Commentary: Leprosy and poverty

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A hundred years ago the hot debate in leprosy circles revolved around disease causation; was leprosy hereditary or could the bacterial hypothesis of Armauer Hansen be believed? These arguments had important and very different public health consequences. If hereditary then patients should be stopped from reproducing but did not need isolation and confinement. However, if a bacterial aetiology was believed then leprosy patients should be isolated from society to prevent spread of infectious organisms. At that time there were no effective antibiotics for treating leprosy.

We still have an imperfect understanding of the transmission and causation of leprosy and the importance of various factors in disease causation still influence public health policy. The study in this issue of the International Journal of Epidemiology by Kerr-Pontes et al., showing an association between poverty and leprosy is an important new contribution to today’s debate. Leprosy is caused by Mycobacterium leprae and has a long incubation period, ranging from 5 to 15 years. Patients with lepromatous leprosy shed mycobacteria in their nasal secretions thereby continuing infection. M. leprae is a hardy organism and can survive for up to 5 months in India. Molecular techniques have shown that in endemic areas up to 5% of the population are carrying M. leprae DNA in their noses. Leprosy has an uneven geographical spread; 85% of the world’s patients live in six countries (India, Brazil, Nepal, Myanmar, Mozambique, and Madagascar). Even in low endemic countries such as South Africa certain regions are identified with new leprosy cases.

Some risk factors have been identified for leprosy; household contact with a lepromatous patient is an important risk factor, but only 20–30% patients have a recognizable contact with a known patient with leprosy. Recent studies in India and Brazil have shown a linkage between particular genotypes and the risk of developing of paucibacillary leprosy. BCG vaccination has a consistent, but variable, protective effect against leprosy.

A link between leprosy and poverty has long been suspected, but is difficult to demonstrate at national, community, or even individual levels. There are no clear correlations between national GDP levels and leprosy new case detection rates. Some countries with very low scores on the human development index such as Burkina Faso and Benin (rated 155 and 169, respectively) have low new case detection rates, whereas Brazil (rated 63rd) has the second highest new case detection rate. At an individual-level, a study done in Malawi showed that living in a crowded household was a risk factor, as was lack of schooling. The Kerr-Pontes study shows at a community level in a high endemic area of leprosy in Brasil the level of inequality, population growth, and presence of a railroad are associated with higher levels of leprosy. Their study is particularly valuable in that they have looked at data over 9 years and so can account for the long incubation period. Population growth and inequality may cause over-crowding so facilitating aerosol transmission of M. leprae. It is particularly interesting that the level of inequality rather than absolute poverty should be correlated with leprosy case rates. Wilkinson has argued that inequalities produce unmet social needs and so impair health. Leprosy should perhaps be seen as an affliction of an unhealthy society. This is an interesting new twist for a disease that has long been associated with blame being put on the individual who is then stigmatized.

Big questions currently hang over the public health approaches to leprosy control. Despite having effective antibiotic
therapy that rapidly renders patients non-infectious for 20 years the numbers of new cases of leprosy patients continues to rise in the major endemic countries—elsewhere it is declining slowly. WHO hoped to eliminate leprosy as a public health problem by the year 2000.\(^1\)\(^1\) This was not achieved in any meaningful sense and the new date of elimination by 2005 is equally suspect.\(^1\)\(^2\) Transmission is poorly understood and the strategy of detecting and treating patients, whilst good for individuals, has clearly not worked at a public health level. New approaches and new tools are needed for disease control and treatment. Further detailed work should be done to try and identify those factors associated with poverty and inequality that put people at risk of developing leprosy and how they operate at biological and social levels. Leprosy should also now be included in the portfolio of diseases associated with poverty and leprosy work incorporated into poverty reduction programmes.

References


\(^12\) Lockwood DNJ. Leprosy elimination—a virtual phenomenon or a reality? *BMJ* 2002;324:1516–18.