

The tsunami of tuberculosis

The annual death toll from tuberculosis in the Indian Ocean region is 2–3 times higher than the toll from the recent tsunami

A major earthquake measuring 8.9 on the Richter scale occurred off the west coast of Sumatra on 26 December 2004.¹ The quake even caused the earth to wobble in orbit.² The ensuing tsunami hit countries bordering the Indian Ocean. The estimated death toll exceeds 220 000.¹ The human and economic tragedy was evident to all, and national governments and international organisations have mounted an enormous relief effort. Coincidentally, seven of the tsunami-affected countries (India, Indonesia, Thailand, Bangladesh, Burma–Myanmar, Tanzania and Kenya) are among the 22 nations with the highest burdens of tuberculosis (TB).³ Over three million new TB cases and 772 000 TB deaths occurred in these seven countries in the year 2000.³ Similar annual statistics have been reported from these and other high-burden countries for more than 10 years. But the earth does not move! The human and economic toll is not appreciated, and an enormous global response is not mounted.

The global TB situation is full of such paradoxes. It also highlights the global inequities in the distribution of healthcare services and other resources.⁴ An estimated 8.3 million new TB cases and nearly 2 million TB deaths occurred worldwide in 2000.³ Ninety-five percent of the TB cases and 98% of the deaths were in low-income countries.⁴ Importantly, from Australia's perspective, 60% of this global TB burden occurred in our neighbouring countries in South East Asia and the Western Pacific.³

What is happening in low-income countries? In Africa, 38% of new adult TB cases in 2000 were in people who were HIV-positive.⁴ HIV infection increases an individual's susceptibility to infection and disease progression, and the increased burden of HIV-associated cases may increase TB transmission to those who are HIV-negative. HIV-related TB has swamped TB-control efforts in Africa, where case numbers increased 6.4% between 1997 and 2000.³ Multidrug-

resistant tuberculosis (MDR-TB), defined as *Mycobacterium tuberculosis* strains with resistance to at least isoniazid and rifampicin, is also perceived as a great threat to TB control. However, only an estimated 273 000 (3.2%) of new TB cases worldwide were multidrug resistant in 2000.⁵ Mathematical modelling and other observations based on imperfect data suggest that MDR-TB strains are generally of lower reproductive fitness, and that MDR-TB will remain localised in foci such as the former Soviet Union.⁵ Effective TB control in these MDR-TB-endemic foci may require additional measures, such as wider availability of drug-susceptibility testing and the use of second-line drugs under close expert supervision.⁵

More mundane factors than MDR-TB are the real confounders of TB control in low-income countries. These factors include inadequate infrastructure (eg, roads, transport, electricity), weak primary healthcare systems, poor laboratory services, and insufficient engagement of private practitioners and other health providers in TB control.⁶ A major impediment to TB control that must be highlighted is the lack of trained staff, particularly in HIV-endemic countries, where the epidemic has decimated the healthcare workforce.⁶

What can be done in low-income countries? Effective TB control relies on halting transmission through the rapid detection and cure of infectious cases. International targets have been set to detect at least 70% of all new infectious cases and to cure at least 85% of those detected by 2005.⁶ Attainment of these goals would result in a decline in TB incidence of 6%–7% per year. The World Health Organization (WHO) and the International Union Against Tuberculosis and Lung Disease have recommended and validated a policy package entitled DOTS to achieve these case detection and cure rates. The DOTS strategy contains five elements: government commitment, accurate diagnosis principally by sputum-smear microscopy, standardised short-course chemotherapy with direct observation of treat-

ment, provision of reliable drug supplies, and systematic program monitoring.⁶ Unfortunately, the WHO annual TB reports to 2003 suggest that the global targets for case detection and cure rates may not be met by 2005. Additional initiatives have been recommended, including increasing government stewardship of TB-control programs, engagement of private health practitioners in DOTS programs, and involvement of local community groups.⁶ Tuberculosis and HIV-control programs in Africa and other HIV-prevalent areas must also be coordinated and integrated to achieve enhanced TB and HIV case-finding, to institute TB preventive treatment, and to establish interventions against HIV, such as antiretroviral treatment (which will also indirectly control TB).⁶

High-income countries with a low incidence of TB, such as Australia, confront different challenges.⁷ The incidence of TB in Australia was 4.9 cases per 100 000 population in 2003, which is one of the lowest rates globally, and this incidence has remained stable since the mid-1980s.⁸ However, people born overseas and Indigenous Australians remain at increased risk of TB (with 9.9 and 8.5 cases per 100 000 population, respectively).⁸

Maintaining awareness about TB among the medical profession and governments is difficult when the overall TB incidence is so low.⁷ Undergraduate and postgraduate education programs must ensure that clinicians consider TB, particularly in patients from at-risk subgroups.⁷ Governments must continue funding specialist TB treatment services (including specially trained staff and reliable drug supplies).⁷ The TB services themselves must realign policies and procedures towards TB elimination, and consider innovative measures for controlling TB in the subgroups who remain at increased risk of TB.⁷ The National Tuberculosis Advisory Committee has addressed these issues and published a strategic plan that includes performance indicators for evaluating our national TB-control efforts.⁹

World TB Day on 24 March is a reminder to Australian doctors that TB is not a vanishing disease. Rather, a "tsunami of TB" occurs

every year overseas. What can we do? At the clinical level, Australian doctors must "think TB" when seeing patients, particularly those from subgroups at risk of TB. Australia has laboratory and clinical expertise in TB which is being shared increasingly with our neighbouring countries. Finally, we must advocate for the Australian and other governments to provide funds for TB-control programs in our neighbouring countries, as has happened for the tsunami relief effort. Australia must do so for humanitarian reasons and for self-interest.

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