

**WORKSHOP 8: APPROACHES TO EPIDEMIOLOGY,  
PREVENTION AND CONTROL**

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There has been a significant fall in the prevalence of leprosy in all parts of the world where multidrug therapy (MDT) has been implemented. There has been a decrease of nearly 60% in registered cases from 1985 to 1993. The estimated number of cases has also come down from 11 million in 1985 to 3.1 million in 1993. The statistics for the current year on registered cases indicate that 80% of the registered cases of leprosy come from India, Brazil, Nigeria, China and Sudan. In 1991, the World Health Assembly adopted a resolution on the elimination of leprosy as a public health problem, elimination being defined as a prevalence of less than 1 case per 10,000 population.

Our current understanding of the epidemiology of leprosy has not changed significantly since the last Congress. No new light has been shed on factors related to the transmission, evolution or other factors related to the epidemiology of the disease.

There is a need to have simplified indicators relevant to leprosy control which are based on minimum and essential data. Measurements of leprosy trends ideally should be done using incidence rates. The true incidence and prevalence of leprosy are difficult to measure, and one needs to use case detection rates and prevalence rates for following the trends in leprosy, with the caution that one must use correction factors by adopting appropriate adjustments.

The findings from Venezuela on the immunoprophylaxis with BCG and killed ar-

madillo-derived *Mycobacterium leprae* combination have been inconclusive. Results from other vaccine trials using BCG and killed *M. leprae* and other combinations such as ICRC, *Mycobacterium w*, are expected to be available after 1995. As of now no second-generation vaccines against leprosy are available. The present priority for immunoprophylaxis should be to complete the current vaccine trials and assess their outcome before considering new trials.

While chemoprophylaxis may play a limited role in individuals, it is not a tool that can be recommended for the prevention of leprosy at the community level. Hence, the mainstay for leprosy control is chemotherapy. Thus the priority for leprosy control is to increase MDT coverage in all parts of the world and ensure a high case-detection level.

While looking into the effect of MDT on the trends of leprosy, one sees that in many areas the case detection rates (proxy for incidence rates) have stabilized and are not showing signs of decline after implementation of MDT for 8–10 years. For instance in some hyperendemic areas in India the stabilization has been in the region of 1 per 1000. There is a need for health systems approach for investigating this phenomenon in the light of the proposed target of the elimination of leprosy by the year 2000.

Better strategies for leprosy control can be identified by improving our knowledge of the epidemiology of the disease. A test

to identify *M. leprae* infection is expected to help in achieving this goal and should be given high priority in research. Presently available tools based on molecular biology and immunology as well as newer tools should be investigated further in this respect. Epidemiological studies need to be undertaken to establish the magnitude and dynamics of infection. A holistic approach to understand the microepidemiology of leprosy is needed, and such work can be done in sentinel centers with appropriate population samples. Interruption of the transmission of leprosy in the community will depend on the identification of all cases of leprosy and their effective treatment. The proportion of leprosy cases remaining undetected (unknown patient load) would contribute to continued transmission. It is also necessary to look into the possibilities of nonhuman reservoirs for *M. leprae* in this connection. This would involve the collection of epidemiological, immunological, bacteriological, environmental, socioeconomic and behavioral data from selected areas of high and low endemicity from different parts of the world. Establishment of these sentinel centers are of paramount importance.

There is a need to develop appropriate epidemiological indicators to study leprosy epidemiology after the level of elimination is reached.

Prevention of disability starts with the control of leprosy. Nevertheless, the occurrence of disability in patients on treatment and new disability after release from treatment is a cause of concern. The Sixth Expert Committee on Leprosy (WHO) has recommended that prevention and management of impairments and disabilities, which

have long been recognized as essential components of leprosy control programs, should be implemented effectively. Leprosy is a public health problem because of deformities, and there is a need to give very high priority to disability prevention. The possible use of the disability rate and the occurrence of new disability during treatment and after cessation of chemotherapy should be considered for evaluating the quality of leprosy control.

Development of epidemiological models is important in order to predict and to simulate the trends of leprosy under various operational conditions. This exercise should be related closely to the actual implementation and monitoring of leprosy control activities.

Results from available studies so far have not revealed any relationship between HIV infection and the risk of leprosy or the susceptibility to any particular type of leprosy. The effect of HIV infection on relapses, reactions and neuritis needs to be studied.

As regards urban leprosy control, this area needs to receive special emphasis in view of the rapid growth of cities and migrations from the countryside to urban slums. Efforts should be made to trace such migrant cases as soon as possible and cover them with effective MDT. Health systems research could contribute to our understanding of the dynamics of urban leprosy and, thus, facilitate the evolution of new strategies for urban leprosy control.

This Workshop ends with optimism that a concerted approach will help us to develop a better understanding of the disease which, in turn, will help us to formulate improved strategies for the elimination and eventual eradication of leprosy.