

PERSPECTIVE



Weigh all TB risks

A narrow definition of risk is hampering the search for new methods of tuberculosis control, say **Christopher Dye** and **Mario Raviglione**.

What factors put people at risk of illness, disability and death? The answers to this question have far-reaching implications: identifying a risk factor suggests interventions that could avoid or alleviate sickness and suffering. Unfortunately, for tuberculosis (TB) and other diseases, current risk assessments are not up to the job.

The Global Burden of Disease Study (GBD) includes an ambitious attempt to pinpoint the major causes of illness worldwide, and to use them to set a global agenda for preventive health care. But, despite listing 67 risk factors in 10 categories¹, the GBD is selective and has little relevance to some important diseases, including TB. A broad set of both disease determinants and factors that limit disease control and treatment should be included in future studies, with this combined set used as the basis for developing a wider range of options for disease prevention and care. This proposal goes beyond TB: for many causes of ill health, an unidentified risk is a missed opportunity.

BROADER CONCEPTS

Most of the risk factors selected by the GBD are environmental exposures, harmful behaviours, such as alcohol abuse, or physiological abnormalities, such as hypertension or high cholesterol. Only 3 of the 67 factors listed are linked to TB — tobacco smoke, alcohol abuse and diabetes. And yet there are clearly many other factors that determine who becomes ill or infectious. For example, migration, urbanization and the way people interact through contact networks are important for the transmission of infection. Genetic factors are also excluded, even though these risks might one day be managed or treated. But perhaps the most significant drawback of the GBD and similar risk assessments is that they do not consider the limitations of current interventions as avoidable risks.

In TB control, these limitations include poor awareness of symptoms, lack of access to diagnostic and treatment facilities, the prohibitive cost of drugs to treat multidrug-resistant strains, medical malpractice, poor quality of care from health workers, broken drug supply chains, and patients not completing their treatment. Although these shortcomings are not conventionally thought of as risk factors, they account for a large proportion of the avertible burden of disease. To choose the best options for disease control, their importance must be considered next to conventional TB risk factors such as overcrowded housing, diabetes, tobacco smoking, HIV co-infection and under-nutrition. We need, in short, to adopt a more comprehensive view of risk.

ADVERSITY INTO OPPORTUNITY

Finding new ways to reduce TB is a global health priority, and expanding the concept of risk will generate more options for control. By comparing the costs and benefits of possible interventions, we can prioritize the best among them. For example, in India we recently found that the

increases in TB risk from diabetes, malnutrition and urbanization are modest compared with the expected positive impact of early detection and treatment². In this setting, the next step is to compare the costs and potential benefits of better case detection and treatment strategies with those of interventions to mitigate other risk factors.

To be comprehensive, this work should go beyond evaluating measures targeted specifically at TB to look at those that have wider benefits for public health, such as health insurance schemes. In this way, the healthcare profession will be encouraged to evaluate interventions that could benefit TB but that lie beyond the reach of current disease control programmes.

CHANGING THE AGENDA

The United Nations (UN) Millennium Development Goals (MDGs) will expire in 2015. During the MDG era, the rise in the TB incidence rate has been halted and reversed, but the decline is still only a disappointing 2% per year globally³. Effective TB control programmes should be able to reduce incidence by at least 5–10% each year⁴. The new UN agenda for international development will probably focus on

poverty reduction and sustainable development⁵. Given limited resources, the challenge for TB control is to take a broader view of risk, setting priorities that overcome a diverse array of obstacles and exploit all possible opportunities. These priorities should include better ways to use existing technologies while promoting the most effective new technologies; working closely with the control of non-communicable diseases; and participating in initiatives to improve health that come not only from the

health sector, but also from agriculture, education, finance, industry and housing. This demands a big but potentially rewarding programme of data collection, quantitative analysis and modelling — one that enlarges the idea of risk to unify TB treatment and prevention, and places both in the wider context of health and development. ■

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**THIS PROPOSAL GOES BEYOND
TB: FOR MANY CAUSES OF ILL
HEALTH, AN UNIDENTIFIED RISK IS
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