SERIES NO. 4

LEAP

LEPROSY
ELIMINATION
ACTION
PROGRAMME

OCT 07

TASK TODAY

Time to retrospect :
'Leprosy elimination'

Tasks ahead :
'Leprosy control'

Future :
'Strategies for new case detection'

ALERT-INDIA'S
29th FOUNDATION DAY
SPECIAL ISSUE

INDEX

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Unless we choose to turn a blind eye.....

The idea of leprosy elimination is based on the assumption that a prevalence of less than 1 case per ten thousand population will interrupt transmission of the disease. This is a false assumption. It lacks proof. Further, it is contradicted by the reality. The factors influencing the transmission have remained unchanged or worsened, in conditions of extreme poverty. In India, millions live below poverty level (BPL) in overcrowding, unhygienic conditions, malnutrition etc. In this situation, we cannot expect the transmission of chronic infectious diseases to decrease, unless we choose to turn a blind eye to these realities.

In fact, in the world, there has been a slow decrease in the number of new leprosy cases, in the order of 2 to 12 % per year, probably due to a natural decline in the endemicity of the disease and to the positive effects of good MDT campaigns. In India, there has been a decrease up to 25% – 30% per year in the number of new cases. These results call for serious studies.

The lacuna in the elimination strategy is the prevalence rate taken as the criteria instead of the new cases detection rate -NCDR- as done previously. Prevalence rate is much influenced by operational factors. There has been change in the methodology after the ”Kathmandu recommendations”. The changes such as “all the new cases detected to be registered and given MDT after validation by the authorities in each area”, is not practical in rural areas, where the authorities may be far away. Further, how quickly and regularly this was done and by whom? Instructions like “do not register single lesion leprosy (SSL) cases for now” will misguide the leprosy workers. What will be the impact on IEC, when therapy is refused to a patient presenting with a single well defined, anaesthetic skin lesion?

The active case detection has been stopped - the ‘self-healing’ character of leprosy should not be overlooked as it is almost 50% among the child cases. Therefore, specially, school surveys should be stopped.

After the integration of the vertical leprosy programme with the General Health services, it is being accused for giving incomplete statistics because of lack of supervision and poor recording. This situation may improve with the experience of GH staff and a better monitoring in the long run.

The strategy of leprosy control in the ”post elimination” period by LEAP is well presented by A. A. Samy et al. This article underpins the need for the following:

1. Intensive community IEC campaigns, specially in selective pockets with high prevalence.
2. Capacity building of all medical and paramedical personnel and change of curriculum.
3. Availability of referral facility with good bacteriological laboratory for AFB is the only way to diagnose an early infectious case. For the moment, it should also include training for POD and referral for corrective surgery.
4. Creation of a good monitoring and evaluation system. Sample Survey should be restricted to very selective pockets. The Contact Survey of all new cases should be encouraged.

Leprosy elimination tasks are not impossible, but we have a long way to go in the medical field, equity and in the improvement of the quality of life for all.

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'Task Today'

The 'Task Today' is an effort to share information and gather informed support of one and all for Leprosy Elimination Action Programme (LEAP) during the integration phase.

The earlier three 'Task Today' series had focused on the need to sustain leprosy control efforts, despite the euphoria of achieving 'elimination target'.

The 'Task Today' series-4, in the first part presents a retrospective review of the successful strategies of 'pre-Final Push' era. It also details the scientific basis for rethinking that can help to circumvent the negative implications of strategies promoted in the 'Final Push' era.

The second part deals with the 'tasks ahead' specifically propose strategies and actions that can take us closer to the objectives of leprosy control.

The third part specifically outlines actions that can help us detect hidden cases in the community and promote early detection of new cases.

'It is better now than never'. Strategies for new case detection during integration phase need to be identified, defined and put into action by all the stakeholders. This alone can help us to reach the goal of leprosy control. Action plan for quality care and continued new case detection are the need of the hour.

Hope, this issue will be read and reflected upon by all the stakeholders for what it is worth! We believe in the collective wisdom of people who care!!

It is actualisation of collective wisdom and transforming it into concrete action plan by all concerned that can safeguard the success achieved till now and help us proceed to combat the disease in future!!!

Sion, Mumbai
11 October 2007

A. Antony Samy
Chief Executive

Key milestones in the development of leprosy control strategies: 1948 to 2005

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World Health Organization (WHO) acknowledged the magnitude of leprosy in 1948 and enlisted leprosy control work as the sixth priority. In 1952, the WHO Expert Committee advocated the *'abolition of compulsory isolation of leprosy patients and recommended a strategy based on early detection and regular treatment for all leprosy patients on ambulatory basis'* [1]. The age old strategy based on isolation policy came to an end.

As early as in 1955, the Govt. of India (GOI) had launched the National Leprosy Control Programme (NLCP) based on - Survey, Education and Treatment (SET) strategy at the national level. Dapsone (DDS) monotherapy was the only weapon in the hands of doctors and paramedical workers engaged in leprosy control. The leprosy trained paramedical personnel constituted the core of the programme. Dapsone was indeed a proven effective drug. The prolonged treatment and the scientific evidence on emergence of dapsone resistance by *M. leprae* led to the advent of MDT. Following the *'first attempt to provide realistic figure of the number of leprosy cases in the affected countries of the world'* in 1966, [2] the WHO Expert Committee advised the countries with limited resources to concentrate their efforts on *'treatment and follow-up of infectious cases and on surveillance of their contacts'* [3].

In 1966, ILEP adopted the strategy recommended by WHO and *'worked in accordance with the national strategy'. However, special attention was on 'compassion towards leprosy sufferers and therefore has a long experience in rehabilitation activities including physical, vocational, economical and social'* [4].

The most important changes in leprosy control have occurred because of alterations in knowledge about the disease and the treatment. In 1981, WHO

Source : *Part of the paper presented at the International Symposium on "Remaining Challenges in Leprosy" Kathmandu, Nepal, September 2007.*

recommended the *use of MDT as a standard treatment for leprosy in leprosy control programmes* [5]. Since then, WHO provided technical support and ensured uninterrupted supply of MDT drugs free through its global partners to GOI. Supervised MDT was adopted to circumvent the limitations of dapsone era drug delivery system. The domiciliary treatment with dapsone monotherapy came to an end.

In 1983, the GOI renamed the 'National Leprosy Control Programme' as the 'National Leprosy Eradication Programme' (NLEP) and continued with SET strategy based on early detection of cases by population surveys, school surveys, contacts examination and treatment with MDT. Registration of all new cases and prompt treatment with MDT and compliance reached record levels.

a. WHO sets target date for leprosy 'elimination'

In 1991, the success of MDT propelled the WHO to propose a global strategy for 'elimination of leprosy as a public health problem' [6]. It aimed to reduce the prevalence of leprosy to less than 1 case per 10,000 population by the end of 2000. The GOI in turn adopted several operational strategies to intensify MDT coverage to endemic regions by engaging casual workers and creating mobile treatment units and achieved 100% coverage in 1996. This has helped to cure a large number of leprosy patients without disability and deformity in a short time.

b. First attempt by GOI to reach the leprosy elimination target

GOI introduced Fixed Duration MDT (6 months for PB and 12 months for MB) in 1996 and undertook 'cleaning of register' exercise during 1996 – 1997. This curtailed off all extended treatment and the number of active cases on record. WHO recommended specific strategies for undertaking special campaigns such as Leprosy Elimination Campaigns (LECs) and Special Action Programme for Elimination of Leprosy (SAPEL) to detect all the backlog of cases involving the GHC workers in 1997 [7].

Since 1998, GOI launched Modified Leprosy Elimination Campaigns (MLECs) with an emphasis on public awareness and promotion of suspects for voluntary reporting for examination. MLECs were an attempt to reach out to the community and enhance early detection of hidden cases. One million new leprosy cases were detected in all 5 MLECs. Simultaneously single dose treatment for single skin lesion leprosy was introduced to accelerate the 'leprosy elimination' target by 2000. However the target could not be met in India at the national level as the prevalence rate of leprosy was 5.2 per 10,000 population by end of 2000.

c. WHO deferred the target date for leprosy elimination

The failure to realize the target date for 'elimination' in India and in several other countries, made WHO to propose a strategic plan called 'Final Push': 2000 to 2005. Thus the target date was shifted from 2000 to 2005 [8]. The key elements of the 'Final Push' strategy were: 1) Integration of leprosy services into the general health services to improve access to treatment; 2) Capacity building to enable general health care staff to diagnose and treat leprosy;3) Improve logistics to ensure adequate stocks of MDT at health centres; 4) Change society's perception of leprosy and motivate people to seek timely treatment; 5) Ensure high cure rates through flexible and patient-friendly drug delivery systems and 6) Simplify monitoring to keep track of progress towards elimination. With this plan, all endemic countries including India were pushed to 'perform' and meet the revised deadline.

d. Second attempt by GOI to reach the leprosy elimination target

In 2001, the GOI revised its strategy based on 'Final Push' strategy. Revised Project Implementation Plan focused on leprosy training of GHC personnel; validation of new cases by special teams; intensified IEC campaigns and prevention of disability through surgery and POD camps. In 2002, the National Health Policy (NHP) of GOI expressly set the goal for leprosy elimination by the end of 2005. The GOI introduced validation exercises under Leprosy Eliminating Monitoring (LEM) on an annual basis. The PR began to decline at the rate of 25% per year at the national level. ILEP supported GOI with District Technical Support Teams (DTST), especially in capacity building of GHC personnel to deliver MDT services and assisted in supervision of LEM and simultaneously sustaining the leprosy control units and hospitals.

e. Leprosy elimination target propelled integration

With LEM, the GOI began the process of integrating the leprosy services with the general health care services in 2002, initially in the rural areas. The aim was to enhance universal accessibility of MDT services, to minimize the stigma and to make the programme cost-effective. The integration in the urban areas was undertaken in 2004. To actualize the process of integration, GOI carried out a large scale training of GHC personnel emphasizing on awareness campaign to promote voluntary reporting.

f. Final attempt by GOI to reach the leprosy elimination target

During 2004 – 2005, the GOI has drawn a strategic plan of action with the focus on endemic districts through Focused Leprosy Elimination Plan (FLEP) and on endemic blocks through Block Leprosy

Awareness Campaigns (BLAC). While the GOI was keen on achieving the goal of leprosy elimination, all the thrust has been on reducing the Prevalence of leprosy.

In the beginning of 2005, the supplementary policy directives issued by GOI based on 'Kathmandu recommendation' [9] has changed the course of leprosy control work at all levels.

- Stop all active search for new case detection
- All new cases detected to be registered and given MDT only after validation by authorities in each area.
- Delete names of the patients from the registers as they receive the last pulse.
- Do not register single lesion leprosy (SSL) cases for now.

These recommendations were strictly implemented and thus India has achieved the goal of leprosy elimination by the end of 2005 at the country level. ■

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A positive outcome of integration
(on this issue of Task Today Series 4)

A positive outcome of integration is the interest shown by professionals of other disciplines in public health. Out of 10 papers published in this 'Task Today : Series-4', 6 are in general health medical journals (dermatology, epidemiology, public health).

The scenario analysis of future incidence of leprosy brought our attention to the key factor of the detection of early infectious cases. The study of the risks factors for leprosy amongst contacts has shown the impact of repeated BCG vaccinations and the importance of an extended definition of "contacts".

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Global leprosy elimination: time to change more than the elimination target date

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Despite the World Health Assembly's enthusiastic adoption in 1991 of a resolution to "eliminate leprosy as a public health problem by the year 2000", it remains an important cause of global chronic neurological disability.[1] The optimistic belief that leprosy could be conquered despite a limited understanding of its epidemiology was principally based on the availability of effective multidrug treatment (MDT), consisting of a combination of rifampicin, dapsone, and clofazimine.[2 3]

For elimination purposes, "public health problem"was defined as less than one case of leprosy per 10000 population the assumption being that below this prevalence level, loosely based on historical experience in Scandinavia and Western Europe, reduced transmission of *Mycobacterium leprae* would result in decreased incidence of infection and natural leprosy extinction. Disease prevalence was the measure chosen by the World Health Organisation (WHO) because of scepticism that incidence could be measured by routine surveillance systems due to leprosy's variable and comparatively long incubation period, the insidious onset of clinical disease, the tendency of many infected patients to self heal, and the chronic nature of disease.[4]

The WHO is proud of the "success" of the leprosy elimination campaign. More than 10 million patients have received MDT therapy; the number of registered patients has decreased from 5 million in 1985 to less than a million in 2001; of 122 countries considered endemic in 1985, 107 have achieved the elimination target at country level; and by the end of 2000 the global prevalence of leprosy was reported as below 1 case per 10000 population.[5] These accomplishments provided the

Source: *D N Durrheim and R Speare, J. Epidemiol. Community Health; 2003; 57; 316-317 School of Public Health and Tropical Medicine, James Cook University, Townsville, 4811, Australia*

impetus for extending the deadline for achieving the elimination goal at country level to 2005.

How confident can we be that WHO's optimism is justified? The choice of prevalence as the measure for determining elimination is fundamentally flawed. The practice of reporting point prevalence at the end of a calendar year does not provide an accurate proxy of leprosy incidence or transmission, as it is dependent on the duration of infection, or in the case of the leprosy elimination campaign, the period that a patient remains on a treatment register. Thus, the cleaning of registers, removing patients that had died, been cured or been on treatment for indefinite prolonged periods, had a striking immediate effect on prevalence.

However, the single greatest influence on prevalence was the WHO's decision to reduce the treatment period of lepromatous leprosy patients from 24 to 12 months.[6,7] This literally halved the global burden of registered leprosy cases. The recent drive by the WHO to further reduce the treatment period to only six months for all leprosy patients irrespective of disease classification will certainly achieve global country elimination![8] The other aspect of concern in the leprosy elimination campaign is that countries are not required to provide evidence of the effectiveness of their surveillance for leprosy.

The poliomyelitis elimination campaign and country targets for detection of cases of acute flaccid paralysis is a good example of how a proxy measure can ensure surveillance meets a desired standard.[9] For leprosy, merely having a highly ineffective health service that failed to diagnose cases would result in the elimination target being attained.

During 2001, 719 330 leprosy cases were detected globally.[5] If the assumption that reduced prevalence equates to decreased transmission is correct, then we would expect that fewer new cases would be detected as prevalence reduces. However, this has not occurred and the converse is true, with an increase in the number of cases detected in many leprosy endemic countries. In the six countries that currently account for almost 90% of new leprosy registrations, incident cases rose between 1995 and 2000.[10] This increase has been explained as merely reflecting increased detection of "backlog" hidden cases through improved outreach services and special campaigns.

Although this is likely to be true in certain situations, particularly where patients with

advanced disease or disability are detected, it does not adequately explain why children constitute 15% of new cases.[5] The latter provides evidence of ongoing active transmission of *M leprae*. The focus on country as the epidemiological unit has political merit, but seems flawed as it ignores the tendency for leprosy to cluster at a level below the country level. Profound heterogeneity in leprosy detection after elimination suggests that choosing "country" as the resolution level for the elimination target is inappropriate.

Evidence of extended nasal carriage of *M leprae* DNA in lepromatous patients as well as transient excretion by asymptomatic people may partially explain the local clustering phenomenon.[11] Perhaps, rather than a single measure of leprosy elimination at the country level, two measures should now be used; the standard <1 per 10000 at the country level, and an additional measure, of the proportion of all health districts within the country that have attained the elimination level.

A country, therefore could meet the country target, but still not meet elimination criteria if some districts had leprosy. There are an increasing number of countries that have achieved the "elimination" level but new case detection continues unabated.

Although it is not yet precisely clear what underpins ongoing transmission, indirect immunological evidence by skin testing is consistent with the hypothesis that transient subclinical human infection with a variable period of infectiousness facilitates transmission.[12] [13] South Africa is a good example of a country where, since leprosy became notifiable in 1921, prevalence levels have remained well below the elimination target level but new cases continue to occur.[14] If reduction in treatment duration will not assure "point prevalence" leprosy elimination, then the drive to integrate leprosy activities into general primary service provision is likely to achieve this goal!

As medical conditions becomes increasingly rare, successful detection by health workers is impaired by lack of diagnostic experience and a decreased index of suspicion.[15] The increasing prevalence of HIV associated dermatological conditions that may mimic leprosy is an additional challenge to early diagnosis in HIV endemic countries.

The choice of a flawed elimination target focused at country level, use of point prevalence as the indicator of successful elimination, lack of measurable criteria to

assure effective surveillance, and the concerted drive towards leprosy service integration and increasingly abbreviated treatment courses, should temper our interpretation of progress toward global leprosy elimination. However, it will not be simple to achieve a more accurate representation of the true situation.

Until a steady epidemiological situation exists with no more "hidden" cases, leprosy detection rates will not accurately reflect incidence. The lack of convincing evidence that leprosy transmission has been substantially reduced has already elicited calls to withdraw from elimination and to rather focus on patient management and rehabilitation.[16]

We cannot afford to further dilute the resources necessary for effective leprosy control. Available Polymerase Chain Reaction technology should be more actively harnessed to assist our understanding of the epidemiology of this ancient disease, particularly the contributory role of subclinical infection to disease persistence in specific settings.[17–19]

A sustained effort is clearly merited in those countries that are still to achieve the dubious elimination level, but an energetic refocusing of efforts should occur in countries that have achieved "elimination" to identify endemic districts.

Recent research in Mpumalanga Province, South Africa confirmed marked heterogeneity of leprosy occurrence "post-elimination" and suggested that within high risk districts all treated patients and their intimate contacts should be included in an active surveillance programme to ensure early diagnosis of subsequent cases and prevention of disability.[14]

Leprosy "elimination" may be imminent, but there is no room for complacency as achieving the WHO target will not safeguard us against a re-emergence of leprosy. ■

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You can be a LEAP Partner !

■ **Who can be the LEAP partner?**

- Municipal Corporations, District NLEP Units, Non-Governmental Leprosy Organizations, Leprosy Institutions, Non-Government Organizations - Specialized in health and community based work, Medical Colleges or their units or departments involved in out-reach programmes.

■ **How to take part in LEAP programmes?**

- Select a task or a group of tasks outlined in this booklet based on the present leprosy situation in your area of work.
- Prepare an action plan to undertake task based LEAP activities.
- Do get in touch with the LEAP Support Team of ALERT INDIA.

■ **What is expected from the LEAP partners?**

- The eligibility for PSF from Nodal agency will be available only to those who are in total agreement with goals and objectives of LEAP.
- For each selected objective, identify task-based activities and present implementation plan in the area as per the defined methodology.
- Partners need to provide the following information / documents - A letter of acceptance by the Executive Head of the Institution / Corporation / Council to take up LEAP activities expressing willingness to become a LEAP partner. 3 years' activities supported by reports, Audited statement of Accounts, Names of Executive Committee members in addition to copies of Registration, Constitution, Memorandum.

■ **Source of funds:** All the LEAP activities are supported by Anesvad Foundation.

Final push of leprosy: It is prudent to pause before declaration !

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Final push as a strategy was initiated by WHO in November 1999 with an objective to achieve the target of prevalence rate <1/10,000 by 2005. Though the prevalence of leprosy is decreasing, we should acknowledge the fact that operational aspects of the program also affect these figures. For example, reducing the duration of treatment by half for patients receiving MB-MDT from 24 to 12 months in effect reduces the prevalence rate by half for that group.

Some patients receiving single-dose ROM (rifampicin, ofloxacin and minocycline) treatment for single skin lesion do not appear in prevalence figures at all. Similarly, patients who receive their 6-month course of PB-MDT early in the calendar year also do not figure in the data since only those patients who are on active treatment on 31st Dec' are counted for that year's prevalence figures.

This picture changes when new case detection rates are considered instead of prevalence (the new case detection rate is a better indicator of disease because it is not affected by changing the case definitions or duration of treatment).[2,3]

Though the prevalence has fallen, the new case detection rate has not changed much. Even at the leprosy clinic at the All India Institute Medical Sciences, New Delhi, a tertiary care hospital, we have registered 230 MB and 62 PB new cases in the last one year (January to December 2005).

The whole idea of elimination was based on the hypothesis that at a prevalence of <1 case per 10,000 population, the transmission of leprosy in the community would be interrupted or would be epidemiologically insignificant. But the high new case detection rates, the proportion of cases treated with MB-MDT (38.3% in 2004 according to leprosy elimination monitoring groups)[4] and the

Source: *Khaitan BK, Tejasvi T, Aggarwal K, Khanna N. Final push of leprosy: It is prudent to pause before declaration!. Indian J Dermatol Venereol Leprol 2006;72:151-153*

high rates among children (14.7% in 2004 according to leprosy elimination monitoring groups)[4] indicate that leprosy continues to be transmitted in the community. In spite of all the measures taken, the number of new cases being detected is significantly high.

Hence, in an effort to reach the elimination target soon, new instructions are given to field staff, the so-called 'Kathmandu recommendations.' These instructions, such as the order to stop the search for new cases, cannot be justified as the whole program of leprosy elimination is based on the detection and cure of new cases. Not only this, unofficial instructions like 'Do not register single lesion cases for now' are creating a false impression of the status of leprosy in India.

Leprosy workers are being replaced by multipurpose / basic health workers. Other areas of health are being given priority over leprosy. Instead of being intensified, the leprosy program has slowed down and is being diluted. There is an undue hurry to reach elimination targets and corners are being cut. Shortage of staff, absence of active surveillance and false reporting by statistical jugglery (e.g., not incorporating cases being started on treatment and released from treatment in the same calendar year) can lead to failure of the leprosy program.

We strongly feel that the authorities that plan, fund and execute the leprosy program should realize that hiding the actual number of leprosy cases will do no good. The ground reality is not going to change. There is a strong need to continue using LEC approaches and active surveillance.

We endorse the recommendations of the Global Alliance for Elimination of Leprosy (GAEL) evaluators that the WHO should make it clear that there are still new cases of leprosy, that a range of leprosy activities still needs to be carried out,[3] and that the governments of all affected countries need to be accountable. We also support the recommendation that the World Health Assembly should pass a resolution that addresses leprosy activities beyond 2005. ■

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In search of a relevant strategy for leprosy control during 'Post-Elimination' period

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The remaining challenges in leprosy need a careful examination of the strategies adopted over the past five decades in India as against the present leprosy situation. The reflection of success and failures are the direct results of policies and strategies of the past. We present a historical recount of the strategies that led to drastic decline in the prevalence of leprosy prior to 'elimination in 2005' and the present strategies pronounced by major players and ALERT-INDIA's strategic action plan for leprosy control during the post-elimination and integration phase.

The milieu

In India, poverty is the root cause of all health problems and leprosy is no exception. Despite five decades of successful vertical programme, a large segment of population continues to be stigma ridden and ignorant. The continued transmission of leprosy infection, occurrence of new cases and the burden of patients with disabilities and deformities also pose a challenge. The overburdened public health system is entrusted with the responsibility to deliver leprosy services. The public health system can definitely rise up to the task. Sustaining early new case detection and providing quality care during this 'transition phase' is a matter of concern for all of us. The duration of this phase and the outcome largely depends on how relevant is our strategy.

Achieving the intermediate goal of leprosy elimination is not an end to the problem of leprosy. Now, the search is for a futuristic long-term leprosy control strategy that can effectively address the remaining challenges in leprosy. We at

Source : *Paper presented at the International Symposium on "Remaining Challenges in Leprosy" Kathmandu, Nepal, September 2007.*

ALERT-INDIA are convinced that any new strategy cannot ignore the primary goals of disease control.

Goals of disease control

Any disease control strategy should aim to achieve three specific goals:

- decrease the prevalence of existing disease;
- decrease the incidence of new infection and
- decrease the morbidity and mortality rates due to the disease.

Further, the disease control strategy should be based on the ground reality in terms of the current epidemiology of disease; the available technology and tools to control the disease; the assessment of the disease burden; the logistics needed to operationalize the strategy within the public health care system; the resources available and the specific socio economic context of the population. With this view, we need to consider the tasks remain to be addressed.

Overview of current strategies for leprosy control

The following are the salient aspects of current strategies pronounced by the key players - The World Health Organization (WHO) with its global partners, member organizations of International Federation of Anti-leprosy Associations (ILEP) who supports the country wide efforts of National Leprosy Eradication Programme (NLEP) of Govt. of India (GOI).

i. Post-elimination strategies : WHO

In mid 2005, WHO proposed a global strategy for 'further reducing leprosy burden and sustaining leprosy control activities: 2006 to 2010' [1]. This strategy recommends strengthening the referral network in order to support integrated leprosy services with an emphasis on quality care. This is to be achieved by (i) appropriate training of staff at every level, (ii) regular technical supervision and (iii) monitoring of key epidemiological indicators. WHO also recommended the country governments to prepare an action plan for leprosy control based on the global strategy.

ii. Post elimination strategies - ILEP

ILEP support to India is in line with global strategy specifically sustaining quality leprosy control activities during 2007-2012. This is envisaged in the following thematic areas:(a) Monitoring and supervision; (b) Capacity Building; (c) Support to DPMR; (d) Operational research; (e) Support to local NGOs; (f) Socio-economic rehabilitation and (g) Community participation. ILEP proposed to constitute a national forum for partners in NLEP to review the progress and needs of the programme and to discuss technical issues with the GOI[2].

iii. Post elimination strategies - GOI

Upon achieving the intermediate goal of leprosy elimination at the national level, the GOI initiated a Programme Implementation Plan (PIP): 2005 - 2007[3] with a focus on achieving the goal at the sub-national level. In late 2006, the GOI has promoted a Disability Prevention and Medical Rehabilitation (DPMR) programme to involve and strengthen the institutions providing reconstructive services to cater the needs of disabled leprosy patients [4]. The GOI is expected to endorse WHO's global strategy and propose a plan of action as recommended by its expert group including the ILEP in the 11th Five Year Plan (2007 – 2012).

Recently, the GOI has rightly taken a midcourse correction and issued guidelines by setting New Case Detection Rate (NCDR) as an indicator for quarterly assessment of NLEP instead of Prevalence rate (PR) and promoting special efforts to bring out hidden cases. These steps will go a long way in reverting the 'target oriented performance appraisal' to actual new case detection and pave way for leprosy elimination in real terms.

ALERT-INDIA's strategy for leprosy control during 'integration phase'

In India, we had a 'cut-off' date both for 'Integration' and 'Elimination' of leprosy. In fact, following the announcement of 'elimination' as an achievement of intermediate goal and 'integration' as policy frame for future leprosy work, we have entered a new phase in the leprosy control in India. At this stage, the strategies adopted cannot be determined by unilateral actions by the leprosy relief agencies. The main players are the public health care system and the community who can accelerate the successful realization of the objectives of this phase.

ALERT-INDIA believes that the integration and elimination are a process that can be realized by sustained interventions over a period of time by all of us. Therefore, ALERT-INDIA has evolved a feasible strategy for the leprosy control during integration and post-elimination phase. Moreover, future leprosy control work, beyond 2012 or 2020, depends on the efforts and progress made in the next five to ten years.

ALERT-INDIA refined its vision statement in 2004 [5]: ***'to strive towards programmes focussing on community partnership strategies to achieve the goal of leprosy elimination during the integration phase, in alliance with all stakeholders, to make leprosy elimination a reality for people'***.

Based on this vision, ALERT-INDIA formulated a strategic plan called

"Leprosy Elimination Action Programme: 2005 - 2010" (LEAP) [6]**.**

LEAP promoted by ALERT-INDIA* aims to make best of the **potentials** and **opportunities** that are available today with the specialized leprosy agencies by bringing together all the prospective partners to assist the GHC system and to enhance the quality of the services for the leprosy-affected individuals.

Plan of action

A plan of action based on LEAP strategy, was developed to set up a programme with diverse initiatives involving multiple partners through the general health care system and community participation. In 2005, the first phase of LEAP was launched in urban areas of Mumbai and in backward districts of Maharashtra in partnership with various stakeholders. We are at the third year of the first phase. Learning from our own experience and of other players in the field, we are also preparing for the second phase to be launched in 2008.

Overall objective [7]**:**

LEAP aims "to strengthen the integration and to sustain the leprosy control activities through a community partnership approach by involving all stakeholders".

Specific objective 1: To reach all new leprosy patients through intensive community level IEC campaigns and **Selective Special Drives (SSDs)** - specially in selected endemic areas.

Rationale:

a. Routine surveys are discontinued due to low yield and increased cost. Special campaigns were discouraged as it was counterproductive. The previous active case detection methods did not involve community groups or organizations.

b. Continuing ignorance about basic scientific information on early signs of leprosy and socio-religious myths need to be countered consistently in the general community to promote voluntary reporting.

c. Constant migration of population makes the task difficult for the health service providers to identify the source of infection and to break the chain of transmission.

Action plan:

a. Developing appropriate education materials with simple and positive information for leprosy affected persons and community to remove the misconceptions about leprosy using

different media as well as sharing these with all stakeholders.

b. Mobilizing the community potential and developing community spokesperson for sustained campaigns.

c. Selecting / training / equipping community volunteers with primary knowledge of signs and symptoms to suspect leprosy in their own locality / population covered as a part from their regular duty in epidemiologically significant areas identified, based on specific criteria** for **Selective Special Drives (SSDs)** .

d. Engaging community volunteers to involve various sections of community groups (such as CBOs / health workers of Govt. & NGOs / anganwadi workers & teachers and other health & development workers etc. who are in regular contact with people) in practically organizing and participating in leprosy awareness campaigns. These volunteers are encouraged to multiply such efforts on their own even after the drive.

SSDs are conducted in urban slums of Mumbai and rural districts of Maharastra by ALERT-INDIA *and other partner organizations – Leprosy and Health NGOs. The result is many spokesmen for leprosy in the selected community groups, who promote referrals in addition to voluntary reporting of new cases. Results are very encouraging as SSD bring out multibacillary (MB) leprosy cases at different stages. Such community partnerships in areas known as endemic for leprosy can help promote early new case detection and minimize disease morbidity.*

Specific objective 2: To augment the capacity building efforts of all GHC personnel, medical professionals and health care functionaries through **Continuing Medical Education (CME)** programmes.

Rationale:

a. Lack of appropriate knowledge & skills to diagnose and treat leprosy by the GHC personnel. The medical professionals in the public and private health sector of all disciplines need to be involved as active 'partners' in leprosy control.

b. Absence of emphasis on integrating leprosy services with the medical and surgical institutions has been largely responsible for depriving the essential services for leprosy patients on par with other diseases.

Action plan:

a. Developing suitable training modules and practical guides for transferring

the knowledge and skills on leprosy to various categories of health personnel working in GHC system.

b. Offering practical and task oriented training to the GHC personnel in diagnosing and treating leprosy as well as its complications effectively.

c. Continuing dissemination of information through updates and publications on clinical and epidemiological aspects of leprosy to medical students and professionals of all disciplines including general medical practitioners.

d. Campaigning for curriculum change in medical and paramedical courses in tune with the recent development in leprosy control

Several categories of GHC personnel – Medical doctors and health workers of Urban Health Posts of Municipal corporations in Mumbai and Thane districts and Primary Health Care Centres in rural districts of Maharashtra - and medical professionals – Medical students of all discipline, paramedical and Private Medical Practitioners - trained through CME programmes carried out under LEAP.

A simple practical guide to equip the public health doctors is made available in English and Hindi. This has resulted in increased referrals of leprosy cases for confirmation of diagnosis, management of complications and disability care. These efforts are ultimately aimed to facilitate the GHC personnel and other medical professionals to treat leprosy on par with other diseases.

Specific objective 3: To offer timely and comprehensive care to all leprosy patients through a network of **Leprosy Referral Centres (LRCs),** in collaboration with the public & private health care providers / Institutions for specialized services.

Rationale:

a. Lack of skills to detect early nerve damage and manage leprosy complications by the GHC personnel [reactions / neuritis] would result in development of new disability.
b. Lack of facilities to offer comprehensive care / specialized treatment for the leprosy patients, especially for those with disabilities and deformities.
c. Referral services for counseling, prevention and management of deformity including the provision of protective aids and rehabilitation services need to be located at district level for easy accessibility to patients equipped with appropriate tools and trained manpower.

Action plan :

a. Establishing new or strengthening the existing referral centres of various partners at the sub-district level preferably located at the GHC facilities.
b. Offering practical guidance and technical assistance to the GHC personnel in making accurate diagnosis of difficult cases; refer or manage leprosy complications and providing physical care of all those affected by leprosy.
c. Training and utilizing the experienced leprosy personnel for providing comprehensive care to all leprosy patients referred by the GHC system at the LRCs involving the public health personnel.
d. Counseling to patients and their family and serve as a nucleus for identifying socio-economic rehabilitation needs in addition to information and guidance.
e. Creating linkages and exchanging expertise with the specialities from medical colleges and institutions for providing specialized services including surgery and ophthalmic care to all the needy leprosy affected persons through a planned coordinated effort.

New LRCs, established at the block level under LEAP, in collaboration with local Government, Municipal Corporations and leprosy NGOs at the GHC facilities are easily accessible and serve as a 'signpost' for most leprosy patients seeking treatment and guidance. Collaboration involves (i) hands-on training for leprosy and GHC staff on nerve function assessment and management of complications and (ii) supplying with necessary physiotherapy equipments (Muscle stimulator and Wax-bath) and protective aids (Splints and MCR footwear). A full fledged Footwear, prosthesis and splint unit caters to the needs of NGLOs and Govt. units.

37 LRCs (11 urban & 26 rural) are assisted and promoted under LEAP in Mumbai & Navi Mumbai and five districts of Maharashtra state and one in Baster district, Chhattisgarh state.

The locations of LRCs at and the involvement of public health care personnel in PHCs / Rural hospitals in providing specialized services to leprosy patients can alone minimize the dependency on the vertical leprosy agencies and their staff and ensure sustained care in future. A small, but definite beginning. Miles to go.

Specific objective 4: To monitor and evaluate the outcome and the impact of all interventions proposed, supported and supplemented under LEAP.

Rationale:

a. The present Simplified Information System (SIS) is inadequate and need to include all essential information useful for long-term monitoring of patients as well as the disease control programme. Reviewing and evaluating the outcome of all interventions is essential to make appropriate change in strategy to enhance the quality of the programme.

b. Need to continue the surveillance and monitoring systems. This will provide the programme managers and health administrators to have a clear understanding of the priorities in the integrated set up.

Action plan:

a. Maintaining a central registry for recording and analyzing the trend of epidemiological indicators that helped to measure the true magnitude of the disease and the disease morbidity in the community.

b. Undertaking specific studies through operational research to ensure the efficiency of the leprosy control and providing feedback to all stakeholders for mid course corrections.

c. Conducting epidemiological validation drives, as an inbuilt component of monitoring and sustaining the gains made so far in achieving the goal of leprosy elimination.

LEAP has established a 'Central Registry' to record all new cases in Mumbai and assists one in Thane along with the Government and Corporation authorities. The epidemiological validation drive to assess the leprosy situation in Mumbai through a 'sample survey', [9] *carried out in collaboration with leprosy NGLOs authorized by Municipal corporation, reveal that the actual new cases recorded is thrice than the reported figures in our project areas. The drive is in progress.*

The monitoring and validating key epidemiological indicators in Mumbai have helped to overcome operational fallacies and measure the impact of leprosy control activities by multiple partners.

The prospect

LEAP is a proactive programme to strengthen the process of integration and has made a small beginning to address the remaining challenges in leprosy during the post-elimination period. It basically promotes community participation and public health involvement for leprosy

control. LEAP aims to make a difference by involving various stakeholders as 'partners'. It believes in pooling strengths and resources can take us closer to the goal. Hence, it enlists service providers who were kept outside the purview of leprosy control in the past.

It primarily attempts to address all the needs of the leprosy affected through a patient-centric approach and minimize the socio-economic consequences to the extent possible. Leprosy patients of today and yesterday have rights to quality services. It is our endeavour to reach out to them through planned interventions under LEAP.

* **LEAP,** as developed and implemented by ALERT-INDIA is endorsed and supported by Aneswad Foundation, Bilbao, Spain.

** **Criteria:**
Areas endemic for leprosy – specific pockets reporting more number of new cases, specially MB cases
Areas with special population groups (migrants, socio-economically and backward community groups in slums / tribal pockets / new settlements). ■

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Skin smear for detecting early lepromatous leprosy cases

Skin smear examination requires a suitably equipped laboratory with staff trained to do this test.

Leprosy skin smear services could be made available in selected units (such as those already doing sputum smears for the diagnosis of TB).

In most patients, a skin smear is not essential in the diagnosis of leprosy, but in some cases of early MB leprosy it may be the only conclusive sign of the disease. The majority of people with leprosy have a negative smear.

If possible, arrange for a skin smear test, especially if there are nodular lesions, or if most of the skin is infiltrated with very indistinct lesions and if there is no obvious loss of sensation.

These features are more suggestive of multibacillary disease, in which the skin smear is often positive, but some of the other signs, such as loss of sensation, may not be present.

A positive skin smear in an untreated individual is diagnostic of leprosy.

Source: *Global Strategy for Further Reducing the Leprosy Burden and Sustaining Leprosy Control Activities 2006-2010; Operational Guidelines; SEA / GLP/2006.2*

Diagnostic tool for detecting M. Leprae infection

Although the global prevalence of leprosy has dropped dramatically coinciding with the introduction of multiple-drug therapy, new case detection rates have remained stable over the years at approximately 700,000 new cases per year.

One interpretation of these findings is that transmission of infection is not significantly affected by current leprosy control measures. In addition to delayed or missed diagnosis of infectious leprosy patients, the lack of tests to measure asymptomatic leprosy infection in contacts also hampers more precise assessment of transmission of the mycobacteria. An important goal would therefore be the development of improved diagnostic tools that are able to detect leprosy infection before clinical manifestations arise.

Scientists from Leiden University Medical Center have developed new bacillary antigens to be used for detection and diagnostics of leprosy infections in subjects. The antigens can detect infection in the early stages and in multibacillary infections, which remain undetected using conventional diagnostic methods.

Source: Mrs. drs. Hester Tak, Tech Transfer Advisor, LEIDEN UNIVERSITY MEDICAL CENTER, Albinusdreef 2, PO Box 9600, 2300 RC Leiden, The Netherlands. Accessed from http://www.lumc.nl as on 20th September 2007

The future incidence of leprosy: a scenario analysis

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Introduction

The mainstay of current leprosy control is early detection and treatment with multidrug therapy (MDT). The number of patients receiving treatment declined after implementation of MDT because its period of treatment is shorter than that for dapsone monotherapy. At the same time, the annual number of new leprosy cases increased [1]. These contrasting trends result from changes in control programmes, and the impact of MDT-based control on transmission is unknown.

MDT was introduced in 1982 because of the emergence of resistance to dapsone monotherapy [2]. Relapse rates are low [3]. MDT has improved the image of leprosy as a curable disease and has led to increases in the commitment of national health services to finding and treating leprosy patients [4, 5]. In 1991 optimism about the impact of MDT led the World Health Assembly (WHA) to pass a resolution to "eliminate leprosy as a public health problem" by the year 2000. This elimination target led to intensive case-finding campaigns, called "leprosy elimination campaign" in the late 1990s. The WHA resolution has therefore indirectly caused the increase in global case detection.

The elimination target was defined as a prevalence of less than one person per 10 000 population registered for treatment by the year 2000 [6-8]. During that year, the number of patients registered for treatment worldwide fell below the target level [9]. This achievement was largely the result of two operational factors: the duration of treatment was shortened, and patients not in need of treatment, but possibly with disabilities, were removed from registries [10, 11]. This elimination target differs from the concept of "elimination of an infectious disease", which is defined as the absence of incident cases in a defined geographical area [12].

Source: *Abraham Miema, W. Cairns S. Smith, Jerrit. J. van Oortmarssen, Han H. Richardus, J. Dik F. Habeema, The future incidence of leprosy: a scenario analysis, Bulletin of the World Health Organization, May 2004, 82 (5), 373 - 380*

In order to reach the elimination target in all countries by the end of 2005, WHO formulated a strategy based on early case detection and MDT, called "the final push" [13]. This strategy is intended to "reduce the leprosy burden to very low levels, and therefore liberate resources to address other health priorities in the community". In response, the editor of *Leprosy Review* pointed out that there is no evidence that reaching the target will reduce transmission, and expressed serious concerns regarding the fulfilment of future demands to control leprosy [11].

An assumption underlying the elimination strategy is that MDT will reduce transmission through reducing the number of contagious individuals in the community, but evidence to support this assumption is lacking [14-16]. Data to evaluate the impact of MDT are not readily available for the several reasons. Because leprosy has a long and variable incubation period [17], decrease in transmission only gradually become evident. Also, declines in case detection may have other causes, such as Bacilli Calmette-Guerin (BCG) vaccination. BCG vaccination is used against tuberculosis, but appears to afford greater protection against leprosy [18]. Variability in control efforts further complicates the interpretation of trend data.

How much transmission a control strategy can prevent depends on two unresolved issues. Is the incubation period contagious, and are close contacts of patient infected rapidly? This article describes scenario based on certain assumptions regarding earliness of case detection, the above-mentioned unresolved issues and BCG vaccination. Theses scenarios were explored using the epidemiological modelling framework known as SIMLEP (a simulation model for leprosy transmission and control), which was designed for assessing and predicting trends in leprosy [19]. For each scenario, the trends in incidence and case detection up to 2020 were projected. By comparing the projections, the impact of the current MDT-based elimination strategy could be explored. An analysis of the sensitivity of the projections for uncertainties in leprosy epidemiology was undertaken. Finally, the consequences of relaxation of the elimination strategy beyond 2005 were predicted.

Discussion

This study addressed two questions: what is the impact of early case detection and MDT treatment on the transmission and incidence of leprosy, and what are the consequences of failing to sustain early case detection?

Early case detection and treatment led to a reduced incidence of leprosy in all scenarios. The time required to halve the incidence was 7 years in the most optimistic scenario with BCG vaccination. Slightly faster declines were obtained in the sensitivity analysis. However, much slower declines were found to be possible; half-value times of 14 years with BCG and 43 years without BCG cannot be excluded. A detailed analysis of the predictions indicates that

ensuring early detection of contagious patients is the key factor in reducing transmission. Treatment with MDT instead of dapsone monotherapy is also beneficial, because of the lower relapse rates after MDT.

Consequences of not sustaining early case detection

Sustained early case detection is essential for maintaining decreases in transmission and incidence: the predicted decrease slows down when the detection delay increases after 2005. Keeping detection delays short will be more difficult when leprosy incidence decreases, because both the general population and health workers will become less experienced in recognizing symptoms of leprosy.

Leprosy is a public health problem because of the disabilities it causes. There may be three million people worldwide with disabilities caused by leprosy [43]. It has been argued that early detection could prevent the development of disabilities in more than three-quarters of patients [44]. Early case detection is therefore also important for prevention of leprosy morbidity.

Trends in detection delay

For most scenarios, the shortening of the detection delay after 1990 resulted in a good fit of the historical trends for the average case detection rate in countries for which data were available throughout 1985-98. The incidence of leprosy in the "good" scenarios decreased by at most 4.4% per year in this period. The simulation shows that where such decline occurs, intensified control may induce a temporary increase in case detection. In recognition of the limited empirical basis for quantifying the detection delay, two additional delay trends were considered in the sensitivity analysis. The impact on incidence predictions was found to be small: detection delays before 2000 did not influence incidence trends far beyond 2000. It could be argued that the 2-year delay used from 1998 onwards is somewhat optimistic [28, 30, 45, 46]; longer delays would lead to less optimistic predictions about future declines in incidence.

Historical case-detection data

The simulated Case Detection Rates (CDRs) increased for more than a decade until 1998, after which control activities were not intensified further. The increase was possible because the simulated CDRs were substantially lower than the incidences in 1985. The increase in the historical CDR also lasted more than a decade. Cumulative new cases detected in 1992-98 exceeded those detected in 1985-91 by at least 50% in eight of the 14 countries for which historical data on CDRs were available [1]. This indicates that the differences between case detection and incidences must indeed have been substantial.

Information on detection of new cases worldwide is incomplete. Aggregate information is available from 1985 onwards for a group of 33 countries in which leprosy is endemic. Throughout

1994-98, at least 97% of cases detected globally were detected in these 33 countries (global figures were not available before 1994) [1]. India detected at least 75% of the cases in this group throughout 1985-98. The other 13 countries in this study accounted for at least 75% of the remaining cases detected. Thus, the majority of the world leprosy problem was concentrated in the 14 countries that detected at least 2000 cases in 1998 and for which historical CDR data were available throughout 1985-98.The figures reported from some countries may be incomplete or contain inaccuracies, and may have been influenced by over diagnosis and re-registration of previously treated patients [39]. Nevertheless, the data used in this analysis were the best available.

To compensate for limitations in the quality of the data, the CDR increase was allowed to deviate by 50% from the increase in the historical CDR over 1985-98, while scoring simulated trends as "good'. The historical trend in CDR reflects an average pattern of case detection trends and only in some cases is it representative of the trend in individual countries. However, the robustness of the predicted declines in incidence beyond 2000 has already been indicated. Given the historical trend towards an increase in CDR, autonomous decrease in transmission (e.g. due to socioeconomic improvement) were not considered.

India was counted as one country in the construction of the historical trend. The CDR in India was quite stable over 1985-98. For each of the three trends in detection delay, the scenarios were also fitted to India alone for the baseline assumptions: this resulted in slower declines in incidence beyond 2000.

Impact of BCG vaccination

The scenario analysis suggests that BCG vaccination is important in reducing the incidence of leprosy, yet for various reasons its impact remains uncertain. BCG vaccination is ignored in half of the scenarios, which is equivalent to making the pessimistic assumption that BCG does not protect against leprosy. The remaining scenarios incorporated optimistic assumptions about the efficacy and coverage of BCG vaccination. Fifty percent lifelong protective efficacy was assumed. In randomized trails, the protection afforded ranged from 20% to 80% with low values reported in India [18, 47]. The assumed trend in coverage is optimistic when compared with data disseminated by WHO [35]. Thus, the impact of BCG vaccination may have been overestimated in this analysis.

Reasons for variability in predicted incidence trends

The scenarios differ in their assumptions regarding two important unknowns, namely, transmission during the incubation period and waning of transmission opportunities due to rapid transmission to close contacts. These unknowns have led to great uncertainty as to the part played by the policy of

isolating patients in the disappearance of leprosy from Norway [24]. Basic and epidemiological research on transmission is required to improve our understanding of the impact of any strategy for controlling leprosy.

Extrapolation to global case detection

In 2000, 720 000 new cases of leprosy were detected worldwide [1]. In an intermediate scenario with BCG vaccination, it would take about 10 years to halve the incidence. If population growth is ignored, extrapolation of this rate of reduction to case detection would imply that 360 000 cases would be detected worldwide in 2010 and 180 000 in 2020. The cumulative number of new patients who will be detected up to 2010 and 2020 is 5 million and 7.5 million, respectively. In the most optimistic prediction, obtained with larger decreases in the detection delay than in the baseline trend (11.8% annual decline in incidence), the number of cases detected would be 4 million in 2010 and 5 million in 2020.

Conclusion

The scenario analysis demonstrates that the present leprosy elimination strategy will reduce transmission, although the decline may be slow. Early case detection is the key factor in the success of the strategy. The uncertainties about the rate of decline and adverse effects of longer detection delays imply that relaxation of leprosy control following the ends of the "final push" period in 2005, when the target of elimination of leprosy as a public health problem is set to be achieved in all countries, is unjustified. A long-term strategy for leprosy control should be adopted. ■

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Risk factors for leprosy among contacts

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"Physical distance, genetic relationship, age, and leprosy classification are independent risk factors for leprosy in contacts of patients with leprosy"

Contact surveys in leprosy should be not only focused on household contacts but also extended to neighbours and consanguineous relatives, especially when the patient has PB 2–5 or MB leprosy.

It has been established that contacts of patients with leprosy have a higher risk of developing leprosy than does the general population. Several risk factors besides being a contact per se have been suggested, such as the type of leprosy of the index patient, the age and sex of the contact, and the genetic and physical distance of the contact to the patient [1–5]. Contact tracing is an important intervention in leprosy control, but it is usually limited to immediate contacts, such as persons living in the same household. Beyond contact tracing and examination to diagnose and treat leprosy at an early phase, other possible interventions for contacts are chemoprophylaxis and repeated bacille Calmette-Gue´rin (BCG) vaccination. From a review of the literature, it was concluded that targeted interventions should be aimed at close contacts both inside and outside the household, particularly when those persons are genetically related to the index patient, and that contacts of patients with paucibacillary (PB) leprosy should also be included [6]. The independent contribution and relative importance of the various risk factors to the risk of developing leprosy, however, have never been studied in detail or sufficiently quantified. This is particularly the case for genetic and physical distance—2 important factors that have never been

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disentangled. The Prospective Sero-epidemiological Study on Contact Transmission and Chemoprophylaxis in Leprosy (COLEP) was developed to investigate the potential benefits of chemoprophylaxis among contacts of patients newly diagnosed as having leprosy. It was a double-blind, placebo-controlled trial with a follow-up period of 4 years [7]. To define the subgroups most at risk for developing leprosy, the contacts were coded in detail according to both the physical and the genetic distance from the patient. In the present article, we describe the contact population of the COLEP study and analyze the prevalence of leprosy among the contact population and its relationship to different contact and patient characteristics.

DISCUSSION

Contacts of patients with leprosy have a higher risk of contracting leprosy than does the general population. Several risk factors—both patient and contact related—have been suggested, but their clinical relevance and relative importance have not been well established. The intake data of the COLEP study enabled us to quantify, in a community where leprosy is highly endemic, the effects of age, sex, BCG scar in the contact, leprosy classification of the index patient, and physical and genetic distance. Because these data are cross-sectional by nature, the number of new patients with leprosy found among the contacts was a prevalence figure and not an incidence rate.

Age and sex of the contact:

The overall effect of age was highly significant, with older persons being more at risk. Our data showed a bimodal distribution that has been described elsewhere [2]. We observed an increased risk from age 5 to 15 years that peaked between age 15 and 20 years, followed by a decreased risk from age 20 to 29 years. After age 30 years, the risk again increased gradually. This was the case for both male and female contacts. A similar distribution was found for the detection rates of new cases in patients with leprosy who were detected passively in the same area in Bangladesh, but only for females [8]. It was suggested at the time that the observed decrease in the detection rate of new cases in females 20–30 years old could have been due to local social circumstances, with young women being more isolated in the community and, possibly, also shying away from examination, to avoid the stigma of leprosy and its consequences for marriage. The present study of leprosy among contacts of patients with leprosy, however, showed the same trend in both sexes. Immunological effects of pregnancy in young adults would theoretically lead to a higher incidence of leprosy in this age group, so it cannot be an explanation for the observed distribution [9]. In our study, existing pregnancy was one of the exclusion criteria; 438 women were excluded because of this. The leprosy status was recorded for 60% of these women, and none of them had leprosy. In our study, there was a small

overrepresentation of males among patients with leprosy, but this was not statistically significant. Because the number of males and females in our contact group was nearly similar, we do not think that the observed small difference can be explained by examination bias. There have been conflicting findings with regard to sex in general as risk factor for leprosy. Two studies in India found no difference between males and females [10, 11] but, in Malawi, the risk was significantly greater for males than for females [3]. Other studies also noted that the attack rate in female contacts was lower than that in male contacts [12–14]. It may be concluded from our study that male and female contacts are equally susceptible to contract leprosy and that, for both sexes, persons 20–29 years old have less risk than those 5–19 and >30 years old.

Type of leprosy of the patient:

It has often been observed that contacts of patients with MB leprosy have a higher risk than contacts of patients with PB leprosy who, again, have a higher risk than non-contacts [3, 5, 10–12, 14– 17]. Our data confirm a higher risk for contacts of patients with MB leprosy, but only in comparison with contacts of patients with SLPB leprosy. The contacts of patients with PB 2–5 and MB leprosy appeared to have a similar risk. This raises the issue of the degree of infectiousness of patients classified as having PB 2–5 leprosy. This question cannot be answered in the context of the present cross-sectional study, in which a common source for both the index patient and the contact with leprosy could not be ruled out. It should be noted that the detection rate of new cases among contacts of patients with SLPB leprosy was also high (5.5 cases/ 1000 contacts), which justifies contact tracing of all patients, regardless of the type of leprosy.

BCG vaccination

Trials and case-control studies of BCG vaccination in both the general population and contacts of patients with leprosy have shown that it provides protection against leprosy, especially when it is done repeatedly [18–22]. Although the magnitude of this protective effect differs considerably, from 20% to 80%, it is likely that BCG vaccination (as indicated by a scar) indicates a lower risk. It is not always certain, however, that a scar in the shoulder area where BCG vaccination is given is indeed a BCG scar. In our study, it is probably better to speak of a "BCG-like scar." Our data showed a higher risk for persons without a BCG-like scar. Yet the presence of such a scar was statistically correlated with age (*P*p.01); younger individuals were far more likely to have received BCG vaccination. Multivariate analysis that included the presence of a BCG scar and age as separate variables showed that the significance of a BCG scar disappeared, whereas age remained a significant factor. This is contrary to what is generally found and could be partly explained by the fact that we used a proxy for BCG vaccination

(the BCG-like scar) and, thus, may have underestimated the true effect of BCG vaccination. In addition, BCG vaccination boosts cellular immunity and so could shift the spectrum of leprosy toward the tuberculoid pole. The decreased risk would therefore be mainly for MB leprosy. Because all new cases among the contacts in our study were PB disease, we could not evaluate a possible different risk for MB leprosy. Our findings could well be in line with the suggested underestimation of the protection of BCG vaccination against PB leprosy [22–24].

Physical distance from the patient:

It has been established that there is an inverse relationship between physical distance from a patient with leprosy and the risk to the contact of contracting leprosy [10, 15, 25]. Our data showed the same trend, but it was not linear. KR contacts—the core household group—had a higher risk than R contacts living in the same house or building and N1 contacts, who, in turn, had a higher risk than N2 and S contacts. There was a similar risk for K contacts, compared with N2 contacts. This might indicate that, for the transmission of leprosy, the category of N2 contacts was more or less homogeneous, irrespective of whether a person shared a kitchen with the patient. Because of the comparable number and age distribution of S and N2 contacts, we doubt whether the field staff strictly followed the guidelines for inclusion in the S category. Many of these contacts appeared to have been neighbors of N2 contacts. This was partly due to the examples of housing schemes that we used for instruction. During the first follow-up period, we will attempt to separate real S contacts from the others. For the present analysis, we regarded them all as having a greater physical distance from the patient than the N2 contacts.

Genetic distance from the patient:

Most contact studies of leprosy have referred to household contacts. Because household contacts often share a common genetic background, differences in risk, compared with those of the general population, could be attributed, at least in part, to genetic factors. For half a century, the role of hereditary factors in developing clinical leprosy has been considered [26]. This idea has been supported by twin studies [27], segregation analyses [28], and genome scans [29, 30]. In a review of this topic in 2002, it was concluded that several genes may be involved in susceptibility to leprosy per se or to a type of leprosy, but, because many of the associations have only been found in small series of patients or in a single population, these findings would need confirmation in larger studies [4]. It can be concluded, however, that there is accumulating evidence that the risk of developing leprosy is partly genetically determined. The contribution of genetic predisposition to the development of leprosy still remains to be quantified and disentangled from the effect of relatives living closely together. The results of our

analysis strongly support the view that a genetic relationship is indeed a relevant risk factor, independent of physical distance. Univariate analysis showed that closely related contacts of the index patient had a higher risk than the most distant category, N contacts. This was highly significant for C (OR, 3.49), P (OR, 2.39), and B (OR, 2.84) contacts. M contacts are a special category, because they are usually not closely genetically related to the index patient. However, the risk for M contacts is significantly higher (OR, 3.29) than that for N contacts, which can be explained by the close physical distance, because, when it was used as a separate category in a multivariate analysis beside closely related and not closely related contacts, the adjusted OR for M contacts was 1.23 (*P*p.665). In the multivariate analysis, the OR of the closely blood-related group (C, P, and B contacts) taken together was 1.65 (*P*p.029), which demonstrated an independent effect of genetic distance as a risk factor for the development of leprosy. It has to be kept in mind, however, that the physical distance was measured according to dwelling place only. It is possible that close relatives who are neighbors spend more time together than do non-related neighbors. In conclusion, the intake data of the COLEP study confirmed that the classification of the index patient, the physical distance of the contact from the patient, and the age of the contact are significant risk factors for the presence of leprosy among contacts of patients newly diagnosed as having leprosy. We could not confirm an effect of sex and prior BCG vaccination on this risk. Our data also demonstrated a statistically significant effect of genetic relationship on the risk, independent of physical distance. In practical terms, this means that contact surveys, which are being performed at present mainly among household contacts, should be extended to neighbors and consanguineous relatives, especially when the patient has PB2–5 or MB leprosy. ■

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What is necessary to eradicate leprosy?

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The continuing detection of new leprosy cases at an unchanged rate indicates that sustainable leprosy control programmes should be maintained so that the recent gains are not lost. What will be required to eradicate leprosy completely as a human disease? The cornerstone of any effective programme will remain MDT and early case detection based on passive case finding. Leprosy control activities are being integrated into general health services in many endemic countries, and this period of integration requires careful planning and implementation or the needs of leprosy control will be swamped by other pressing health problems, such as HIV/AIDS and tuberculosis.

Elements of an effective programme will include the continuing provision of standard MDT drug packs through primary-health-care facilities, training of general health staff in leprosy diagnosis and treatment, the early treatment and referral of leprosy complications, the maintenance of expertise in leprosy in endemic countries, effective supervision and monitoring, and in some situations, special programmes for "difficult to reach" groups of patients. One positive outcome of MDT has been the wide recognition in leprosy-endemic communities that leprosy is curable. Appropriate community health education, that leprosy is treatable before disability occurs, is an important component of leprosy control to promote early presentation before the appearance of impairment of nerve function and disability. The development of tools to recognise infection with *M leprae* before the disease manifests itself might help to target prophylactic approaches. Finally, continued political commitment to leprosy control is essential, because these measures will be required for decades before leprosy can be judged a disease of the past. ■

Source: *Leprosy, Warwick J Britton, Diana N J Lockwood, THE LANCET, 2004, Vol 363: 1209 - 1219*

'Leprosy elimination' - Need for sample survey

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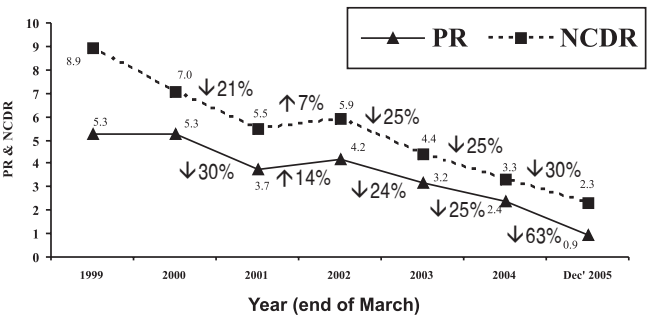
With the announcement of achieving the intermediate 'target for leprosy elimination' *(defined as a prevalence rate of less than one case per 10,000 population by the end of 2005)* by the Govt. of India (GOI), a new optimism of eradicating leprosy has become a talking-point in various forums.This declaration has also greatly influenced the public perception about the leprosy burden and has *adversely affected the ongoing leprosy control efforts in terms of programme priorities, manpower utilization and resources.*

The National Leprosy Eradication Programme (NLEP) is 'continuing the efforts to achieve elimination of leprosy through existing MDT services in the remaining districts and blocks as a strategy for the future'.[1] This has guided the programme managers at the state and district level to apply their own 'criteria for registration of new cases' in order to sustain or reduce below the target level. Such misinformed policy perceptions and measures can only lead to an upsurge of the problem in future. This has led to serious setbacks in sustaining leprosy



Source: *A. Antony Samy, Letter to the Editor; 'Leprosy Elimination – need for sample survey', Lepr Rev, 2007; 78: 2, p167 – 169.*

control measures and strategies for quality care at the field level.

WHO has rightly maintained that the 'given consistent procedures for case detection, figures for a period of several years will show whether there is an increase or decrease in numbers, which may indicate whether activities aimed at controlling the disease are effective'.[2] A careful observation of the trend (see graph) for the past 6 years shows a sharp decline in the reported point prevalence rate (PR) in India from 24% in 2003 to 63% in December 2005.[1] Similar trend was also observed in the prevalence rates reported from Maharashtra and Mumbai during the same period.

Is it a decline propelled by the change in policy and operational practices or an epidemiological phenomenon? What additional inputs to the programme have brought in such a decline in the reported prevalence is not known.

The tremendous progress towards leprosy elimination made due to the introduction of MDT is unquestionable. The question is how far the reported figures today reflect the true situation. In 2003, WHO opined that the 'case detection trends in India are not showing any appreciable decline and there is no clear explanation for the persistence of this situation in spite of the highly specialized and expensive vertical programme in operation for close to 50 years'.[3]

Recently, in 2006, the Technical Advisory Group (TAG), WHO 'reviewed the figures based on data reported by countries (including India) and identified a number of issues, which need further analysis, particularly disparities between new case detection and registered prevalence'.[4] It is pointed out that 'the over-emphasis on early diagnosis and the absence of robust criteria and methods for diagnosing early leprosy compounded by 'target pressures' have made leprosy statistics on case-detection generally less accurate'. Therefore, *'it is not easy to directly interpret changes in case-detection as an attribute of changes in transmission of the disease'*.[5]

The fact that new cases continue to occur across the region in the country and with high proportion of MB cases, calls for an in-depth assessment of the situation and appropriate action plan. We lack knowledge about the specific regions or the population groups, where new cases surface. It is 'extremely difficult to agree with the policy makers that the disease has declined and shown unprecedented and sudden change in epidemiological trend within a prescribed time span set by WHO', leaves one to wonder, the manner in which the disease has behaved.[6]

Routine surveys to detect new cases were considered as time consuming, uneconomical and less productive particularly in low incidence phase of leprosy. No one can question the wisdom

of this. Unfortunately, this has resulted in 'all or none' policy as regards the efforts to detect new cases at an early stage from the selected areas that are identified to harbour new cases.

Present policy insistence on the new case detection of leprosy should only be relied on the awareness campaigns aimed to promote self-reporting. WHO has cautioned that 'the awareness about the disease is low, and the negative images traditionally associated with leprosy persist. These factors have prevented patients from coming early for diagnosis and treatment, thus *increasing the risk of their becoming disabled and transmitting the disease to others'*.[7]

Further, WHO has also clarified that 'it seems likely, however some new cases never come for diagnosis and treatment, so the *number of cases detected is lower than the number of incident cases*'.[2] All these cautions have gone in the wind with the euphoria of leprosy elimination and the talk of eradication.

Sample Survey – a strategy for epidemiological surveillance

WHO has strongly advocated that 'special monitoring exercises may be carried out periodically to *validate case-detection and quality-of-care indicators*, as part of routine supervision or *by independent teams on a sampling basis'*.[2] 'If the population of the area is known, it is possible to calculate the case detection rate (the number of new cases per 100,000 people) which can be compared with other areas'.[8]

From the human rights point of view, 'for patients, it is important that the diagnosis of leprosy should be made as early as possible so that effective treatment can be started and steps taken to prevent nerve damage'.[9] The reduction in the number of new cases with disabilities and its consequences is directly attributed to the 'early' case detection. WHO emphasized that 'there is an urgent need to identify, through independent (and rapid) assessment, *geographic areas where the transmission of leprosy is high'*. WHO also admits that 'there are no tools at the moment to carry out such an exercise and *existing epidemiological surveillance systems are not yet sufficiently effective*'.[10]

In the absence of any rapid diagnostic test available for mass programme, one would really wonder how this can be accomplished by any means other than a sample survey in different geographical areas where new cases continue to occur. Sample survey is an effective tool for disease surveillance and for detecting hidden cases. However, the policy hurdles on the need for sample surveys is yet to be overcome! ■

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Developing a framework for a strategy to sustain elimination: 2006–2010

- It is important that efforts be made to sustain such achievements, to reduce the disease burden still further, and to make MDT services easily accessible to communities in which new cases of leprosy will continue to be detected. **There will be no advantage in continuing to use elimination as an indicator or in defining another numerical target or timeframe for the period beyond 2005:** the most important indicator for monitoring the leprosy situation will be the declining trend in new case detection.

- The key issue will be to integrate all essential components of leprosy control, including the referral facilities, within the existing primary health care system or another relevant programme.

- The main concern, at least in some large vertical programmes, will be the reallocation of existing personnel, in order to provide technical support, monitoring and supervision. It will be important to build up the capacity of both vertical workers and general health workers to take on new responsibilities.

Source: *Excerpts from the Report on the sixth meeting of the WHO Technical Advisory Group on Elimination of Leprosy, Geneva, February 2004, WHO/CDS/CPE/CEE/2004.41, P. 15*

Planning health education interventions

ILEP Technical Bulletin
International Federation of Anti-Leprosy Association- 234 Blythe Road, London, W14, OHJ, UK

Introduction

Health Education activities have an important role to play in leprosy control programmes. The changing epidemiological situation of leprosy in different geographical areas of the world may mean that the strategies for Health Education need to be reviewed.

Health Education interventions may be directed towards a community or towards individual leprosy affected persons, with different objectives, for example:

For Community Health Education:

- To inform the community about early signs and symptoms of the disease and the possibilities for treatment available in the area, so that new cases are detected by voluntary presentation of suspected cases in the early phase of the disease.
- To inform the community about the effectiveness of the treatment, counteract the stigma and promote community integration of affected persons and their families.

For Patient Health Education:

- To ensure that diagnosed patients take their treatment regularly and complete the course.
- To inform patients about the early signs and symptoms of complications such as reactions and what needs to be done if they should occur.
- To inform the at risk cases about self-care and prevention of disabilities.

Health Education activities should be organized with a clear understanding of the objectives to be reached and after a critical analysis of different possible interventions. Only then can such activities be implemented and evaluated. The present paper presents a basic framework for the planning of health education interventions.

Source: *ILEP TECHNICAL BULLETIN: Advice from the Medico-Social Commission; Issue No. 13, June 1998*

Undertake a situation analysis

The first step is the clear identification of the problems for which health education interventions are needed, for example:

For Community Health Education the problem identified may be: 'High number of grade II disability among the new cases identified by the project, which means that new cases are not detected early enough'.

For Patient Health Education the problem identified may be: 'High number of registered cases does not complete their treatment'.

It is important that before deciding on Health Education intervention, the project manager has an answer to the question 'why' regarding the problem identified. Thus it is possible to find that a health education intervention may not be useful for a specific problem.

For example, if a large percentage of registered cases do not complete their treatment because the health centre is not easily accessible, a Health Education intervention may not make any difference in that situation. Before the intervention is undertaken, it is necessary to clarify what kind of intervention would be effective.

Decide what kind of intervention is best suited for reaching the objective

If the Situation Analysis shows that a Health Education intervention could be useful in resolving the problem identified, the project would need to identify the precise target groups and collect more information about the target groups for planning a cost-effective intervention.

This means knowing about the gender, age, education, occupation, behaviour, and different aspects of the target groups. At the same time, the planners need to know what different kinds of interventions of Health Education are possible, so that the most effective intervention can be chosen, for example:

For Community Health Education, if the problem identified is 'high number of Grade 2 disability among new cases', further analysis may show that most of the disabled new cases are young women, which becomes the specific target group of the intervention.

On the basis of information collected about young women in the area, the health education intervention consists of preparing posters showing early signs of leprosy in young women and talks given through the women's groups of the village.

For Patient Health Education, if the problem identified is, 'high number of plantar ulcers in registered cases', further analysis may show that the problem concerns mainly adult male farmers, which becomes the specific group for intervention.

On the basis of information collected about male farmers in the area, the Health Education interventions may include: practical demonstration by health workers about care of feet, involving leprosy affected persons in giving talks to the patients and use of Health Education materials showing the progression of complications as well as the positive effects of proper care and use of footwear.

Different kinds of interventions

While Community Health Education interventions are mainly aimed at groups of people, those for patient education can be aimed at both individuals and groups. As far as possible, the messages used in the Health Education campaigns should be positive and simple. The messages are much more effective when the target groups have a chance to express their opinions and interact. The different kinds of health education interventions include:

- Audio-visual messages through television, slides, films, videos, etc. Apart from accessibility of the target group to this kind of message and logistical aspects (such as the provision of electricity in order to show the pictures), it is important that the contents of the message must be similar to the cultural and racial characteristics of the target group. For example, a film showing people with Asian features may not be able to get across the message in Africa or South America.

- Audio messages can be made through radiobroadcasts, talking to an individual or a group of patients in health centres, speeches in the city or village square on occasions such as World Leprosy day. Thus health workers may need to have more knowledge about the disease, its complications and the need for treatment for patient education individually or in groups.

- In influencing the views of the community, the involvement of local celebrities, leaders, religious leaders and such like, should be considered carefully since if used properly, this can dramatically increase the impact of the message. Group discussions among affected persons where the target groups play an active role, can be very effective.

- Written messages can use only words, or words accompanied with pictures through pamphlets and posters. Where pictures are used, the persons shown in them should be similar in dress, costumes, and facial features to the target groups. For written messages, the literacy level of target groups becomes the most important factor in determining the effectiveness of the message. The language used must be simple with as much use of local expressions as possible.

- Specific interventions such as child-to-child approaches can be useful for reaching schoolchildren. Involvement of leprosy affected persons may also be useful in reaching specific groups.

For any chosen intervention, it is necessary to make one or more field tests before investing a large amount of resources. For example, a pilot test may show that the language used in a pamphlet is too difficult or that the message is too complicated and is not understood or misunderstood.

Study the advantages and constraints of different possible interventions

Before deciding which intervention can be used for health education, it is important to analyse the advantages and constraints of each, as in general the resources for such interventions may be limited. Use of public media for Health Education needs to be carefully considered.

Thus projects may pay for broadcasting time on TV or radio or buy space in news papers. Sometimes, projects may organise the activities in such a way that they acquire a 'news value' and are broadcast or published in public media free of charge, though there is a risk that the message which comes across may not be complete or correct.

Evaluating your health education interventions

Evaluating Health Education interventions can be difficult. When a new intervention is selected, the steps for evaluating the effect of the intervention should be decided upon. This evaluation may be directly linked to the problem for which the Health Education intervention was organised.

For example, if a community awareness campaign is organised because the number of Grade 2 disabilities is very high in new cases, and after intervention, more persons present themselves in the early phase without disabilities, this could show the effectiveness of the approach. ■

Leprosy detection: Involvement of teachers

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India accounts for the major burden of globally recorded leprosy patients despite claims to having reduced the burden to below the level of public health significance. Interstate variations in the prevalence rates and the percentage of population at risk are quite substantial. The states of U.P, Bihar, Jharkhand, Orissa, West Bengal and Madhya Pradesh contribute to nearly 63% of the country's case load.[1]

One of the goals of the National Health Policy 2002 was to achieve a reduction in leprosy cases to < 1 in 10,000 in the general population by December 2005. Modified leprosy elimination campaigns (MLECs) which had been carried out between 1997-2004, yielded > 1 million new cases that were treated with multidrug therapy (MDT) and cured.[2] However, more needs to be done in states like Chhatisgarh where the disease prevalence is still more than the national average.

To achieve the goal of elimination of leprosy, the strategy being used is the effective interruption of disease transmission by early detection of leprosy cases and their prompt and effective treatment. The MLECs had been conducted with an objective of increasing public awareness about leprosy, building the capacity of general healthcare staff to deliver services and to detect and treat hidden cases by conducting an intensive, time-limited survey among the people to detect hidden leprosy cases.

Elimination of leprosy has been achieved by India at the national level, however, the aim of the healthcare sector is to detect 'hidden' cases of leprosy and start treatment quickly.[2] Much remains to be done in urban areas where the coverage of the governmental primary healthcare structure is minimal. Although not a part of the policy of the Govt. of India, 'school surveys' need to be considered as there is a large population of children who need

Source: *Cariappa MP. Leprosy detection: Involvement of teachers. Indian J Dermatol Venereol Leprol, 2007;73; 4 :266-267.*

to be covered especially in urban areas. An earlier study in school children was found to be effective in the detection of leprosy in Tamil Nadu, with a new case detection rate (NCDR) of 6.05/10,000.[3]

This approach may have a component of 'peer embarrassment', wherein a subset of children may be hesitant to come forward and tell their peers about any skin lesions on covered body parts. However, within the overall ambit of the concept of a School Health Program, teachers are usually the first point of contact of school children and as such, are supposed to be keeping a watchful eye on the health of their pupils.

Besides, during routine school health examinations, the services of the teachers are co-opted for conducting various screening activities, rendering the teachers attuned to such activities and sensitive to further orientation.

As a 'proof of concept' project, teachers of two government-run schools in Hazaribagh District of Jharkhand, (prevalence of leprosy = 3.21 per 10,000) were trained through the use of visual aids and interactive group discussion, to screen for leprosy among school children. The limitation of this project was that the "trained teachers" would undertake examination of only the exposed areas and rely on inputs from students for any lesions on covered areas. Prior to this, active approval for the project was obtained through the forum of the Parent Teacher Association (PTA).

An introductory talk was given to students during the daily school assembly on the occasion of National Leprosy Day in January, 2003, outlining the importance of leprosy as a problem. The screening of students of all classes was done by the school teachers with due attention being paid to gender sensitivity. This was followed by referral for expert evaluation to us, through coordinated visits to the school, to obviate wastage of school hours.

All suspect cases were then referred to the hospital-based clinic of the military Dermatologist and were required to be accompanied by the parents. Expert confirmation was done and treatment commenced as per MDT guidelines.

We found four cases of paucibacillary leprosy amongst the 2400 school children screened, which translates to a NCDR of 16.6 per 10,000. It is possible that due to active screening of the pupils by the teachers, the detection rate for this project would be higher than that in the project conducted by Norman *et al.* involving screening relying on reporting to peers.[3] This serves to illustrate the relevance of such an approach targeting schools especially in urban areas, which could be coordinated through the involvement of nongovernmental organizations (NGO) and PTAs.

The large number of cases among children which might go undetected in the course of routine screening initiatives, can be brought 'under the scanner' by taking advantage of the organization of the school system and training motivated teachers to screen, initially verbally, then by local examination as indicated. The advantage of focusing on schools is the potential for health education and dissemination of information on the disease to the family, besides influencing future behavior and attitudes among students. ■

References

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- *Agarwal SP. Progress in the elimination of Leprosy in India. Natl Med J India 2005;18:1-3.*
- *Norman G, Joseph GA, Udayasuriyan P, Samuel P, Venugopal M. Leprosy case detection using schoolchildren. Lepr Rev 2004;75:34-9.*

What is a 'new' leprosy case?

There are various groups of people who need MDT, recorded as either **New** or **Other**:

New Cases: people with signs of leprosy who have never received treatment before

Other cases include:

– *Relapse cases* receive exactly the same treatment as new cases (either PB or MB);

– People who *return from default* receive exactly the same treatment as new cases (either PB or MB)

– Cases who have been *transferred in*: these people should come with a record of the treatment they have received to date. They require only enough treatment to complete their current course.

– People with a *change in classification* from PB to MB, need a full course of MB treatment.

NB: None of the "Other Cases" should be recorded as "New Cases"

Source: *Global Strategy for Further Reducing the Leprosy Burden and Sustaining Leprosy Control Activities 2006-2010; Operational Guidelines; SEA / GLP/ 2006.2*

National health policy on disease control programme

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To bring about the desired changes in health care system in a diverse society like ours is difficult. However, by putting our existing infrastructure to optimal use and by exploiting the facilities of socio-political system, this can indeed be a reality in the not so distant future.

The need of the hour is to provide quality health care at all levels by using methods which are feasible, affordable, acceptable and accessible to all. All national programmes need full-hearted support of the community so as to ensure sustainability and success.

There is a need for qualified persons with good governing skills at every level, and all activities should be based according to the needs of the community at large.

Community participation in the field of health care should be increased. The government has undertaken a concerted drive to empower decentralized local self-government institutions to undertake increasing responsibilities in social sector development activities.

The 73rd and 74th Constitutional Amendments of 1992 have provided the legal framework for the local self-government institutions to begin exercising their powers over delivery centers.

The National Health Policy (NHP) envisages that the disease control programmes should be exclusively implemented through Non-Governmental Organizations (NGOs) and other civil institutions.

The state would encourage handing over of public health service outlets at any level for management by NGOs and other institutions of civil society like Panchayati Raj Institutions (PRI). ■

Source: *Baridalyne Nongkynrih, BK Patro, Chandrakanta S Pandav, Review Article: Current Status of Communicable and Non-communicable Diseases in India, JAPI, Vol. 52, February 2004.*

Dr. P. L. Joshi, Dy. Director Gen. of Health Services (Lep.), GOI, New Delhi releasing the Marathi booklet for health workers / teachers / volunteers on leprosy education *"Lokshikshanatun Rognirmulan"* on 31st August, 07 at Arogya Bhavan, Mumbai.

Dr. W. S. Bhatki presenting the Sample Survey Report at the Dissemination Workshop on 24th September, 2007 at AMHL, Mumbai.

Inaugurations : LEAP supported Leprosy Referral Centres

LRC at Sub-district Hospital, Aheri, Gadchiroli, (M.S.)
ADHS(L), Officials & staff

LRC at Rural Hospital - Deori, Gondia, (M.S.)
Community leader & Hospital staff

LRC at Rural Hospital - Dhadgaon, Nandurbar, (M.S.)
Medical Superintendent & Hospital staff

LRC at Bastar, Vivekanand Tribal Hospital - Jagdalpur, Chhattisgarh
DLO, Hospital Officials & staff

Our challenge

“Our challenge is to ensure that
all persons affected by leprosy, wherever they live,
have an equal opportunity to be diagnosed and
treated by competent health workers,
without unnecessary delays and at an affordable cost.

We need to ensure that the achievements
made so far in controlling leprosy are sustained,
that the burden of the disease is further reduced,
and that affected communities continue
to receive quality leprosy services
as long as they are needed.

At the same time efforts to
increase community awareness are required
so that we can put an end to the prejudice and
discrimination still faced by affected persons and
their families in many societies.”

Dr. Pieter Feenstra & Dr. Vijaykumar Pannikar,
Editorial, Partnership for sustainable leprosy control beyond 2005,
Lepr Rev (2005) 76, 194-197