

## Maintenance of Leprosy Endemicity and Bacterial Positivity of Lepromatous Patients Under Treatment with Sulfones<sup>1</sup>

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Almost 100 per cent of lepromatous (L) patients under very close supervision and regular treatment may obtain bacterial negativity after ten years of sulfone therapy; for incipient L cases about 90 per cent may be inactive ("arrested") at the end of five years. Theoretically, or in a leprosy control project with excellent case-finding and case-holding, the load of infectiousness could be significantly reduced in a relatively short time. However, because of the long duration of treatment required for L patients, a great proportion of them become irregular in treatment and even out of control. To this should be added the high proportion of reactivation (relapse) of inactive L cases, mainly those under irregular treatment. During the course of years, there is a flow of L cases, becoming inactive, reactivating, becoming inactive again in a shorter time, and in a substantial proportion reactivating again. In this way, a proportion of L cases permanently maintain a certain level of infectiousness, in spite of the leprosy control measures, obviously varying from country to country and from region to region. According to the findings of the WHO Leprosy Epidemiology Team in random sample surveys in several countries (Africa, Asia and America) with active control projects, the proportion of L cases with bacterial positivity varied from 33 per cent to 70 per cent with an average

of 54 per cent for all countries surveyed. This could explain the high yearly detection rates in these projects in the course of one or several decades. Consequently, in view of the limited effectiveness of actual antileprosy drugs, and in the absence of an effective vaccine, the prospects of controlling the disease in a short period are not satisfactory, even in countries with low endemicity and with good resources for control activities.

As a tentative proposal it has been suggested that, in order to obtain a significant reduction of incidence, leprosy control projects should treat regularly at least 75 per cent of the estimated infectious cases and also the indeterminate patients, to whom first priority must be given. However, it is likely that besides preventing indeterminate cases from progressing to lepromatous leprosy, at least 75 per cent of the estimated infectious cases should in fact achieve and permanently maintain bacterial negativity in order to attain that objective. This has been very difficult to reach and it appears almost impracticable in most areas of the world unless there is a breakthrough in leprosy therapy and/or prevention. The impact of control measures on the trend of the disease can be predicted by using epidemiologic models with several simulations. These are being developed in WHO by the Health Statistical Methodology Unit (Mr. Uemura and Mr. Sundaresan) and by the Leprosy Unit (Drs. Bechelli and Martinez Dominguez). Preliminary findings, concerning a highly endemic area (prevalence rate 30 per 1,000) are here reported.

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