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EDITORIAL

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Toward the Elimination of Leprosy: the Challenges and Opportunities

One of the important developments in the history of public health in recent years is the enormous progress we are making in conquering leprosy through the widespread implementation of multidrug therapy (MDT) in order to cure leprosy and, thus, reduce the disease burden in endemic countries. This unprecedented progress is essentially the result of intensified efforts by leprosy-endemic countries following a resolution of the World Health Assembly in 1991, which committed all countries to a global target of reducing the prevalence of leprosy to less than 1 case per 10,000 population by the year 2000. We described this as the elimination of leprosy as a public health problem.

The target date of the year 2000 and the target prevalence of less than 1 in 10,000 were extremely useful in generating the necessary political commitment to push ahead and to achieve results which would otherwise not have been possible. This is well demonstrated by the fact that since 1985 the prevalence of leprosy has been reduced globally by nearly 85% and over 8.4 million leprosy patients have been cured through MDT. A large part of the credit for this should go to the determination and

commitment of leprosy-endemic countries to eliminate leprosy under the leadership of the World Health Organization (WHO) together with the all-around support provided by various partner agencies, in particular international donor, nongovernmental organizations (NGOs). Above all the most important factor in dealing effectively with leprosy is the consistent efficacy of MDT in curing leprosy, preventing relapse, and in promoting high patient compliance which is further facilitated by a shortened and fixed duration of treatment.

The progress made so far is more than just what is reflected in numbers and statistics alone. Indeed, in terms of reduced physical, psychological and social suffering as well as in an improved health image for the countries concerned, the gains already made are enormous.

As we approach the target for eliminating leprosy as a public health problem, there is a tendency in some quarters to underestimate the achievements and to overestimate the possible problems and shortcomings. In addition, a great deal of discussion is being generated on issues such as the overall strategy for eliminating leprosy as a

public health problem, the use of prevalence as the indicator of leprosy elimination, the sustained or even increased detection of new cases as possible evidence of the failure of elimination, and the continuing problem of rehabilitation of leprosy patients. A considerable part of these discussions tends to reflect a poor understanding of what is being attempted and, therefore, further elucidation is needed.

When the World Health Assembly adopted the leprosy elimination resolution in 1991, committing WHO and its member countries to the goal of eliminating leprosy as a public health problem, its vision was quite clear in terms of what needs to be done within the realm of possibility. The WHO strategy involves certain assumptions, and these need to be understood. These assumptions are: a) The major objective is to reduce the disease burden, in terms of prevalence, to very low levels, and the reduction of disease prevalence will lead, in the course of time, to the reduction in transmission of infection and to the reduction of disease incidence. b) Treatment with MDT, together with case finding, is currently the best and only way of dealing with the problem of leprosy. c) Since leprosy has a chronic and insidious onset, and also a very strong self-healing component, it is not possible to measure incidence from routine information systems and, therefore, since incidence figures will not be available to measure trends in disease transmission, prevalence will serve as a proxy indicator. d) Until a steady state is reached, when there are no more "hidden" cases and when geographic and MDT coverages are universal, case-detection figures will reflect essentially the operational performance rather than the incidence. e) The target figure of a prevalence of less than 1 in 10,000 at the national level and the target date of the end of the year 2000, although arbitrary, provide sufficient challenge to build up political commitment and to intensify activities.

Experience over the past 15 years has established these assumptions to be largely valid. It is important to realize, however, that the elimination of leprosy as a public health problem is a more modest goal than eradication since eradication means zero disease and zero transmission for which we have no tool, i.e., a tool that would directly

prevent transmission in a short period of time (e.g., a vaccine). A goal of eradication of leprosy, even if such a tool were developed, is less attractive from the point of view of cost effectiveness, since the last few cases of leprosy would not be as critical as the last cases of an acute infectious disease such as smallpox or polio.

While at the global level the progress so far looks very favorable and the gains made are enormous, one should indeed balance them against the tasks remaining to be accomplished and the challenges still to be faced. The first task is to reach the hitherto "hidden" backlog cases which are contributing to the steady detection of new cases each year. It is difficult to measure accurately the relative contribution of the backlog cases and the incidence cases (those detected within a year of the onset of disease) to case detection figures, particularly in routine programs. However, there is every indication that the majority of cases currently detected are from the backlog component. Such backlog cases do not only include well-established cases but also cases with minimal disease, i.e., those having a single skin lesion. While the potential for transmission and disability is high for the well-established cases, it is not so in the case of patients with minimal single skin lesion leprosy.

One of the least well understood facts in leprosy is the frequency of occurrence of the disease with single skin lesions, which shows a high degree of geographical variation ranging from over 40% of all new cases in certain parts of India to practically nonexistence in some other parts of the world. Questions have been raised about the significance of such cases in public health terms, in view of their high tendency for spontaneous healing, as well as low specificity for diagnosis. This problem of single skin lesion leprosy appears to be much more common wherever vigorous or active case-detection procedures are in place, particularly under vertical programs; in other situations they are probably less frequently recognized.

The leprosy situation in India provides important insights into the problems of case detection as well as single skin lesion leprosy. During 1997, of the 685,000 new cases detected all over the world, 520,000

cases (76%) came from India. Of these, nearly 150,000 cases were estimated to belong to the category of single skin lesion leprosy. Of the remaining cases, according to one estimate, only about 36,000 [18% of all multibacillary (MB) or about 7% of all new detections] were considered to be skin-smear positive, and over 85% of them had a bacterial index of less than 3+. Further, only about 3% of all new cases are estimated to have grade 2 disability. Thus, the profile of leprosy in India, in spite of significant variations within the country, is one which is highly favorable, notwithstanding the very large numbers of cases detected.

Looking at case-detection figures, it is clear that they are influenced by many factors, including several operations factors, and that it is oversimplistic to equate case detection with incidence. Furthermore, it is important to consider the disease profile of the new cases detected, in terms of the proportion of single lesion, paucibacillary (PB) leprosy at one end, to that of skin-smear-positive, MB leprosy at the other end, before making any judgment on the significance of new cases and their contribution to the disease burden. Thus, in countries like India, where the contribution of single skin lesion PB leprosy to case detection is quite high and that of skin-smear-positive MB leprosy is quite low, it is necessary to segregate these data and to look at them separately.

WHO's strategy for the elimination of leprosy as a public health problem, as mentioned earlier, hinges on reducing disease prevalence—on the assumption that reduction of prevalence will lead to reduction in disease transmission and incidence of new disease. However, in view of the variable and often long incubation period of leprosy, the impact of prevalence reduction on incidence reduction will take considerable time, depending upon the level of prevalence to start with as well as upon MDT and geographic coverage. In selected programs and special projects, where it has been possible to measure incidence through repeated total population examinations, the reduction in incidence after the first 5 years of MDT implementation has been found to be about 10% per year. Based on this, it is reasonable to expect that complete coverage with MDT over a period of time will lead not only to prevalence reduction but also to incidence

reduction, and this is expected to be reflected in case detection. If this is not already happening in some countries, it is due to the fact that: a) such countries had a very high prevalence to start with, or b) they have incomplete MDT coverage, or c) they have incomplete or slowly expanding geographic coverage. In many countries, the national mean detection rates often mask wide variations within the countries, and national averages may not truly reflect situations in different parts of the same country.

Another issue recently raised is the question of prospects for elimination of leprosy as a public health problem within the deadline of the year 2000. In this regard we can group leprosy-endemic countries into two major categories based on the intensity of initial prevalence, whether high or low. Each of these categories can be subdivided further on the basis of whether MDT was introduced widely in the country early or late. In addition, a small number of countries are severely affected by civil strife or are just emerging from such civil strife, with the result that there is no infrastructure in place. In trying to reach the elimination goal in time, countries which started with a high prevalence rate and which began implementing MDT late face the biggest challenge in terms of reaching the target in time. They need to make up for the time lost and vigorously implement special initiatives to reach the remaining patients. The best prospects are for low-endemic countries, particularly those which started implementing MDT early.

By the end of 1997, 32 countries in the world had yet to reach leprosy elimination. For these countries where leprosy is still endemic, the prospects for attaining the leprosy elimination level in time are quite good in a very large majority of them. However, there are a small number of countries which need more time to reach the target, and it is extremely important that maximum efforts are made to intensify antileprosy activities in such countries. It is because of this need that WHO is strongly promoting, for the remaining years, a three-pronged strategy of: a) leprosy elimination campaigns (LEC) to reach hidden cases and bring them under treatment; b) special action projects for the elimination of leprosy (SAPEL) in order to reach patients in inac-

cessible areas; and c) making MDT available in every general health facility so as to make leprosy treatment universally accessible.

As we approach the final leap toward the goal of elimination of leprosy, it is important to recognize both the challenges faced and the opportunities available. In view of the unique opportunity available to us to eliminate leprosy, it should not be too difficult to find ways and means of dealing with the challenges. Some of the challenges, such as convincing those health workers who are apprehensive for their future, should be relatively easy; they only need to be reassured about the continued need for leprosy work well beyond the elimination period, albeit on a much reduced scale. Other challenges, such as ensuring leprosy work of sufficient intensity in the residual pockets of the disease, particularly in very poor countries with inadequate health infrastructures, are more difficult to deal with unless there is strong external support.

In relation to sustaining leprosy elimination, WHO itself is expected to continue its technical support role to countries in need even after the year 2000. It will strive to

further simplify the relevant technologies in leprosy, and closely monitor the leprosy situation through a geographic information system (GIS), facilitating timely action where necessary. As and when required, WHO will also adjust its strategies in order to meet the newer needs, particularly in relation to dealing with persistent pockets of leprosy. Thus, it is clear that WHO will have a continuing and important role in leprosy beyond the year 2000.

Finally, the questions for all of us who have been struggling against the disease in the community for years are: a) Do we have an opportunity to bring about a mighty impact on the global leprosy situation? and b) Are we prepared to seize this window of opportunity? It has always been nice to work with leprosy, but it will be far nicer to work without it.

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