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EDITORIAL OFFICE
Gillis W. Long Hansen's Disease Center
at Louisiana State University
Baton Rouge, Louisiana 70894, U.S.A.

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EDITORIAL

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What Strategy Against Leprosy?*

The global plan for the elimination of leprosy as a public health problem, initiated in 1991, is at a turning point. By the end of the year 2000, several large leprosy-endemic countries had not reached the target prevalence at the national level. Since this situation could be anticipated for some time, during a meeting convened by the World Health Organization (WHO) at the end of 1999, the year 2005 was decided as the new target year for the completion of the plan. This situation raises questions about the validity of the plan itself and, as a corollary, about the actions to be taken over the next 5 years. In broad terms, this presentation attempts to give some answers to these questions.

THE ELIMINATION PLAN

Starting with the implementation of multidrug therapy (MDT) in 1982 and followed by the World Health Assembly resolution in 1991, the global effort for the "Elimination of Leprosy as a Public Health Problem" has resulted in about 10 million patients being cured. Such an impact is in itself a strong justification for having initiated the elimination program.

It has not been possible so far to demonstrate the validity of the fundamental principle on which the elimination plan was based at the beginning, i.e., that by reducing leprosy prevalence to less than 1 case per 10,000 by means of making MDT available free of charge to all patients, the transmission of *Mycobacterium leprae* would be reduced to such an extent that thereafter the prevalence would continue to decrease without additional intervention.

Since there are no primary prevention tools available yet of generally accepted value, the MDT strategy remains the only method for controlling leprosy. Experience has shown a) the tremendous impact that the MDT strategy has had and b) that it is both feasible under a variety of situations and affordable, thanks to the current level of support. Moreover, since it was not possible to complete the elimination program by 31 December 2000, it was fully justifiable to extend it for a further 5 years, i.e., until 2005.

* Paper presented at the Asian Leprosy Congress, Agra, India, 9–13 November 2000.

It can be said that the central objective of the elimination strategy is to make MDT drugs available free of charge to all existing leprosy patients. To meet that objective, the elimination strategy has been subjected to a number of improvements and specific adaptations to overcome a variety of problems and difficulties.

THE PROBLEMS

The implementation of the elimination strategy does not raise difficult problems of a technical nature:

- MDT regimens are very effective, well tolerated and do not result in the selection of *M. leprae* strains resistant to antibiotics.
- In recent years, the efficacy of several new antibiotics and combinations of them against *M. leprae* have been established so that alternative regimens are either already in use or could be put into practice should the need arise.
- Although some problems related to diagnosis and classification of leprosy result from the characteristics of the disease—which is polymorphous and has an insidious onset—it has been possible, at least partially, to obviate these difficulties.

Contrary to the technical ones, however, there are many operational problems related to the implementation of the elimination strategy. These problems tend to be more and more serious when elimination activities move to areas not yet covered, which is now generally the case. Of special importance are the problems related to adequate MDT coverage, integration of services, and information and education of the groups concerned.

Adequate MDT coverage should include the ability to: a) identify all leprosy cases at an early stage; b) start treatment with MDT; c) deliver the necessary drugs regularly; and d) monitor these activities continuously in a given country. The establishment of adequate coverage in all endemic areas is made more difficult by the fact that it is, in general, necessary to implement—simultaneously and rapidly—the integration of leprosy services into the general health services. Informing, educating and motivating communities, patients and health personnel are crucial for the optimal detection/identification of leprosy cases.

These two series of problems—adequate coverage and information/education—are among the most difficult to solve since they are intimately linked with the cultural and socioeconomic patterns of the communities and groups concerned. It seems that the required changes could be better accomplished over rather longer periods of time, probably more than the 5- or 10-year intervals that planners usually contemplate.

The necessity of integration is, however, being recognized. For example, in India, a country which for decades has had an independent National Leprosy Control Programme, leprosy services have been recently integrated into the general health services in several states.

Concerning the information/education/motivation of the various groups, experience with Leprosy Elimination Campaigns (LECs) has shown that education programs of a very short duration (1–2 days) can lead to the identification of many leprosy cases. The evaluation of a number of LECs has also demonstrated that a proportion of patients (from 10% to 25%) remains undetected even following that activity. One can still hope, however, that the improvement in antileprosy services resulting from their integration with the general health services will significantly improve the level of case detection.

There are other operational problems such as those related to hidden prevalence, regular drug supply, prevention of disabilities, training of general health staff, etc. All of these problems are being addressed by WHO and its partners. Specific options or initiatives have been undertaken in order to overcome the difficulties presented by LECs, NLECs, SAPELs and other initiatives. It has generally been recognized that the elimination plan should now focus on the peripheral—or district—level.

Our poor understanding of the transmission of leprosy makes it very difficult to make accurate projections of changes in leprosy prevalence at various levels of leprosy programs. As a result, in any given epidemiological and operational context it is hard to predict exactly when the elimination target will be reached. It seems reasonable to assume that the elimination target will be

reached at the national level in all countries by the year 2005. There are serious doubts, however, about the possibility of reaching elimination at the subnational level in several countries by that date.

At the national level there is a risk that political problems could also be anticipated and that the commitment of politicians, administrators and financial donors could decrease with time, especially if the number of leprosy cases decreases sharply as a result of the elimination program, although there is no indication that motivation among decision-makers has relaxed so far.

Some particular circumstances—disasters, natural or otherwise, including civil unrest, warfare, famine and displaced populations—will also delay implementation of the elimination plan, at both the national and the subnational level, but these situations obviously cannot be overcome by the health authorities alone.

At the international level, from 1991 to 1999 the implementation of the elimination plan raised minor conflicts of interest between the various partners involved. From now on, however, the elimination plan will be implemented under the umbrella of the Global Alliance for Elimination of Leprosy. This Global Alliance, which includes some new partners, was launched in 1999 in a context of crisis when it was realized that the elimination target could not be met by the year 2000. Since some of the various partners in the Alliance have different priorities, collaboration will still require further strengthening if its objectives are to be achieved.

WHAT SHOULD BE DONE?

To extend the elimination plan to the year 2005 was the correct decision. It is now necessary, however, to proceed with the following activities:

- To vigorously develop and improve, where necessary, all activities included in the elimination plan at the national and subnational levels, as described in *The Final Push towards Elimination of Leprosy: Strategic Plan 2000–2005* (WHO/CDS/CPE/CEE/2000.1).
- To continuously assess the validity of results of elimination activities and, where necessary, to undertake the relevant actions to correct them. In-depth epidemiological and operational evaluations in countries/areas where the elimination target has been reached would also provide invaluable information.
- To investigate, through operational research, all improvements that could be introduced into ongoing programs and to implement them as early as possible.
- To vigorously stimulate both basic and applied research on leprosy in order to develop new tools which will be needed when the elimination strategy has reached its objectives—or revealed its limits.
  a) Recent investigations have opened some new concepts on the transmission of *M. leprae:* the possibility has been raised that healthy carriers play a role in the dissemination of the organism. It is very important therefore to continue these investigations until clear conclusions are reached.
  b) Other investigations are aimed at developing a test to identify subclinical infection during the incubation period. Such a test would be extremely useful since it would permit individuals to receive a bactericidal "preventive" treatment before they become infectious.
  c) The sequencing of the *M. leprae* genome, now complete, opens new and promising avenues in many disciplines. These new opportunities should be actively exploited without delay.

The scientific community appears to be ready for a "new beginning" in leprosy research but coordination of efforts requires streamlining in order to achieve maximum results.

CONCLUSIONS

- At present, the elimination strategy is the only effective one and therefore remains the best strategy for controlling leprosy.
- It is quite gratifying to see that, based on experience gleaned during the last decade, the elimination strategy is feasible by implementing activities which appear to be acceptable to the partners involved in the plan (now the Global Alliance for the Elimination of Leprosy).
- It appears quite feasible that by the year 2005 the elimination prevalence at the national level in all endemic countries will

be reached. In some countries, however, the elimination prevalence at the subnational level will not be reached by 2005.
- All efforts to make MDT available free of charge to all leprosy patients should be sustained vigorously during the forthcoming years.
- Leprosy research—both basic and applied—should be stimulated.
- Leprosy research requires substantial efforts for planning, organization, management, funding and coordination.
- The implementation of the elimination strategy under the auspices of the Global Alliance for Elimination of Leprosy requires strengthened collaboration between its various partners.

—Dr. Hubert Sansarricq

64160 Saint-Armou, France

—Dr. Denis Daumerie

Leprosy Group
Strategy Development and Monitoring for Eradication and Elimination
Department of Control, Prevention and Eradication
World Health Organization
Geneva, Switzerland

Prevalence: a Valid Indicator for Monitoring Leprosy "Elimination"?

In 1991, the World Health Assembly stated that leprosy should be eliminated as a public health problem by the year 2000 (Resolution WHA44.9). Elimination was then defined as a prevalence rate below 1 case per 10,000 inhabitants. Prevalence was chosen rather than case detection because the latter was considered as depending too much on operational factors. The assumption underlying the objective was that, since leprosy is an infectious disease directly transmitted from the patients to the healthy population, a reduction of the prevalence and, thus, of the reservoir would result in a reduced transmission of the leprosy bacilli. This would lead, after a number of years, to a decreased incidence of the disease. Since elimination was defined in terms of prevalence, it seemed only logical to use that indicator to monitor the achievements of the strategy. And indeed it was useful. With multidrug therapy (MDT), patients could be declared cured after a treatment of defined duration; this, accompanied by a systematic review and cleaning of the leprosy registers, resulted in a dramatic reduction in the registered prevalence. From more than five million cases registered in 1985, statistics have gone down to less than 800,000 cases in the year 2001.[1] This is undoubtedly a great achievement: clinics are not congested any more by large numbers of patients who no longer need any chemotherapy, and health workers can better concentrate on the more important issues of detecting and treating the new cases and on preventing the occurrence of disabilities.

In spite of its past usefulness, the prevalence indicator clearly shows its limits now:

- After a dramatic decline, the decrease of prevalence has been slow for the last 5 years.
- Case detection did not decrease as expected: It has indeed increased during the last 4 years, even if a small decline has been observed in the year 2000. The upward trends and the variations observed in the number of newly detected cases can easily be explained by a number of operational factors, such as the extension of geographical coverage by MDT services and the intensification of detection activities through leprosy elimination campaigns (LECs) and other special ac-

[1] World Health Organization. Leprosy—global situation. Wkly. Epidemiol. Rec. **75** (2000) 226–231.