All authors play an active role in the UK All Party Parliamentary Group on Global TB. NH is founder member of the Global TB Caucus. We declare no competing interests.

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Time to define leprosy elimination as zero leprosy transmission?

In 1982, in response to growing evidence of resistance to the antibacterial drug, dapsone, WHO recommended that all patients with leprosy be treated with a short-course combination of three antibacterial drugs, rifampicin, dapsone, and clofazimine.[1] This multidrug therapy reduced the number of patients with leprosy being treated from 5·3 million in 1985 to 3·1 million in 1991.[2] The reduction in prevalence inspired the World Health Assembly in 1991 to set a target to eliminate leprosy as a public health problem by 2000, defining elimination as a global prevalence rate below one case per 10 000 of the population. This target was reached at a global level by the end of 2000, although there was no decline in the numbers of new cases detected. Several countries failed to reach the target at a national level by 2000—notably, India and Brazil.[3] After 2000, however, the number of new cases fell substantially: from around 750 000 in 2001 to around 300 000 in 2005.[3] Retrospectively, this 65% fall cannot be attributed to a decline in leprosy transmission. Three observations support this premise. First, over the past decade, the annual number of new cases being detected has remained static at around the 200 000–250 000 mark.[4] Second, that about 9% of these new cases are in children points to ongoing transmission of the infection.[4] Third, disability rates in new patients remain high, reflecting delayed diagnosis and treatment and thereby contributing to continued transmission of the disease.[4]

On Aug 6 and 7, 2015, a group of internationally recognised leprosy experts convened by the Novartis Foundation, the Nippon Foundation, and the Brazilian Ministry of Health met in Brasilia, Brazil, to discuss why transmission of the leprosy bacillus, *Mycobacterium leprae,* is continuing and what must be done to stop it. The meeting recognised that the goal to eliminate leprosy as a public health problem has given rise to unforeseen consequences. One consequence discussed by the meeting participants was the tendency of policy makers, international funders, and governments to mistakenly equate elimination (as a public health problem) with eradication and to consider that efforts to rid the world of leprosy had achieved their objective. The upshot was a loss of general support and funding for anti-leprosy activities, resulting in less active case finding and underdiagnosis.[5] Brazil, the last large country to achieve elimination status, has maintained its engagement in leprosy control and has kept its case detection rate at previous levels, whereas in India, case detection rates fell substantially after the country reached so-called elimination.[3] Declining support for leprosy activities has clearly weakened not only the skills of the global health workforce in leprosy diagnosis and management, but also the motivation of the leprosy research community.[5] In 2013, WHO, too, admitted that leprosy control had stagnated.[4] Adding to the stagnation is the persistence of deep-rooted stigma and discrimination against people

affected by leprosy, a factor often linked to late diagnosis. The epidemiological evidence clearly suggests that the declaration of global leprosy elimination made in 2000, which was based on a scaling back of the prevalence of the disease, was premature and has been hindering rather than helping the current efforts of the international community to halt leprosy transmission.[6]

The Brazil meeting unanimously agreed that confining leprosy to the history books will call for a strategy aimed at zero new cases and based on incidence rather than prevalence. The meeting also agreed that early diagnosis and prompt treatment of all patients (with a 90% minimum completion rate) should remain the cornerstone of this strategy. Digital health can contribute to accelerating diagnosis, but an essential component of the strategy, not yet available, would be a field-friendly test to detect leprosy disease or infection, or both. In addition, surveillance systems need to become so-called action-oriented to identify contacts of registered patients and populations at high risk of leprosy transmission. Active case-finding in such populations should be re-established and coupled to the administration of prophylactic chemotherapy or immunotherapy for asymptomatic people at risk. Alongside these activities, tackling the social barriers to lowering transmission, such as stigma and discrimination, will be vital. The meeting ended with an endorsement of this "zero transmission" strategy and strong hopes that it would hasten the realisation of a leprosy-free world.

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A hepatitis-free future: strategy first, then pricing

The Viral Hepatitis Prevention Board met in London, UK (June 5–6, 2015), to discuss options towards a future free of viral hepatitis. Hepatitis B vaccine was introduced in 1982 and is now included in childhood immunisation programmes in 194 countries,[1] with substantial declines in incidence rates; hepatitis B virus-dependent hepatitis D prevalence rates have also plummeted. A hepatitis A vaccine is widely used, and a hepatitis E vaccine has become commercially available in China. Chronic hepatitis B treatment exists, and hepatitis C treatment has single-dose oral medicines that can cure up to 95% of cases with shortened treatment and fewer side-effects.[2] Both treatments are included in WHO's essential medicine list.

Although generic versions of the two recommended chronic hepatitis B treatments are available and relatively inexpensive, list prices for new direct-acting hepatitis C antiviral medicines are generally expensive. Calculations based on list prices, estimated disease burden, and the assumption that all infected patients will be treated immediately raise concerns about the financial challenges.[3] Many governments baulk at authorising payment for interferon-free hepatitis C treatment, no matter how cost-effective, and these financial challenges have alarmed health insurance schemes. Several payers are negotiating considerably lower net prices with some countries such as Egypt and France having negotiated large discounts.

An estimated 248 million people are chronically infected with hepatitis B virus and 130–150 million people with hepatitis C virus, with more than 1·2 million deaths annually, including those due to virus-related