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Enhanced Global Strategy for Further Reducing the Disease Burden due to Leprosy

(Plan Period: 2011-2015)

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Contents

Page

Abbreviations ..... *v*

Executive summary ..... *vii*

Brief description of the disease ..... *ix*

1. Introduction 1
   - 1.1 Progress since the introduction of MDT 2
   - 1.2 Major challenges 3
   - 1.3 Background and justification 4
2. Current situation 5
3. Basic concepts and guiding principles 7
   - 3.1 Goal 7
   - 3.2 Guiding principles 7
   - 3.3 Strategic considerations 8
   - 3.4 Setting a global target to monitor progress 8
   - 3.5 The Global Target 9
4. Strategic issues 10
   - 4.1 Epidemiological situation 10
   - 4.2 Improving the quality of leprosy services 12
   - 4.3 Equity, social justice and human rights 18
   - 4.4 Role of persons affected by leprosy 18
   - 4.5 Drug resistance surveillance 19
   - 4.6 Prevention of leprosy 19
   - 4.7 Research 20
   - 4.8 Partnerships 21

5. Indicators for monitoring and evaluation 21
5.1 Main indicators for monitoring progress 21
5.2 Main indicators for evaluating case detection 23
5.3 Main indicators for assessing the quality of services 23
6. Expected outcomes by 2015 23
Bibliography *25*

Abbreviations

BCG	bacillus Calmette-Guerin
CBO	community-based organization
CBR	community-based rehabilitation
DNA	deoxyribonucleic acid
HIV	human immunodeficiency virus
IEC	information, education and communication
MB	multibacillary leprosy
MDT	multidrug therapy
NGO	nongovernmental organization
OHCHR	Office of the High Commissioner for Human Rights
PB	paucibacillary leprosy
UN	United Nations
WHO	World Health Organization

Executive summary

The main principles of leprosy control, based on timely detection of new cases and their treatment with effective chemotherapy in the form of multidrug therapy, will not change over the coming years. The emphasis will remain on sustaining the provisions for quality patient care that are equitably distributed, affordable and easily accessible. Currently, there are no new technological breakthroughs or developments that warrant any drastic changes to the strategy for leprosy control that is in place.

However, there is an urgent need to bring about decisive and innovative changes to the organization of leprosy control and the working arrangements among all partners, as well as to influence the attitude of health-care providers, persons affected by leprosy and their families, and the general public.

The *Enhanced Global Strategy for Further Reducing the Disease Burden due to Leprosy: 2011-2015* together with the updated Operational Guidelines seeks to enhance the following elements of the Enhanced Global Strategy:

- Sustaining political commitment at the national and local government levels in all endemic countries.
- Strengthening routine and referral services within the integrated health systems in all endemic countries.
- Using the rate of new cases with grade-2 disabilities among new cases per 100 000 population as a key indicator to monitor progress in addition to the current list of indicators;
- Implementing innovative approaches for case-finding in order to reduce the delay in diagnosis and the occurrence of grade-2 disabilities among new cases, including examination of household contacts of cases at the time of diagnosis or within a time span close to the same and incorporating special efforts to improve control activities for populations living in difficult-to-access and suburban areas;
- Improving quality of clinical services for diagnosis and for the management of acute and chronic complications, including prevention of disabilities/impairments, and enhancing the provision of rehabilitation services through a well organized referral system.
- Supporting all initiatives to promote community-based rehabilitation (CBR) with special attention given to activities aimed at reducing stigma and discrimination against persons affected by leprosy and their families.
- Ensuring supply of drugs for multidrug therapy (MDT) free of cost and effective distribution systems in all endemic countries.

- Establishing and maintaining a surveillance system to prevent and limit development and transmission of resistance to anti-leprosy drugs.
- Promoting development of more effective drugs/regimens to treat leprosy and its complications.
- Developing sustainable training strategies at the global and national levels to ensure availability of leprosy expertise in all endemic countries;
- Exploring the use of chemoprophylaxis as a tool to prevent the occurrence of new leprosy cases among household contacts.
- Fostering supportive working arrangements with partners at all levels.

The *Enhanced Global Strategy* will require endorsement and commitment from everyone working towards the common goal of reducing the disease burden due to leprosy and its detrimental physical, social and economic consequences in order to move closer to achieving the common dream of ***"world without leprosy".***

Brief description of the disease

Leprosy is a chronic infectious disease caused by *Mycobacterium leprae*. It usually affects the skin and peripheral nerves, but has a wide range of clinical manifestations. The disease is classified as paucibacillary or multibacillary, depending on the bacillary load. Paucibacillary leprosy is a milder disease characterized by few (up to five) hypopigmented, anaesthetic skin lesions (pale or reddish). Multibacillary leprosy is associated with multiple (more than five) skin lesions, nodules, plaques, thickened dermis or skin infiltration, and in some instances, involvement of the nasal mucosa, resulting in nasal congestion and epistaxis. Involvement of certain peripheral nerves may also be noted, sometimes resulting in the characteristic patterns of disabilities. In most cases of both paucibacillary and multibacillary disease the diagnosis is straightforward, but in a small proportion of cases, suspects without anaesthetic patches require examination by a specialist to look for other cardinal signs of the disease, including nerve involvement and a positive laboratory test (the slit skin smear).

Among communicable diseases, leprosy is a leading cause of permanent physical disability. Timely diagnosis and treatment of cases, before nerve damage has occurred, is the most effective way of preventing disabilities due to leprosy; effective management of leprosy complications – including reactions and neuritis – can prevent or minimize the development of further disabilities. The disease and its associated deformities are responsible for social stigma and discrimination against patients and their families in many societies.

The mode of transmission of the leprosy bacillus remains uncertain, but most investigators believe that *M. leprae* is spread from person to person primarily as a nasal droplet infection. The incubation period is unusually long for a bacterial disease: generally five to seven years. The peak age of onset is young adulthood, usually 20-30 years of age; the disease is rarely seen in children less than five years old. While humans are considered to be the major host and reservoir of *M. leprae*, other animal sources, including the armadillo, have been incriminated as reservoirs of infection. The epidemiological significance of these findings is unknown, but is likely to be very limited, except perhaps in North America. Unlike tuberculosis, there is no evidence to suggest that an association exists between HIV infection and leprosy. BCG vaccination is known to have some protective effect against the disease.

1. Introduction

The goal of elimination of leprosy as a public health problem as set out in 1991 by the World Health Assembly, i.e. attaining a level of prevalence of less than one case per 10 000 population, was reached at the global level in the year 2000. Therefore, the Strategic Plan for Leprosy Elimination 2000-2005[1] mobilized support for and encouraged major commitment among the leprosy-endemic countries to ensure that leprosy services would be available and accessible to all persons affected by leprosy[2] at their nearest health facility.[3] The highlight of the leprosy campaigns during that period was increased coverage through mass campaigns and a widespread reduction of the global prevalence of cases registered for treatment. The *Global Strategy for Further Reducing the Leprosy Burden and Sustaining Leprosy Control Activities: 2006-2010*[4] was crafted with the main intention of ensuring programme sustainability by reducing reliance on vertical infrastructure and promoting integration within the general health system. This ushered in a renewed focus on issues related to quality of services, reaching underserved communities and building effective partnerships that would further reduce the disease burden.

The Enhanced Global Strategy for Further Reducing the Disease Burden due to Leprosy will continue to be based on the principles of morbidity control, i.e. timely detection of new cases and their cure with effective chemotherapy. However, in order to ensure progress, additional elements will be needed to be incorporated in order to accelerate further reduction in the disease burden and sustain political and professional commitment for leprosy control. The *Enhanced Global Strategy for Further Reducing the Disease Burden due to Leprosy: 2011-2015* is formulated as a natural extension of WHO's earlier strategies. It offers opportunities to refine joint actions and enhance global efforts to address the remaining challenges to reduce the disease burden due to leprosy and its harmful impact on persons affected by leprosy and their families.

This document presents an overview of the concepts, ethics and guiding principles of the *Enhanced Global Strategy*. This is accompanied by the updated *Operational Guidelines* that outline practical suggestions for the implementation of leprosy control activities based on current evidence, professional knowledge and best practices. It is expected that these documents will assist leprosy-endemic countries in developing their own country-specific strategies and plans of action in order to sustain and provide high-quality services to individuals and communities that need them.

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[1] World Health Organization. *The Final Push Towards Elimination of Leprosy: Strategic Plan 2000-2005*. WHO/CDS/CPE/CEE/2000.1. Geneva, 2000.

[2] *Persons affected by leprosy include those under treatment with anti-leprosy drugs, persons with disabilities due to the disease, and persons cured of the disease.*

[3] *Leprosy services include diagnosis, treatment with multidrug therapy, patient and family counselling, community education, prevention of disabilities/impairments, rehabilitation, and referral for complications.*

[4] World Health Organization. *Global Strategy for Further Reducing the Leprosy Burden and Sustaining Leprosy Control Activities: Plan Period 2006-2010*. WHO/CDS/CPE/CEE/2005.53. Geneva, 2005.

1.1 Progress since the introduction of MDT

The enormous success in global leprosy control is due to a combination of three elements: a clear objective, an effective technology and an explicit implementation strategy. The remarkable achievement in reducing the global burden of leprosy over the last two decades can be traced to two important events in the history of the fight against leprosy. The first took place in 1981, when a WHO Study Group on Chemotherapy of Leprosy recommended the use of multidrug therapy as the standard treatment for leprosy.[5] The success of multidrug therapy led to the second landmark event in 1991, when the Forty-fourth World Health Assembly adopted resolution WHA44.9[6] declaring its commitment to eliminating leprosy as a public health problem by the end of 2000. This implied achieving a prevalence of less than one case per 10 000 population. The following are some of the notable achievements since MDT was first introduced:

- Between 1985 and the beginning of 2008, nearly 15 million persons affected by leprosy were diagnosed and cured with multidrug therapy, with very few relapses reported.
- There has been palpable improvement in the coverage of leprosy services, particularly in previously inaccessible areas and in underserved population groups. This is especially so in the case of countries recovering from prolonged periods of armed conflict and civil unrest in the African and Eastern Mediterranean Regions of WHO.
- Timely case-finding and treatment with MDT has prevented disabilities due to leprosy among an estimated one to two million individuals.
- There is now a perceptibly higher level of awareness and political commitment in leprosy-endemic countries, with renewed emphasis on human rights' issues related to stigma and discrimination faced by persons affected by leprosy and their families.
- One of the favourable features has been the integration of leprosy control activities into the general health services. This has been implemented as a matter of policy in the majority of leprosy-endemic countries.
- Since 1995, drugs required for multidrug therapy have been made available free of charge in all endemic countries through WHO, and this arrangement is likely to continue in the foreseeable future.
- Considerable progress has been made in developing effective partnerships with national and international agencies, which has resulted in improved levels of collaboration among all partners to achieve an agreed common goal.

[5] World Health Organization. *Chemotherapy of leprosy for control programmes: Report of a WHO Study Group* (WHO Technical Report Series, No. 675). Geneva, 1982.

[6] Available on-line at www.who.int, "Governance"

1.2 Major challenges

Although significant progress has been made in controlling the disease and reducing the disease burden, much remains to be done in order to sustain the gains and further reduce the impact of the disease, especially the burden due to the physical, mental and socio-economic consequences of leprosy on persons affected and their families. The major challenges are as follows:

- There is an urgent need to reaffirm political commitment and remove the sense of complacency that seems to have set in vis-à-vis leprosy control programmes.
- Referral systems need to be improved by strengthening existing referral facilities, and where needed, establishing new facilities within the integrated health systems to improve management of acute and chronic complications of leprosy.
- There is a growing need to develop more effective tools and procedures for early recognition and management of leprosy reactions and nerve damage.
- Most programmes need to initiate activities to improve the quality of life of persons affected by leprosy through the prevention of disabilities and community-based rehabilitation measures.
- There is an urgent need to build and sustain leprosy expertise at the country level. A strategy needs to be developed in collaboration with partners that will cover training programmes at the global and national levels.
- The information, education and communication (IEC) component of the programme is important for improving community awareness in order to promote voluntary reporting and to eliminate the stigma and social discrimination faced by persons affected by leprosy. It is essential to ensure that such initiatives are locally appropriate, cost-effective and sustainable.
- Recent reports of patients relapsing with drug-resistant strains of *M. leprae* are a cause for concern. The challenge lies in closely monitoring the development of drug resistance, particularly rifampicin-resistance, through a coordinated global and national surveillance network, and in facilitating research initiatives to develop alternative treatment regimens to curb its spread.
- One of the long-term needs is to develop reliable diagnostic tests for early diagnosis and an effective vaccine for the prevention of leprosy.
- Supervision has remained a weak link in most programmes. National programmes must strengthen integrated supervisory activities in order to improve the quality of leprosy services in the field.
- Partnership and collaboration with all stakeholders is now crucial to effectively share the challenges and work together to overcome them.

1.3 Background and justification

Background

Though there has been an enormous reduction in the number of patients registered for treatment, new cases of leprosy will continue to appear for many years or even decades. Therefore, health services must sustain the key provision of quality services at all levels in the foreseeable future. The principles of integration, quality, equity and sustainability have been accorded primacy in the formulation of this *Enhanced Global Strategy*.

The current framework for leprosy control is characterized by an integrated delivery of basic leprosy services provided at the peripheral level. These are supported by specialized units with leprosy expertise at the intermediate levels which provide the necessary technical guidance, and a central unit for the formulation of policies and for monitoring and evaluation. The key approach is to integrate all the essential components of leprosy control activities into the primary health-care system. It includes the utilization and strengthening of integrated referral facilities to deal with leprosy related acute (e.g. reactions) and chronic (e.g. trophic ulcers) complications. Such a strategy needs careful planning and different approaches at the national and subnational levels within the same country, depending upon the local leprosy burden, the availability of an appropriate health infrastructure, and the level of support from the local government authority.

A set of approaches is being proposed to deal with areas with low as well as high disease burden due to leprosy, i.e. to improve the quality of clinical services, make more efficient the distribution of MDT, implement innovative approaches to reach underserved populations, improve supervision at the primary health-care level, and carry out effective surveillance for drug resistance. The leprosy control agenda could be further reinforced by investing in targeted research to find more powerful anti-leprosy drugs, exploring the possibility of chemoprophylaxis among household contacts of leprosy cases, formulating new therapies for prevention and management of neuritis and reactions, developing innovative interventions to prevent and limit disabilities due to leprosy, and preparing new diagnostics and prevention tools and promoting operational research to increase the access and impact of disease control measures.

Unified efforts are required to promote increased awareness about leprosy and reduce stigma and discrimination, so as to sustain the interest of policy-makers and encourage the involvement of general health services in leprosy control. It is important to address the problem of leprosy and its wider ramifications through careful implementation of evidence-based strategies. It is necessary to use every available opportunity to expand the vision and enhance all efforts to achieve the goal.

Considering the need to refocus and refine global efforts, the *Enhanced Global Strategy* has been developed in consultation with Member States, WHO regions and partners, including persons affected by leprosy, with the aim of further reducing the leprosy burden and sustaining leprosy control activities wherever leprosy exists. This will help sustain the gains made so far and reduce the disease burden further in all endemic countries.

In addition, the *Enhanced Global Strategy* envisages a global target for monitoring progress, and urges programmes to consider a varied array of options to enhance the level and quality of implementation. It is hoped that the *Enhanced Global Strategy* will ensure a higher degree of attention and introduce greater rigour to national leprosy control programmes and their activities.

The disease burden due to leprosy

The burden of leprosy can be measured in terms of occurrence of reported new cases, or of the number of cases registered for treatment, or the number of cases with disabilities. While the number of cases registered for treatment (registered prevalence) has shown a considerable decline, the reduction in occurrence of reported new cases has not been as dramatic. While the disability burden, in terms of new cases with disabilities, has shown a steady decline, it is difficult to comment on the disability burden in terms of its prevalence because of lack of updated data.

The objective of leprosy control is to reduce the burden due to leprosy. As to which indicator or group of indicators should be used for measuring the reduction depends on the influence of operational factors, ease of measurement and validity. Reliable and comparable information about the disease burden due to leprosy in populations, and how this is changing over time, is extremely critical to highlight leprosy among diverse priorities and interests and to decide on priorities within the leprosy control service.

2. Current situation

WHO has been regularly collecting data on several indicators from various WHO regions and Member States. These include the absolute number of: cases registered for treatment at the end of a full year, and new cases detected during a full year. Among new cases the indicators are: numbers with grade-2 disabilities, classified as multibacillary, children and female. In addition, in recent years data has been collected on cure/treatment completion rates on cohorts of paucibacillary and multibacillary cases. WHO is requesting countries to provide information on the absolute number of relapses reported during the year as a proxy indicator to monitor the effectiveness of multidrug therapy. Though the data are likely to be affected by a number of operational factors, they constitute an important source of information for action at the national and global levels.

At the beginning of 2008, a total of 218 605 leprosy cases were registered for treatment across the world, while the number of new cases reported during the year 2007 was 258 133. The global detection of new cases showed a modest decline compared to the preceding years.

Table: *New cases reported annually from 18 countries with the highest burden of disease*

No	Country	2002	2003	2004	2005	2006	2007
1	Angola	4 272	2 933	2 109	1 877	1 078	1 269
2	Bangladesh	9 844	8 712	8 242	7 882	6 280	5 357
3	Brazil	38 365	49 206	49 384	38 410	44 436	39 125
4	China	1 646	1 404	1 499	1 658	1 506	1 526
5	Cote d'Ivoire	1 358	1 205	1 066	NA	976	1 204
6	DR Congo	5 037	7 165	11 781	10 369	8 257	8 820
7	Ethiopia	4 632	5 193	4 787	4 698	4 092	4 187
8	India	473 658	367 143	260 063	169 709	139 252	137 685
9	Indonesia	12 377	14 641	16 549	19 695	17 682	17 723
10	Madagascar	5 482	5 104	3 710	2 709	1 536	1 644
11	Mozambique	5 830	5 907	4 266	5 371	3 637	2 510
12	Myanmar	7 386	3 808	3 748	3 571	3 721	3 637
13	Nepal	13 830	8 046	6 958	6 150	4 235	4 436
14	Nigeria	5 078	4 799	5 276	5 024	3 544	4 665
15	Philippines	2 479	2 397	2 254	3 130	2 517	2 514
16	Sri Lanka	2 214	1 925	1 995	1 924	1 993	2 024
17	Sudan	1 361	906	722	720	884	1 706
18	Tanzania	6 497	5 279	5 190	4 237	3 450	3 105
	Total (%)	**601 346 (97%)**	**495 773 (96%)**	**389 599 (96%)**	**287 134 (96%)**	**249 076 (96%)**	**243 137 (94%)**
	Total global	**620 638**	**514 718**	**407 791**	**299 036**	**265 661**	**258 133**

One of the key aspects of the information available on the trends of new case detection is the wide variation across space and time and across countries (also within countries) over the years. This is obvious, particularly in major endemic countries such as, India and Brazil. Information reported from the 18 major countries (see table) shows that these contribute 94% of the total global new cases detected in 2007. It also highlights the fact that not all countries show a declining trend. In fact, between 2006 and 2007, detection has increased in 10 countries: Angola, China, Democratic Republic of Congo, Cote d'Ivoire, Ethiopia, Indonesia, Madagascar, Nepal, Nigeria and Sri Lanka. The dramatic increase observed in Sudan is due to data from Southern Sudan having been incorporated in 2007. The rate of decline in some countries such as India, Myanmar and Philippines is slowing or stabilizing. Therefore, with the available information, it is difficult to make any definitive predictions regarding trends in new case detection in the years ahead.

3. Basic concepts and guiding principles

3.1 Goal

The goal of the *Enhanced Global Strategy* is to further reduce the disease burden due to leprosy and sustain the provision of high-quality leprosy services for all affected communities, ensuring that the principles of equity and social justice are followed.

3.2 Guiding principles

The Enhanced Global Strategy envisages:

- Supporting and guiding national governments in developing appropriate, country-specific strategies and plans of action to further reduce the disease burden due to leprosy.
- Sustaining timely case-finding through locally appropriate methods and improving treatment adherence and completion with the provision of multidrug therapy provided free of cost to all endemic countries.
- Promoting integrated approaches using general health systems to provide high-quality leprosy services at all levels, including referral for acute complications (e.g. neuritis, eye problems) and provision of continued care for chronic conditions (e.g. trophic ulcers, advanced impairments).
- Promoting and strengthening sustainable innovative approaches to extend leprosy control services to underserved communities and groups, and geographically difficult-to-access areas and populations affected by natural or man-made disasters.
- Strengthening all measures aimed at preventing the occurrence and worsening of disabilities among persons affected by leprosy, including early detection and effective management of acute complications such as leprosy reactions, and promoting self-care practices.
- Promoting the use of community-based rehabilitation to improve the quality of life of persons and families affected by leprosy.
- Applying cost-effective methods to improve community awareness, acceptance and involvement to combat stigma and discrimination against persons and families affected by leprosy.
- Ensuring that endemic countries, backed by their partners, invest adequately in long-term human resource development through appropriate international and national training strategies that will sustain national expertise in leprosy.
- Striving for effective collaboration with international, national and local community-based organizations related to health and other sectors.

3.3 Strategic considerations

In developing the *Enhanced Global Strategy*, the following issues are considered as a framework for stimulating changes and defining the programme's future directions:

- Expanding opportunities to reduce the disease burden further by means of timely case-finding and treatment, BCG vaccination and improved socioeconomic conditions.
- Closely monitoring progress by considering the trend of new cases with grade-2 disabilities in the population.
- Strengthening leprosy control activities in areas where a high proportion of new cases with grade-2 disabilities are being detected.
- Dealing appropriately with the large number of people with leprosy-related disabilities who have unidentified needs.
- Stressing the need to combat operational challenges in the face of the declining leprosy incidence.
- Being prepared against threats to disease control efforts such as the emergence of rifampicin resistance by establishing a surveillance network to monitor and limit its spread, including the development of alternative treatment regimens to deal with patients infected with drug-resistant *M. leprae*.
- Ensuring the appropriate level of priority for leprosy along with other health challenges faced by communities.

3.4 Setting a global target to monitor progress

The current strategy uses a number of indicators which can be used for setting targets, such as the proportion of patients with grade-2 disabilities among new cases as an indicator for quality of case detection and treatment completion as an indicator of the quality of patient management. Other recommended indicators are the MB and child proportion among the new cases, but these indicators are considerably influenced by operational factors. A single indicator should be selected to be used as the basis for a global target to influence the direction of the programme. This can then be used in conjunction with a series of indicators for the purpose of monitoring and evaluation.

The rate of new cases detected with grade-2 disabilities per 100 000 population is proposed as the indicator for a global target give it is less influenced by operational factors; focuses attention on impairments which are critical to persons affected by leprosy, and stimulates improvements in case detection. It is a robust marker of the level of occurrence of disease in the community and operationally is easier to recognize than the early signs of the disease.

From the reported data received from countries, one can observe a downward trend in new cases with grade-2 disabilities. Reduction in new cases with grade-2 disabilities is expected to reflect a reduction in the total number of new cases. This relationship seems evident in terms of absolute numbers and rates of new cases with grade-2 disabilities per 100 000 population in data reported from several countries. This is assuming that the effects of operational factors are relatively small and constant. This reduction in new cases with grade-2 disabilities may not be apparent if one only considers the proportion of new cases with grade-2 disabilities.

While there are limitations in using this indicator, the benefits it will accrue in increasing the commitment to leprosy programmes will outweigh any limitations. When reviewed together with other indicators, the indicator of new cases detected with grade-2 disabilities per 100 000 population can be used to estimate under-detection; measure the impact on the need for physical and social rehabilitation; advocate the use of activities aimed at prevention of disabilities; and promote collaboration with other sectors. In addition, the use of such an indicator would help to emphasize the issues that are important to persons affected by leprosy, governments, nongovernmental organizations, donors and other partners.

3.5 The Global Target

The earlier global target that was set to reach a level of prevalence of cases registered for treatment (less than one per 10 000) helped to reduce the disease burden on health services due to the release of enormous numbers of registered patients after completion of treatment. It is clear that over the next 5-10 years the leprosy control strategy will continue to be based on timely detection of new cases and their treatment with the appropriate multidrug therapy regimen. Any new target needs to consider reducing the disease burden due to leprosy and its consequences. This will necessitate in correct and timely diagnosis of new cases before disabilities and impairments develop. Such a target is likely to assist in further reducing the negative physical, social and economic consequences experienced by persons affected by leprosy.

It is proposed to introduce the global target of reducing the rate of new cases with grade-2 disabilities per 100 000 population by at least 35% by the end of 2015, compared to the baseline at the end of 2010. This target of reduction of rate of grade-2 disability by at least 35% by 2015 is based on the consensus arrived at the Global Programme Managers' Meeting on Leprosy Control Strategy in April 2009 at SEARO, New Delhi, India.

It is expected that setting a global target based on reducing the occurrence of new cases with grade-2 disabilities will spur the implementation of activities that will reduce delays in diagnosis and in starting treatment with multidrug therapy which, in turn, is likely to have a positive impact on reducing the occurrence of new cases in the population.

4. Strategic issues

4.1 Epidemiological situation

Areas with a high disease burden

Even within countries there may be areas/population groups with high numbers of untreated/hidden new cases or a high proportion of new cases with grade-2 disabilities which call for priority attention. The situation is even more serious if those affected are children. Such a situation may reflect significant delays in diagnosis, resulting in extended transmission within the community. This may be due to one or more influencing factors such as:

- Inadequate skills for correct diagnosis among health staff.
- High degree of stigma in the community leading to concealment.
- Poor case-finding efforts by the programme.
- Ineffective or inappropriate IEC activities in the area.
- Services not easily accessible or affordable by the community.
- Limited community participation and involvement.

The response to such a situation is primarily to establish a sustainable leprosy control programme which can offer treatment and supportive services to new cases for as long as new cases appear in that population. The leprosy control programme will have to rely on voluntary reporting or referral consequent to dissemination of information on leprosy disease and programme. Identification and examination on a voluntary basis of household contacts close to the time of diagnosis is done to ensure that there are not more probable cases as a result of the one already diagnosed. In special situations, a rapid screening of the population may be conducted to find any undetected new cases.

Areas with a low disease burden

As observed in several previously high endemic countries, a lower level of the disease burden due to leprosy in terms of the number of new cases is likely to define the nature of leprosy in the coming years. It becomes important for the national programmes to re-assess the situation and match resources and services accordingly. It will be unsustainable and prohibitively expensive to maintain a wide range of services and professional expertise to manage a small number of new cases across a large number of peripheral health facilities. The majority of the peripheral health facilities may not have the opportunity to diagnose a single new case of leprosy in a year. Case detection strategy need not be different from the one adapted in high-burden situations.

Similarly, for other activities such as building the capacity of different categories of health staff, a focused, needs-based strategy will be required. Training will have to be restricted to workers from facilities that are likely to have persons affected by leprosy in their catchment area rather than to all health workers in all of the facilities. At the same time care should be taken to ensure that service points are strategically located for easy accessibility. In addition, consideration needs to be given to maintaining and establishing the optimal number of leprosy reference centres at the regional and national level in order to ensure the availability of expertise in endemic countries as long as it is needed.

Underserved population groups

It is important to reach persons affected by leprosy living in difficult-to-access areas or special situations, or in underserved and marginalized population groups, since the most crucial element of any leprosy control programme is to reach every person who is in need. They may face geographical, social, economic or cultural barriers that limit access to health services or hinder provision of services.

These special situations pose complex management challenges. Innovative and practical strategies involving mainly operational solutions need to be developed in order to provide services for these persons/communities. The strategy adopted should give emphasis to strengthening and sustaining health services at the community level. First of all, the population groups, the range of services available and any gaps in providing for needs should be identified. This should lead to the development of a plan, which focuses on building partnerships with various stakeholders, as also involving the community and recruiting local volunteers, including building the capacity of local health workers.

Urban areas

The world's population became predominantly urban for the first time in human history in 2007. Over the next 30 years, virtually all of the world's population growth will occur in urban areas in low-/mid-income countries. A third of the world's estimated three billion currently urban residents live in slums.

Urban populations pose unique challenges for health service management. The challenges include social, cultural and economic inequalities and constraints that make vulnerable population segments unaware of or unable to access services. This situation is further complicated by rapid industrialization, increasing density of migrant populations in slums, multiplicity of health-care providers and lack of coordination among them.

The major focus within urban areas, however, should be on improving the services for people living in the slums. The UN has operationally defined slums as those communities characterized by: insecure residential status, poor structural quality of housing, overcrowding, inadequate access to safe water and sanitation, and lacking in other basic infrastructure. Many health outcomes are more severe in slums than in their neighbouring urban or even rural areas. Moreover, the formal health sector encounters

slum residents only when they develop late-stage complications of preventable chronic diseases. This takes a costly toll on these neglected communities and on the already limited health-care resources available to them.

> **"Slums are a manifestation of the two main challenges facing human settlements development at the beginning of the new millennium: rapid urbanization and the urbanization of poverty."**
>
> *Anna Kajumulo Tibaijuka, Executive Director, United Nations Human Settlements Programme.*

The core principles of leprosy control in urban situations should include focusing on timely diagnosis and treatment with MDT; sensitizing and ensuring the coordinated involvement of all partners, particularly towards building a wider public-private partnership. This will ensure sustainability, high quality of care, easier accessibility and increased coverage through improving outreach, particularly in the underserved urban slums.

4.2 Improving the quality of leprosy services

Quality has emerged as a valued option in leprosy control now more than ever because there is often a concern that quality may suffer in an integrated set-up. Measuring the perception of satisfaction among the persons affected, though difficult, is a more sensitive indicator than other methods. Each programme will have to define its own national minimum quality standards for leprosy services taking into consideration the generally accepted minimum quality standards, the expectations of the users, the competence of the general health staff and the availability of resources.

There are a number of areas in leprosy control that need essential redefinition of methods and procedures, particularly the management of nerve function impairment, prevention of impairments and disabilities, and assisting persons affected by leprosy and their families to lead a normal life with dignity.

Care of persons affected by leprosy

Management of side effects and complications

The integrated system should be invested with the necessary capacity to manage patients with side effects and complications. There is a need to look at best practices in the management of acute and chronic complications, including redefining the standards and criteria for evidence-based best clinical practices. Establishment of an effective referral network, adequate training of staff, including opportunities for continuing education and supportive supervision are important for providing timely and effective care.

Prevention and management of impairments and disabilities

> **"Disability is a difficulty in functioning at the body, person, or societal levels, in one or more life domains, as experienced by an individual with a health condition in interaction with contextual factors."**
>
> *(Leonardi M. et al.,* 2006)

The current situation with regard to the number of people living with leprosy-related disabilities and impairments needs reassessment, particularly at the national levels. Assurance should be given that the integration of leprosy services into the general health delivery systems will include access for people with leprosy-related disabilities to services provided by programmes dealing with other disabling diseases or conditions.

Health services should be able to provide flexible, individualized services to meet the following objectives:

- Early recognition and correct management of leprosy;
- Early recognition and intervention to prevent impairments due to leprosy reactions;
- Continuous comprehensive interventions to prevent deterioration of existing impairments, including self-care, protective aids and reconstructive surgery; and
- Mobilization of communities, civil society, government and the private sector to promote inclusion and integration of those with disabilities.

Counselling

Leprosy is one of the diseases that leave a strong social and psychological impact on the persons affected (including their families) and the societies in which they live. The response of the programme should be dual: One aspect of the response should be to be directed at the community by responding to unanswered questions, by removing misunderstandings and myths, and by helping them acknowledge persons affected by leprosy without any prejudice. The other onset of responses is to be directed at empowering persons affected by leprosy to address the daily challenges of discrimination, an unsympathetic attitude and miscommunication.

The treatment programme should include counselling as an important patient management strategy and introduce guidelines and protocols to build the competence of health professionals in three important areas: the ability to transform knowledge into information that is easily understandable by persons affected by leprosy; the ability to manage people and tasks; and communication skills. A well-trained health professional should be able to advise, support, guide, share information and enhance empowerment skills.

Referral system

Referral services are part of the quality of care that a programme is expected to provide to persons affected by leprosy. It includes identification of primary- secondary- and tertiary level services designed to meet a whole range of needs. An integrated leprosy control programme needs the support of an efficient referral system to be effective. A referral system will play a crucial role in deciding the quality of services in an integrated leprosy control programme. Currently, in a great majority of programmes, the referral system is either non-existent or too weak to meet the needs of the programmes. Bolstering existing referral facilities and, where necessary, creating an adequate number of such facilities to form the national referral network should be one of the top priorities for the integrated leprosy control programmes.

The referral system should include a network of individuals and institutions capable of providing the desired services. Their tasks and responsibilities should be clearly defined, along with procedures and protocols for good standardized clinical practices, including protocols for the flow of patients and information to and from different levels. The system should build partnerships with various stakeholders to maximize care and reduce cost. An effective referral system requires good communication and coordination between different levels of care. One could use a range of options for effective communication and transferring information (personal visits, telephone, e-mail, post, telemedicine, etc.). It is also important to ensure that persons affected by leprosy are provided support for travel from remote areas to seek case and referrals when needed.

Maintaining MDT supply and improving its distribution

One of the targets set for the Millennium Development Goals is to *"provide access to affordable essential drugs in developing countries"*.

Today, thanks to a generous donation by the Nippon Foundation followed by Novartis and the Novartis Foundation for Sustainable Development, almost all those requiring chemotherapy for leprosy in the world are receiving MDT free of cost from local health facilities. Early case detection and treatment with multidrug therapy will remain the key elements of the leprosy control strategy in the foreseeable future. There is, therefore, a continuing need to maintain the supply of drugs for multidrug therapy to endemic countries through WHO. As the numbers of patients who require treatment with MDT steadily decline, logistical support for its effective distribution will need to be adjusted to the reality of dealing with a lower disease burden.

Every programme must ensure that treatment of any patient is not interrupted due to shortage of drugs at the health centre. The consequences of poor MDT supply management can be harmful for the patients and detrimental to the credibility of the local health services.

Opportunities for better chemotherapy

The current treatment of leprosy based on WHO recommended multidrug therapy (MDT) for MB and PB leprosy is unlikely to undergo any major change during the next 10 years or so. However, the longer term role of MDT will be dependent on *M. leprae* remaining sensitive to the component drugs, particularly rifampicin. The emergence of rifampicin resistance, which has the potential to completely reverse the hard-fought achievements of current leprosy control efforts, requires systematic surveillance as there are sporadic reports of such occurrences from several parts of the world. In order to develop a suitable regimen to successfully treat patients who cannot benefit from rifampicin-either due to resistance or other contraindications-it is necessary to test new combinations in field trials.

Considering the long duration inherent in conducting chemotherapeutic studies in the field, careful planning and commitment from various partners will be essential. The experience of researchers in developing new anti-TB drugs and the possibility of using models for drug trials could help in the design and screening of potential compounds for testing. In addition, further research on the *M. leprae* genome could provide approaches for identifying novel targets for developing new drugs.

Building capacity and competence within integrated programmes

> *The term "capacity[7] building" describes the task of developing levels of human and institutional capacity. This involves equipping the health staff with the right knowledge, skills and understanding to enable them to function effectively.*

Capacity building assumes greater importance against the backdrop of a declining disease burden, shrinking resources, competing interests and priorities and, most importantly, declining clinical expertise in leprosy. The *Enhanced Global Strategy* envisages a two-pronged approach: one directed at the development of a global strategic capacity building plan, and the second thrust being on maintenance of national reference/training centres at different levels in endemic countries.

Global, regional and national action should be directed at identifying suitable institutions and establishing training programmes for national-level experts, including dermatologists and trainers. This will include the development of appropriate training modules and materials for different categories of health personnel. In the majority of endemic countries, particularly in urban areas, dermatologists provide significant support to the programme with their expertise. They will be an important resource for the national effort to sustain clinical expertise in leprosy.

[7] "Capacity" as defined by United Nations Development Programme is "the ability of individuals, institutions and societies to perform functions, solve problems, and set and achieve objectives in a sustainable manner".

Gender issues

Gender equality is, first and foremost, a human right. Empowered women contribute to the health and productivity of whole families and communities and to improved prospects for the next generation. The importance of gender equality is underscored by its inclusion as one of the eight Millennium Development Goals. Gender equality is acknowledged as being a key to achieving the other seven MDGs *(UNPF, 2009)*.

In many societies, discrimination against girls and women that is often entrenched societal and sociocultural norms of behaviour may relegate them to a lower status and depreciate their self-esteem and worth. This often places women and girls at a considerable disadvantage against men and boys in terms of their access to resources and goods, their exercise of decision-making power and choices, and the opportunities available to them across all spheres of life. Women appear to suffer more negative health consequences than men.

Despite widespread recognition of these differences, and the many reasons for incorporating gender issues in policies and programmes, health systems have failed to address gender issues adequately. This also includes the lack of optimum attention paid to gender in the training of health professionals and health-care workers, leading to their lacking adequate awareness of and sensitivity towards gender concerns and disparities *(WHO Report, 2004; Vlassoff and Moreno, 2002)*.

In most leprosy-endemic countries more men than women are diagnosed with leprosy. It is not clear whether the higher leprosy rates in men reflect epidemiological differences or the influence of operational factors. It is essential to collect sex-disaggregated data to clarify the magnitude and nature of gender disparities. Programmes need to identify patterns of service use, levels of participation in decision-making and perceptions of quality of care. Other activities include training health staff to be gender sensitive and increasing the level of involvement of women in health action at all levels when defining priorities in leprosy control services.

Community-based rehabilitation

The definition of Community-Based Rehabilitation (CBR) that is recognized by WHO and major NGOs is as follows:

"CBR is a strategy within general community development for the rehabilitation, equalization of opportunities and social inclusion of all people with disabilities. CBR is implemented through the combined efforts of people with disabilities themselves, their families, organizations and communities, and the relevant governmental and nongovernmental health, education, vocational, social and other services".

The principle objectives of CBR are that equal opportunities and equal rights will apply to all members of a community regardless of any individual member's functional

capacity. CBR is multidimensional and, therefore, requires a multisectoral strategy. Most societies have infrastructure that is designed for non-disabled lifestyles, and expect disabled individuals to adapt accordingly. Societal resistance to making necessary adaptation to accommodate disadvantaged members is common. The most effective rehabilitation programmes, therefore, will also involve the government, nongovernmental organizations and the private sector to affect the following:

- the provision of multiple access points and more equitable opportunities to utilize services; and
- the promotion and protection of the rights of people with disabilities.

It should be recognised that the concept of CBR is not independent of the socioeconomic status of any country. Issues related to poverty, inequality and sustainable development will influence CBR initiatives. It is not only pragmatic but beneficial for people affected by leprosy to be integrated into programmes that may already have been established for the rehabilitation of other disadvantaged people.

Community awareness and education

Lack of proper understanding and the unabated propagation of traditional myths and disbeliefs about the disease have led to the build-up of negative social attitudes that culminate in social discrimination and stigma against persons affected by leprosy and their families. While discrimination refers to the unjust or prejudicial treatment of people, especially on the grounds of being affected by leprosy, stigma is an ugly "act of labelling, rejection or unexplained fear of a person affected by leprosy"[8]. A general lack of health education, provider-centred policies and the absence of community-centred social action is to be blamed for this unwarranted situation. Therefore, collaboration with community groups including those of persons affected by leprosy, public agencies and professional organizations is essential to successfully implement activities and also to build programme resilience. Efforts to demonstrate the benefits of educational interventions should become an integral part of any leprosy control services.

Methods to improve community awareness include:

- identifying and involving specific groups from the community;
- identifying the most useful forms to relay messages, designing core messages;
- suggesting delivery options (campaigns or community networks), activities and tools;
- developing a criteria to measure success; and
- creating ways to link such activities to other initiatives.

[8] José P. Ramirez, Jr., Squint: My Journey with Leprosy (Jackson: University Press of Mississippi, 2009), p 210.

The programme should be able to make optimum use of all the available media to disseminate information as effectively as possible. While the mass media is useful for the widespread dissemination of information, attitudinal and behavioural changes can be brought about only through interpersonal interaction.

4.3 Equity, social justice and human rights

The principle of equity is based on the premise that disparities or inequalities in the levels of health enjoyed by different populations are unnecessary, avoidable and unjust. Equity is distinct from equality in as much that it specifically targets those groups which are socially underprivileged or disadvantaged, i.e. those most denied their rights due to their lack of choice and resources. Equity is equal opportunity; it is social justice. It is a life of choices and opportunity, free from discrimination. It is the rights of the individual as enshrined in the Universal Declaration of Human Rights. Equity and human rights are inseparably linked since equity is the key to the realization of human rights which are grounded in human dignity, and based on the fundamental belief that the protection of human dignity and equality is the responsibility of society. Constant efforts should be made to ensure that discriminatory, derogatory or undignified references to persons affected by leprosy are avoided altogether.

In 2008, the UN Convention on the Rights of People with Disabilities entered into force following its adoption and ratification by the requisite number of Member States. This Convention represents a major new international legal instrument and with its greater focus on inclusivity in development is of critical importance in pursuing the rights of all persons with disabilities, including those affected by leprosy.

An even more specific event with the potential to improve the condition of people affected by leprosy and promote their right to a quality life that received the unanimous approval of the UN Human Rights Council in June 2008 was the passing of a resolution on the "Elimination of Discrimination against Persons Affected by Leprosy and their Family Members". This resolution requested the Office of the High Commissioner for Human Rights (OHCHR) to formulate a draft set of principles and guidelines to help implement this resolution and to share and exchange views and information with government observers, relevant UN bodies, specialized agencies and programmes, NGOs, medical experts and people affected by leprosy.

4.4 Role of persons affected by leprosy

Persons affected by leprosy have a major role to play in leprosy services, especially in the area of advocacy, awareness and rehabilitation. Organized efforts by persons affected by leprosy are vital to promote a positive perception and attitude about the disease among the public; to bring about essential changes in the legal measures which are discriminatory in nature; and to ensure that leprosy control continues to occupy an important place in the health policy framework of the country. Persons affected could be proactive in identifying capable trainers who may then play a positive role in improving

self-care activities. The private and NGO sectors and community-based organizations should play a supportive role. This strategy of collaborative endeavours can be decisive in helping individuals to become change agents, self-advocates, and partners with anti-leprosy organizations in the quest to change public perceptions.

There is a definite social role and responsibility to be discharged by persons affected by leprosy in the domain of community involvement for social action. The active participation of individuals affected by leprosy can bring about lasting and tangible changes in perceptions, policies, programmes, priorities and procedures. Their involvement can lead to country-specific definitions and standards of the quality of service to be provided, as well as help the programme in setting the threshold for quality. They can provide information on the quality of services on a regular basis. Their participation in evaluation protocols can assist in identifying needs, particularly with respect to accessibility. They can contribute to reforming leprosy service. They can provide a focus on issues of discrimination and stigma that may be missing through other venues. As role models, they are major contributors towards cultivating positive attitudes.

4.5 Drug resistance surveillance

The current treatment based on the WHO-recommended multidrug therapy for MB and PB leprosy is unlikely to have any major changes in the immediate future. However, the emergence and transmission of rifampicin-resistant strains of *M. leprae* is the most serious among the various potential threats that could impede the ongoing efforts to further reduce the disease burden in leprosy endemic countries. The limited availability of the mouse-foot pad inoculation technique means that there has been very little information until recently on drug resistance. With the recent development of DNA sequencing methods, several reports of rifampicin, dapsone and ofloxacin resistance have been published, which underscore the potential importance of this condition and highlight the need to monitor it systematically. The problem of drug resistance may or may not be serious at present, but it is important that data are collected more systematically and the trend is monitored carefully so that timely and effective measures to combat this problem can be developed.

4.6 Prevention of leprosy

Immunoprophylaxis

It is important to mention the fact that there is yet not available a scientifically valid tool for the detection of infection which could deepen understanding of how leprosy is transmitted and could lead to the development of an effective vaccine and other interventions. Trials in different population groups with BCG vaccine, either alone or in combination with another vaccine (from killed *Mycobacterium leprae* or atypical Mycobacteria), have shown protective efficacy ranging between 28% and 60%. High BCG coverage remains an important contribution to reducing the disease burden due to leprosy.

Chemoprophylaxis

Chemoprophylaxis in chronic infectious diseases such as, tuberculosis has an established benefit, particularly when given to persons who are known to be at a higher risk of developing leprosy. The immediate contacts of a case of leprosy, especially multibacillary, are known to have a higher risk of developing the disease than compared to the general population. It is important, therefore, to consider possible interventions to prevent the occurrence of leprosy among household contacts.

However, there must be robust trial evidence to demonstrate that the drug/s used for chemoprophylaxis are safe, effective and cost-efficient in terms of the number of new cases prevented.

On account of lack of consistent results from various studies using various drugs (dapsone, acedapsone, rifampicin) it is too premature to advise chemoprophylaxis as a public health measure. Further research is needed to use this as a routine tool to prevent the occurrence of disease among contacts.

4.7 Research

The reduction in the endemicity of leprosy should not lead to a decrease in research efforts. It is important to identify innovative and cost-effective approaches for leprosy control activities. In the current context all research initiatives must pay attention to four key issues: integration, quality, equity and sustainability, and three main domains: epidemiological, operational and patient management, including chemotherapy. The tools to detect infection and identify patterns of transmission are essential for a better understanding of the various factors influencing the occurrence of the disease. Simultaneously there is a need to explore the use of antileprosy drugs in preventing the occurrence of new cases among household contacts. The removal of barriers to accessing and using services and how the empowerment of the community to participate in decision-making are significant challenges that need research embellished by support from other development sectors. In the area of patient management the priority issues for research include early recognition, prevention and timely management of nerve-function impairment and reactions, and the improvement of chemotherapy.

Developing and improving diagnostics to identify individuals in the community who are at high risk of developing leprosy is another research priority with major public health implications. The development of new drugs and new regimens for use in situations when *rifampicin* is contraindicated for reasons of resistance or toxicity become very important. Even though the problem of rifampicin resistance is not significant now, its potential to grow in future should not be underestimated.

The *Enhanced Global Strategy* will need inputs from ongoing and future research to improve the quality and quantity of the tools and procedures available for leprosy control.

4.8 Partnerships

Partnerships can be formed with individuals, government organizations, community-based organizations, NGOs, the private sector, international agencies, professional associations (for example dermatologists) and groups of persons affected by leprosy. A partnership with such organizations helps in raising the profile of the programme and in advocating for an augmented national response in mobilizing resources.

Partnerships can be informal or formal, voluntary or contractual. Leprosy control is fortunate to have partnerships of various types with a number of agencies at different levels. The participation of NGOs in all areas of service delivery and particularly in areas such as capacity building, prevention of disabilities and rehabilitation, including reconstructive surgery, has strengthened the delivery of leprosy services in many endemic countries. Involvement of the community and community-based organizations through collaborative partnerships will create an opportunity to enable members of the community to actively contribute to and influence the development process. National efforts are needed to involve dermatologists in the leprosy control programme and will play a crucial role in sustaining high-quality leprosy services, particularly in urban areas.

5. Indicators for monitoring and evaluation

Indicators are tools for measuring the magnitude of the leprosy problem and the progress made towards achieving the objectives of the programme. They can be used to set quality targets for the programme. Considering the varied situations in different countries, the targets for quality should be country-specific and based on generally accepted minimum quality standards.

5.1 Main indicators for monitoring progress

(1) The number and rate of new cases detected per 100 000 population per year.

(2) Rate of new cases with grade-2 disabilities per 100 000 population per year.

(3) Treatment completion/cure rate.

Number and rate of new cases detected per year

The nature (e.g. type, grade of disability, etc.) and number of new cases detected in a given area are mainly influenced by four factors:

- Effectiveness of IEC activities in promoting awareness and self-reporting.
- Health workers' competence in making an accurate and timely diagnosis.
- Quality of monitoring and supervision by programme managers.
- Completeness of programme coverage, ensuring that all inhabitants are reached.

In order to ensure the quality of new case detection, programmes should ensure that:

- Case-finding is mainly focused on promoting self-reporting, with appropriate clinical examination and history-taking to avoid wrong diagnosis and re-registration.
- Case definitions are adhered to, as per national guidelines.
- Previously fully or partly treated cases are not registered as new cases. Partly treated cases should be given treatment.

All national programmes should collect and report this information, distinguishing paucibacillary and multibacillary leprosy and child/adult patients (which are important for the calculation of MDT drug requirements).

Rate of new cases with grade-2 disabilities per 100 000 population

When reviewed together with other indicators, these can be used to:

(1) estimate under-detection;

(2) measure the need for physical and social rehabilitation;

(3) advocate activities for the prevention of disabilities; and

(4) promote collaboration with other sectors.

In addition, the use of such an indicator would help to highlight the issues that are important to persons affected by leprosy, governments and nongovernmental organizations, donors and other partners.

Treatment completion/cure rate[9]

The two most important components of the leprosy control programme are:

(1) timely detection of new cases; and

(2) ensuring that all new patients who start multidrug therapy complete the full course of treatment within a reasonable period of time.

A satisfactory treatment completion rate is indicative of efficient case-holding, counselling and the degree of patient satisfaction with the services. Completion of

[9] Calculating the "cure rate" would require that the patients complete the recommended treatment and, in addition, undergo an examination to confirm absence of exacerbation or occurrence of new lesions. This would require more detailed examination of the patient and a longer follow-up period. For practical purposes, treatment completion rate can be used in the field as a proxy indicator for cure rate.

treatment means that a paucibacillary leprosy patient completes six monthly doses of PB-MDT within nine months and a multibacillary leprosy patient completes 12 monthly doses of MB-MDT within 18 months.

All national programmes should undertake cohort analysis of treatment completion rates for both paucibacillary and multibacillary leprosy at least on a sample basis. A reported unsatisfactory treatment completion rate indicates that the programme manager/supervisor should find more detailed information on the treatment outcome of the reporting clinic/district in order to identify appropriate corrective action. Such corrective action includes the use of accompanied multidrug therapy as an option for a certain category of patients who are unable to visit the health facility regularly.

5.2 Main indicators for evaluating case detection

The following indicators should be collected to evaluate the case detection activities and to calculate MDT drug requirements (5.2.2 and 5.2.4):

5.2.1 Proportion of new cases presenting with grade-2 disabilities/impairments.

5.2.2 Proportion of child cases among new cases.

5.2.3 Proportion of female patients among new cases.

5.2.4 Proportion of multibacillary cases among new cases.

5.3 Main indicators for assessing the quality of services

The programme may collect the following indicators to assess the quality of services on a sample basis as part of an integrated supervision process.

5.3.1 Proportion of new cases verified as correctly diagnosed.

5.3.2 Proportion of treatment defaulters.

5.3.3 Number of relapses.

5.3.4 Proportion of patients who develop new/additional disability during multidrug therapy.

6. Expected outcomes by 2015

The *Enhanced Global Strategy* is aimed at bringing about institutional and management changes and strengthens the operational capacity of leprosy control programmes within the overall environment and the context in which national health systems operate in majority of leprosy-endemic countries. These include the necessity of integrating leprosy

control activities within the general health services while taking into account the declining disease trends, the gradual attrition of technical expertise and scientific interest as well as competing with other major public health challenges, and declining political and resource commitments.

In addition, the *Enhanced Global Strategy* is expected to bring about changes in attitude and in approach towards ensuring that leprosy control services are cost-effective and sustainable for as long as they are needed. It calls for the essential activities to be carried out in an integrated manner, in collaboration with all partners so that duplications are avoided and cost-effectiveness improved. The enhanced commitment and collaboration between the national programmes, partners and WHO is expected to bring about the following results:

- A reduction in the number of new cases with grade-2 disabilities/impairments.
- Improved quality of diagnosis and case management, including continued provision of free-of-cost MDT for all cases.
- Access to quality services through the general health system, supported by an efficient and integrated referral network.
- Special focus on gender and human rights issues.
- Providing of essential leprosy services to underserved population groups, urban areas and areas with a high disability burden.
- Increased levels of awareness in the community aimed at promoting self-reporting.
- Scaling-up activities for the prevention of disabilities and community-based rehabilitation.
- Strengthened partnerships and collaborative working arrangements with all partners.

We are in a position to expect a world with a reduced disease burden due to leprosy and its damaging impact on the physical, social and economic well-being of individuals and families affected by the disease. We hope that communities will become more aware and responsive in joining the efforts to reduce stigma, discrimination and injustice through the empowerment of persons affected by leprosy, leading to stronger partnerships based on shared values, shared decisions and shared authority. And finally, we expect to move closer to realizing the dream of ***"A world without leprosy".***

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