that include social franchising models.<sup>10</sup> In India, despite repeated efforts, private providers are estimated to contribute to less than 5% of case notifications to the national tuberculosis control programme.<sup>11</sup>

What is the best approach to engage the private sector and improve tuberculosis case detection? Are new technologies the answer? There is widespread excitement about the potential of new diagnostic technologies for improving case detection and reducing



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tuberculosis transmission. WHO has endorsed several tests and approaches, and efforts are underway to scale up rapid molecular technologies.<sup>12</sup>

Although we share the enthusiasm for new technology, a study by Khan and colleagues<sup>13</sup> from Karachi, Pakistan, in *The Lancet Infectious Diseases*, shows that technological innovations alone are not sufficient to engage the private sector. Process innovations with better business and service delivery models could be as important as product innovations.

Khan and colleagues implemented a new, multifaceted approach to tuberculosis screening and case detection in one intervention area of Karachi, and compared case-notification rates with those in an adjacent control area. Interventions included a communications campaign to increase demand for tuberculosis diagnosis and treatment services, involvement of laypeople as screeners in private clinics and hospitals, mobile-phone-based incentives for screeners, and referrals of patients with suspected tuberculosis to a private hospital that offered free tuberculosis care. The investigators reported a substantial increase in case notifications in the intervention area compared with the control area.<sup>13</sup>

This study raises several issues. With multiple interventions, it is not easy to isolate the most important component. Nevertheless, the presence of a large, referral hospital that provided high-quality free tuberculosis care in the intervention area was clearly an important element of the intervention, as shown by the many patients self-referred to Indus Hospital. The annual case-notification rate was much higher in the intervention area than in the control area, even before the intervention began. If the presence of a private hospital with a dedicated tuberculosis control team contributed to the observed effect, then replicating this public-private model in other parts of Pakistan (or other countries) will be challenging. Then again, perhaps we need more hospitals like Indus to join the fight against tuberculosis.

Another key concern is the cost and sustainability of such projects if external funding cannot be sustained, or if national tuberculosis control programmes are unable to take over and maintain the projects. Donor-funded projects are often unsustainable, which emphasises the importance of using financially viable business models that are market based. National programmes in Pakistan and India are chronically underfunded, and advocacy is needed to convince governments, industries, and

high net-worth individuals to invest more resources in tuberculosis control.<sup>14</sup>

Despite these concerns, Khan and colleagues' study shows the potential for large-scale engagement of the private sector in improving case finding, and should serve as a useful model for other countries. Although new diagnostics were used in a small proportion of patients, the business model rather than the technology clearly led to effectiveness of the intervention, which engaged laypeople and private providers, and combined communications, incentives, and referral services. The next logical step is to combine innovative technologies with smart business models to better exploit their additive effects.

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NAB is former manager of the National TB Control Programme (NTP) in Pakistan and is a trustee of Hamara Healthy Living Centre. MP is a consultant for the Bill & Melinda Gates Foundation. The Gates Foundation, NTP Pakistan, and Hamara HLC had no involvement in this comment.

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