

Leprosy control strategies and the integration of health services: an international perspective

Estratégias para o controle da hanseníase e integração dos serviços de saúde: uma perspectiva internacional

Jan Visschedijk ¹
Anrik Engelhard ¹
Peter Lever ¹
Maria Aparecida de Faria Grossi ²
Pieter Feenstra ¹

¹ Leprosy Unit,
Department of Health,
Royal Tropical Institute,
PO Box 95001, 1090 HA
Amsterdam, The Netherlands.
j.visschedijk@kit.nl
p.lever@kit.nl
p.feenstra@kit.nl
² Secretaria de Estado
de Saúde de Minas Gerais.
Av. Afonso Pena 2300,
Belo Horizonte, MG
30130-007, Brasil.

Abstract *Integration of leprosy services into the general health services is regarded as the core strategy to ensure that leprosy control remains cost-effective and equitable, and, thus, sustainable in the coming years. In this article an extensive review is presented of the integration of leprosy services into the general health services. After the rationale of integration is discussed, the article highlights several recent developments within leprosy control and the health sector that are in support of the integration process. An overview is presented of recent experiences in countries that have already embarked on the integration process. Based on these experiences important lessons can be learned and incorporated into a model for the process of integration. This model, which is presented at the end of the article, will assist countries to successfully integrate leprosy services into the general health services.*

Key words *Leprosy; Health Services; Strategies*

Resumo *O artigo apresenta a integração entre os serviços de hanseníase e os serviços gerais de saúde como a estratégia central para garantir que o controle da hanseníase permaneça custo-eficaz e equitativo e, como consequência, sustentável ao longo dos próximos anos. Os autores apresentam uma revisão extensa sobre a integração dos serviços de hanseníase com os serviços gerais de saúde. Após uma discussão sobre a justificativa pela integração, o artigo destaca diversas inovações recentes no controle da hanseníase e no setor da saúde que ajudam a sustentar o processo de integração. Os autores apresentam um panorama sobre as experiências recentes em países que já iniciaram o processo de integração. Com base nessas experiências, lições importantes podem ser aprendidas e incorporadas a um modelo para o processo de integração. Tal modelo, que é apresentado no final do artigo, irá auxiliar os diversos países na integração dos serviços de hanseníase com os serviços gerais de saúde.*

Palavras-chave *Hanseníase; Serviços de Saúde; Estratégias*

Introduction

Over the past decades the number of new leprosy patients detected worldwide has been more or less stable (WHO, 2002). In 2001 more than 750,000 new patients were diagnosed (WHO, 2002). It is very likely that a significant number of new patients will continue to occur for many years. Hence, leprosy control activities should be sustained, and to guarantee sustainable leprosy services they should be integrated within the general health services (ILA, 2002).

The change from a vertical to an integrated program is far from easy and cannot be accomplished overnight (Soutar, 2002). Experiences with integration processes in several countries reveal that successful integration requires good preparation and planning, and the addressing of several hurdles, many of them specific to the local context. In this article we will review the definition and rationale of integration and will assess recent experiences, both in Brazil as well as other countries. We will highlight several current developments that facilitate the integration of leprosy control. Based on the analysis of recent experiences we will indicate which lessons can be learned and, finally, we will present a step-by-step model for the process of integration of leprosy control.

Sources and search methodology

In order to review all available literature, we carried out a search in MEDLINE for the period 1985 to 2003, using the key words "leprosy" and "integration". The search yielded over 50 articles. The documents were assessed by the authors and incorporated insofar as they were felt relevant for the review. In addition, other resources such as the International Leprosy Association (ILA)-Technical Forum Report (ILA/TF, 2002) and discussions and presentations during the recent 16th International Leprosy Congress in Salvador, Brazil (ILA, 2002b), contributed to this review. The authors' experience as consultants to leprosy control programs was also utilized for this article.

Definition and rationale of integration of leprosy services

Integration has been defined in different ways, varying from the collaboration with other programs to the full absorption of leprosy services into national health systems, without leaving any room for leprosy-specific elements. Con-

sensus now exists that integration of leprosy services within the general health services means that leprosy control activities become the responsibility of the general health services, i.e., involving multipurpose, continuous, and comprehensive services which are as close to the community as possible (Feenstra, 1993). Integration does not imply that specialized elements are unnecessary. On the contrary, to a certain extent specialization is needed for policymaking, training, supervision, and referral. Some of these tasks need to be performed by a central unit in the Ministry of Health, others at the intermediate (regional/provincial) level. During the 16th International Leprosy Congress in Salvador, Brazil, the consensus about integration was confirmed by an ILA resolution (ILA/TF, 2002).

An important argument for the integration of leprosy control is to enhance the sustainability of leprosy services (ILA/TF, 2002). Because the duration of treatment has been reduced substantially over the past years, the workload for treating and following up patients has decreased accordingly. Hence, such activities are less cost-effective, particularly when vertical leprosy workers have to travel long distances for relatively few patients. Vertical services have become expensive and can usually only be maintained with considerable donor support. Moreover, in areas where prevalence is declining, integration will help in sustaining the Multi-Drug Therapy (MDT) services (Neira & Daumerie, 2000).

Integration enhances the accessibility and equity of services (Feenstra & Visschedijk, 2002). The World Health Organization (WHO) Expert Committee on leprosy emphasized in its seventh report that integration could improve local community awareness, case finding, and patients' accessibility to MDT, and could help to ensure the regularity of treatment (WHO, 1998). It indicates that fully integrated programs may be more effective in strengthening leprosy elimination activities than vertical programs. Furthermore, vertical services often serve to maintain the stigma that is usually attached to leprosy (Arole et al., 2002). Through integration, leprosy becomes an "ordinary" disease, which does not warrant special services and approaches.

Recent developments facilitating integration of leprosy control

Though the basic arguments for integration justify in most settings a process towards the

integration of leprosy control, this is reinforced by several recent developments, both within and outside leprosy control programs (Feenstra & Visschedijk, 2002):

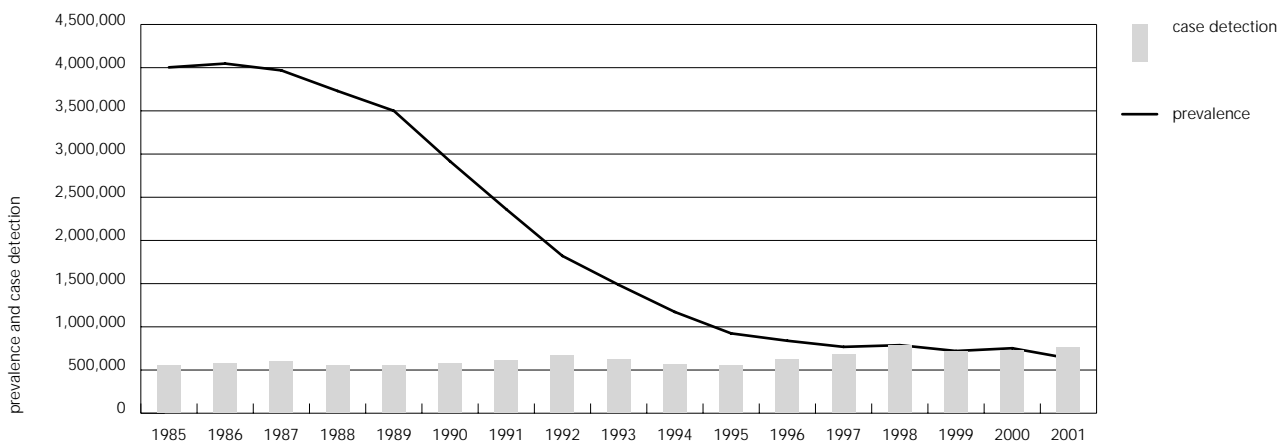
- While the number of newly detected cases is more or less stable, the registered prevalence of leprosy has been reduced substantially (Figure 1). This is mainly the result of the shortening of the treatment duration and the updating of registers (Visschedijk et al., 2000). Fluctuations in case detection rates in a few countries have mostly been caused by operational aspects such as the implementation of Leprosy Elimination Campaigns (LECs) (WHO, 2000a). Unfortunately, good information about the real incidence is not available (Smith, 1997). So far, it is unlikely that MDT, which has been recommended as the preferential treatment for leprosy since 1981 (WHO, 1982), has reduced the transmission of leprosy as compared to the previously used dapsone monotherapy (ILA/TF, 2002). Therefore, significant numbers of new cases of leprosy will continue to occur, many of them already with disabilities. Others may even develop disabilities after diagnosis. Hence, despite the reduced prevalence, cost-effective and accessible leprosy services (diagnosis, treatment, prevention of disabilities, disability care, rehabilitation) have to be sustained for decades to come (Feenstra, 1994a). This can only be ensured by the integration of leprosy services.
- Although MDT has not had a significant additional impact on transmission, it has

proven to be an excellent treatment regimen for leprosy patients. Side effects are rarely seen, and the number of relapses is limited. The use of blister packs has made its utilization simple for both health staff and patients, and its monthly distribution offers a good opportunity to regularly review leprosy patients, to detect or treat early nerve function impairment, to assess disabilities, and to provide health education. The relative simplicity of the application of MDT facilitates its use by general health workers and, thus, the opportunities for integration.

- The WHO campaign to eliminate leprosy as a public health problem has raised commitment for integration. Many countries realized that elimination could only be achieved if the leprosy services were expanded (Neira & Daumerie, 2000). Expansion of coverage, however, can only be accomplished by integrating the leprosy services into the general health services. On the other hand, it is likely that the commitment to leprosy control will diminish in the coming years. The WHO elimination campaign has resulted in the misconception that the leprosy problem can be substantially reduced in the short term (Anonymous, 1997; Feenstra, 1994b). When WHO adopted a resolution to eliminate leprosy as a public health problem by the year 2000, elimination was defined as a registered prevalence below one case per 10,000 inhabitants. Unfortunately, there is no evidence that reaching such a predefined prevalence will reduce transmission, incidence, or the annual

Figure 1

Leprosy trend in the 32 most endemic countries combined.



number of new cases (ILA/TF, 2002; Lockwood, 2002). The use of registered prevalence as an indicator for the magnitude of the leprosy problem also has several flaws (Declercq, 2001; Feenstra, 1994b; ILA/TF, 2002; Visschedijk et al., 2000). In fact, the success in achieving a considerable reduction in registered prevalence may feed the idea that the "leprosy problem" is over and might thus lead to reduced commitment and financial support from governments and donors (Feenstra, 1994b). Hence, leprosy control programs need to become cost-effective and less donor dependent, e.g., by integrating them into the general health services.

- Another reason for reduced commitment to leprosy control is that other diseases such as AIDS, malaria, tuberculosis, and non-communicable diseases are currently regarded as the priorities (Green & Jochem, 1998; Visschedijk et al., 2000). This may lead to a situation where services for new leprosy patients will disappear or lose quality in the future. Better collaboration with other disease control programs and integration at the service delivery level can ensure that leprosy services are maintained. For instance, combination of leprosy and tuberculosis control activities such as training and supervision can in some settings be mutually beneficial (Croft & Croft, 1997).

- Leprosy services are dependent on the health systems through which they are implemented, particularly in terms of their accessibility and quality. However, health systems are changing in many countries (Berman, 1996). Such changes, which are often referred to as "health sector reforms" (HSR), often entail the decentralization of responsibilities to lower levels and the involvement of the private sector (Berman, 1996; Green & Jochem, 1998). Decentralization of responsibilities can enhance the ownership of leprosy control at the lower levels, and thus the integration process, as was the case in Ghana (Bainson, 1994). Private sector involvement, particularly in urban settings, can enhance the accessibility of and collaboration with a considerable segment of health care providers (Uplekar & Cash, 1991). In such settings the outpatient departments of hospitals and dermatology clinics should also be included in leprosy control activities.

- Demographic changes such as the rising numbers of elderly people (WHO, 2000b) may increase the number of elderly disabled leprosy patients in need of treatment and care. Such demands for rehabilitative services can only be met if these services are integrated, thereby targeting all kinds of disabilities and not solely one specific disease.

- At the same time, leprosy control is affected by socioeconomic developments and the general (health) policies of countries. Economic crises in several countries and the consequential adjustment programs most likely had a negative impact on health care and on poverty-related diseases, including leprosy (Chabot et al., 1995). Many countries have not been able to protect vulnerable groups from these diseases, and only spend limited amounts on health care for the poor. Though more resources should be spent on health care and health systems, the scarce resources for the health sector should also be used in a more effective way, e.g., through integrated services.

- Significant gender differences exist in leprosy control, based on biological as well as socio-cultural factors (Idawani et al., 2002). These can have the effect of reducing case detection rates for women, as women often have less access to health services than men (Le Grand, 1997). In addition, the socially inferior status of women and the stigmatized disease result in greater social and mental problems (Shale, 2000). Integration of leprosy services will make the services more accessible and can reduce the stigma of leprosy.

Experiences with integration of leprosy control

As indicated above, several developments in leprosy control and the health sector justify the need to integrate leprosy services. As a result, several countries have already embarked on a process to integrate leprosy control into the general health services (Feenstra & Visschedijk, 2002). Some of these experiences are discussed below. First, the process towards integration will be discussed. Then, the consequences of integration on the implementation of leprosy control activities will be assessed. Finally, special attention will be paid to experiences from Brazil.

The process towards integration

The mode of implementation has varied between countries and States. In some settings such as Sri Lanka (Kasturiaratchi et al., 2002) and Uttar Pradesh in India (MOH/UP, 2001), the process included the whole State or country from the start. In other countries a pilot was launched first. In Ethiopia, for instance, the combined tuberculosis and leprosy control program started in 1997 with integration in one district called Arssi (Fekadesillassie et al., 1999).

In this district the general health workers, after some basic training, provided day-to-day tuberculosis and leprosy services under the responsibility of the district health services. After this pilot demonstrated that general health staff could effectively implement leprosy and tuberculosis activities, the integration process was expanded to other regions throughout the country. Pilots may also take shape as health system research projects, in which lessons can be learned for the integration process (Lever et al., 1998). In Orissa, India, such research was used to fine-tune the activities of an NGO to the governmental health care structure (Porter et al., 2002).

All experiences reveal that proper planning and preparation have to precede the actual implementation of the integration process. In some countries, such as Ethiopia, a step-by-step approach was spelled out in detail, in which all the consecutive steps were indicated (Fekadesillassie et al., 1999). Other important aspects in the planning and preparation phase include a realistic situation analysis, commitment-building, formulation of a clear plan for integration, training of health workers, and provision of adequate and timely information to the public.

In Jigawa State, Nigeria, an effort to integrate the leprosy services in 1996 failed due to lack of commitment from both the policymakers and the health staff (Namadi et al., 2002). When in 1999 a new opportunity emerged through the implementation of a LEC, the first step was to build commitment among the decision-makers. At a later stage in the process, it was also possible to convince the previous health workers and the general health staff of the need for integration. The process as a whole was successful.

A similar experience stems from Tamil Nadu, India (Community Health Department, Christian Medical College, 2000; DANLEP, 2000; Rao et al., 2002), which was the first State in India where integration was implemented. In this State, integration was conducted immediately in order to circumvent the prevailing climate of resistance, particularly among vertical leprosy staff. Although sufficient acceptance for integration was eventually achieved, several other obstacles were encountered: (i) the general health workers were not adequately trained; (ii) the patients and communities were not well informed concerning integration; and (iii) the roles at the intermediary level, particularly in relation to supervision and monitoring, were not clear. Due to the lack of training, the diagnosis and record-keeping was still done by previous vertical leprosy

workers rather than by the general health staff. An additional problem was that the lines for referral, particularly regarding complications, were not well defined.

These experiences indicate that the building of adequate human capacity through training is one of the most important factors for successful integration. Such training should not only include the transfer of skills and knowledge, but should also create a positive attitude of health workers towards leprosy and leprosy patients (Asnake et al., 2000). Saunderson & Ross (2002) indicate that it is still surprising that in the era of cost-effectiveness and cost-cutting, training is often not well planned and is rarely evaluated in a rational manner. Hence, they propose the development of a National Training Plan for Leprosy, with clear objectives. Such a plan should pay particular attention to the general education of health personnel. This is illustrated by the experience of Zimbabwe, where reduced knowledge and skills after integration among doctors and paramedical staff could have been avoided if leprosy control had been incorporated into the curricula of the (para-) medical training schools right from the start (Warndorff & Warndorff, 1990).

The experience of Myanmar confirms that, when adequately trained, general health workers, even at the most peripheral level, are capable of diagnosing and treating leprosy patients. In this country it was felt that the leprosy services could be made more accessible and more effective if provided closer to the communities (Barua et al., 1999). By utilizing the multipurpose midwives (who reside within the communities) for activities such as case detection and treatment, it was possible to integrate the previous vertical program into the general health services.

Furthermore, in such cases where the most peripheral workers diagnose and treat patients, it is beneficial to simplify patient cards and registers. In Sri Lanka this facilitated monitoring and data analysis, which are necessary to identify and respond to constraints during the integration process (Kasturiaratchi et al., 2002).

An important prerequisite in Myanmar was the existence of an adequately functioning health system. Based on experiences from Nepal, Roos et al. (1995) indicate that a well-functioning general health system is a necessity for successful integration. In the absence of such a system, an integrated leprosy control program cannot be established. Furthermore, they highlight the importance of regular supervision and specialist referral facilities.

The experience of Sri Lanka emphasizes the importance of a participatory methodology for the integration process (Kasturiaratchi et al., 2002). When the reduction in registered prevalence required greater efficiency in detecting and treating leprosy patients, the plan for integration was developed through an extensive consultative process. This process resulted in a very clear vision and well-structured services, in which the roles and responsibilities of all parties were spelled out in detail. Ample time was provided to develop a clear and transparent implementation plan. Organizing regular meetings during and after the integration process ensured good communication. Furthermore, the treatment staff was reoriented and a nationwide public awareness campaign was launched on the availability of leprosy services in all health facilities. Experience from countries such as Argentina emphasizes that patients' knowledge of the new system is an important factor for successful integration (Merlin et al., 1998).

Rehabilitation of disabled leprosy patients and eye care for leprosy patients should also be integrated into general health services and facilities (Stilma, 1991). Separate treatment of leprosy patients will be inefficient and will sustain the stigma and misconception that leprosy is a special disease. This means that surgical rehabilitation should be made available in general hospitals and health facilities, and that training of general health staff in leprosy should be mandatory (Virmond & Pereira, 2000). Furthermore, as Kazen (1999) indicates, the majority of patients with ulcers in need of surgical intervention can be treated by very simple procedures, and patients will benefit from treatment facilities near their homes. Several attempts have already been made to stimulate collaboration between socioeconomic rehabilitation projects and general rehabilitation facilities, or to integrate the former into the latter (Kathe et al., 1992).

Consequences of the integration process for leprosy control

At least as important as the process are the consequences and outcomes for leprosy control. These outcomes are mostly measured through indicators such as case detection rate, proportion of patients with visible disabilities among newly detected patients, and the cure rate. Unfortunately, it is often methodologically difficult to determine the exact impact of integration on these indicators, as there are usually several oth-

er contributing factors involved in changes in case detection and case management. These data are usually available, but they should be interpreted with caution.

In most settings in which leprosy control was integrated, the accessibility increased substantially. In countries such as Ethiopia and Nigeria where much emphasis was placed on the expansion of services, the number of health facilities that provide leprosy services on a day-to-day basis has risen substantially (Fekadesillassie et al., 1999; Namadi et al., 2002). In Jigawa State, Nigeria, the number increased almost threefold: while 75 health facilities were offering leprosy services in 1998, this number had risen to 264 in 2000.

The consequences of integration for case detection rates varied between countries and are rather difficult to analyze, mostly because these figures depend on several operational aspects such as the intensification of active case finding (e.g., through LECs). When LECs are part of integration efforts, the number of newly detected patients may increase substantially. However, in the years immediately following such an exercise the numbers may decrease somewhat. In Sri Lanka, where the number of health facilities with MDT services was not expanded, the case detection rate increased by 41% in the first year after integration (Katuriaratchi et al., 2002). This may be due to the health education campaign through which patients and communities were informed.

Concerns have been raised as to whether integration of leprosy control might take place at the expense of the quality of leprosy services (Naafs, 2000). Though quality has several aspects, success in curing patients is certainly among them. In several integrated programs (Nigeria, Sri Lanka, Myanmar) the cure rate has been kept at acceptable levels (Barua et al., 1999; Kasturiaratchi et al., 2002; Namadi et al., 2002). However, in Tamil Nadu, India, problems have occurred in dealing with complicated patients and referral systems (DANLEP, 2000).

Additional research may be needed to better assess the consequences of integration for the quality of leprosy services. Such context-specific research should indicate how integration is affecting the most important quality aspects of leprosy services and how quality can be maintained and strengthened in an integrated setting.

In Jigawa State in Nigeria, a small study was conducted to assess the quality of services in relation to the integration process (Samson, 2002). It involved an assessment of treatment records of patients treated before and after integration.

The parameters for assessing quality were: adequacy of diagnosis, PB/MB classification, and change in disability status during treatment. The study revealed no substantial changes in the accuracy of diagnosis and classification, and no change in disability status between pre- and post-integration. This indicates that quality of leprosy services can be maintained at a reasonable level following integration.

Another aspect that strongly influences the course of leprosy is early detection and treatment of reactions. This clearly requires more research, since experience to date does not indicate how integration affects this important aspect of leprosy control.

All experiences highlight the importance of maintaining adequate support services after integration has been completed. Continuous supervision, technical support, and monitoring are crucial to maintain good standards of leprosy services. Such support should be provided mostly by the intermediate level (provincial and district). Training must also be continued to compensate for attrition of health workers and to ensure that skills and knowledge are sustained (Chen et al., 2000).

Integration of leprosy services in Brazil

In Brazil, integration of leprosy control into the general health services began in the 1980s (MS, 2001). Previously, leprosy control was the responsibility of the Federal level. Clinical services were provided by dermatologists and leprologists, and social care for leprosy patients was often provided by church-related organizations. Integration of leprosy services was part of a broader, federally initiated exercise comprising integration of the most relevant health services into a primary health care system. It was not an isolated process confined to leprosy control, as was the case in some other countries.

A first definite step was taken in 1990, when the services were decentralized. Previously, the public health system in Brazil was centralized in the Federal government and consisted of two distinct service systems, one under the Ministry of Social Security and Welfare, the other one under the Ministry of Health (MoH). In 1990 these two systems were united under the Ministry of Health, and their constituent health facilities were handed over to the States and municipalities. With the establishment of this National Unified Health System (SUS), the structure for integration was actually created.

The intention is for the SUS to be a decentralized, regional service system, comprehen-

sive in terms of curative, preventive, and rehabilitative services, and equitable in terms of the needs of various communities. Under the SUS the municipalities are now responsible for planning, organization, monitoring, and evaluation of health activities and services. The State level is responsible for coordinating and monitoring all activities. States provide technical and financial coordination for the activities by the municipalities. The Federal level formulates and evaluates national health policies, ensures the uniformity of the system, and regulates relations between the public and private sectors.

A next step towards integration was taken after 1992, with the actual decentralization of executive powers to municipal level. This was achieved through the Family Health Program (PSF), establishing more functional aspects of integration. The PSF is implemented through teams consisting of a physician, nurse, nursing aide, and 4-6 community health workers (*agentes comunitários de saúde*: ACS). Their tasks are to provide basic health care, develop health education activities, promote community participation, identify individual and collective health risks, and monitor demographic and epidemiological trends. The activities include home visits and participation in community development. A PSF team cares for approximately 4,500 people and also has leprosy control responsibilities. Community health workers play an important role in leprosy case holding and the promotion of self-reporting of suspected leprosy cases. Training and supervision of the PSF staff is the responsibility of the municipal health secretary, regional supervisors, and State and national coordinators, supported by a pool of trainers from universities. Several nongovernmental organizations (NGOs) contribute to further leprosy-oriented training activities.

The PSF has been successfully implemented in several States. In Minas Gerais, with one of the strongest State economies in Brazil, the PSF started in 1994 and now covers 674 municipalities (79% of the State). More than two thousand teams are operational, reaching 45% of the population. The teams are assisted by a total of 17,000 community health workers who cover 57% of the population.

However, several concerns have been raised over the program's sustainability. PSF staff wages are often much higher than elsewhere in the health care system and vary between and within municipalities. These differences, often influenced by political arguments, have contributed to high attrition and turnover of PSF staff and have negatively influenced the sustainability of the PSF system. Furthermore, su-

pervision is hampered by limited technical and financial capacity at the intermediate level, and the PSF teams are not always well supported on technical issues. State-level supervision capacity is available in some States due to support by NGOs. Finally, current training efforts do not always result in PSF teams that are sufficiently confident to actually diagnose the disease or initiate leprosy treatment.

In this system the distribution of leprosy drugs is the responsibility of the Federal government and is carried out without interruption via the national channels. Leprosy control data are entered into the SINAN registration system. The SINAN computerized notification system collects a relatively comprehensive set of clinical- and public health-oriented data on communicable diseases, including leprosy, and is a good example of an integrated information system. Other major national data systems are the Information System on Mortality (SIM), Live Births (SINASC), Hospital Data (SIH), Outpatient Data (SIA/SUS), and support for the National Immunization Program (API).

Leprosy control was further integrated into the general health services in 2001 when a new law known as the Health Care Operational Norm was implemented, thus legally classifying leprosy control as a basic health service. This meant that every basic health unit is required to conduct leprosy control similar to other communicable diseases such as tuberculosis and HIV/AIDS. The law also has positive implications for political commitment and the mobilization of funds.

In addition, through a Federal initiative, a National Mobilization Project for the Elimination of Leprosy (and the Control of Tuberculosis) is being implemented, particularly targeting priority municipalities. The first stage is the mobilization and coordination of political and managerial levels at the State and municipal levels. Some of the activities are combined and concern both leprosy and tuberculosis. Objectives and activities include: technical, political, and social mobilization towards the goals of leprosy elimination and tuberculosis control; decentralization of activities and reorganization of services; improvement of surveillance and the information system; reinforcement of the network of laboratory and diagnostic services; guarantee of pharmaceutical assistance through decentralized distribution and stocks; and human resources development and capacity-building.

For a growing number of patients, the following routine has now become a reality in several municipalities: suspected cases, as identi-

fied by community health workers, find their way to one of the general health care workers from a family health team in a health center. The diagnosis can be made in most centers and treatment, including follow-up, can be started. In less experienced teams or in clinically more difficult situations, the suspected case is referred. After diagnosis and the beginning of treatment, the family health team can treat the patients further in their own municipality. The task is to detect complications at an early stage and to stimulate treatment adherence. All these services are supported by strong State and national levels which develop policies, coordinate all leprosy activities, monitor the achievements, and provide technical support (supervision and training) to the lower levels.

Lessons learned

Based on the experiences outlined above, several lessons can be learned, relating to the overall process, necessary preconditions for integration, development of an adequate plan, and appropriate preparations.

The overall process

- Integration requires careful and adequate advance planning and should be introduced on a step-by-step basis (phasing in place, time, and activities).
- Integration must be context-specific.
- The integration process should be implemented in a step-wise mode, and it is important to achieve early results. This is necessary to maintain commitment.
- Special initiatives such as LECs can be used as opportunities to begin or strengthen the integration process.
- Health systems research can be useful to identify and address obstacles in the integration process.
- The documented experiences from other countries should be better utilized, even though the integration process needs to be adapted to local situations.

Preconditions

- The government should be committed to sustained leprosy control activities, and there should be a national policy for leprosy control.
- The existence of an adequately functioning general health service infrastructure.

- Staff and public acceptance of leprosy patients in general health facilities, and willingness of leprosy patients to attend these facilities.
- NGOs supporting leprosy control continue to be important partners of governments in integrated leprosy control programs. If donors wish to ensure the establishment of sustainable leprosy services, they must work with and strengthen the national general health services system.
- In order to establish sustainable services, broad ownership of the strategy must be assured, both within the specific leprosy organizations and, equally important, outside. It is important that the various agencies involved in leprosy control collaborate and coordinate their activities, in order to increase their effectiveness.

Development of an adequate plan

- In integrating leprosy control into general health services, equity and quality of care for leprosy patients should be assured. This implies that services for leprosy patients (including diagnosis, treatment, and rehabilitation) should provide the same level of quality (not less, but also not more) as services for other health problems.
- Sufficient capacity in leprosy control must be available within the general health service at the central and intermediate levels for advocacy, policy formulation, technical guidance, training, planning, monitoring, evaluation, and coordination of national and international donor support. Wherever available, dermatologists can play an important role in referral, clinical guidance, and training.
- The incorporation of leprosy into the curricula of medical faculties and paramedical schools is essential for the successful operation of leprosy control as an integrated part of the general health services, and to sustain leprosy expertise within the health services.
- The private for-profit health sector will play an increasing role in the provision of leprosy services. This may pose problems, such as treatment by non-standard regimens, incomplete treatment, inadequate instructions to patients and the consequent risk of drug resistance, and increased incidence of disability. National strategies should therefore clearly define the private sector's role, including training and quality control.

Adequate preparations

- An adequate, well-prepared support structure at the intermediate level is not only required when leprosy services have been integrated into the general health services, but is also necessary to provide guidance during the integration process.
- With integration, the recording and reporting system will require simplification to allow for appropriate data collection by peripheral multipurpose health workers. Only data directly linked to decision-making should be routinely collected. The number of forms, reports, or registers should be reduced to a minimum and should be incorporated into an existing general health management information system. A simplified recording and reporting system, incorporated into the general health management information system, should be in place before integration is performed.
- The tasks of different categories of staff in the integrated program (including previous vertical staff) should be clearly defined and communicated to all concerned long before integration is conducted. The same applies for training: all categories of staff should have completed their training before the integrated program becomes operational.
- An uninterrupted supply of anti-leprosy drugs must be guaranteed.
- A professional advertising campaign to create awareness of the availability of leprosy treatment at all health facilities, as well as to overcome the stigma attached to leprosy, can strongly facilitate a successful integration process.

Towards a model for integration of leprosy services

Although it is crucial to analyze past experiences, they only become relevant if utilized in future integration processes. Hence a model is presented that can assist countries and States in integrating leprosy control into general health services or in improving the already integrated leprosy services. The model is based on recent experiences and common management and planning principles. This model is currently under review by the ILEP Technical Commission. It is expected that the final model, in which the entire methodology and further details are provided, will be published by the end of 2003.

The model's concept is that different stages have to be completed in order to adequately integrate leprosy services. These essential stages

are presented in Table 1. In countries where integration is already underway or some initial steps have been taken, it is not necessary that the process begin from scratch and rigidly follow all stages. In such cases it is necessary to identify how far the process has progressed, whether the process has been adequate, and which stages still need to be conducted or repeated to successfully establish well-integrated, effective leprosy services.

Since every region and State generates its own specific context for leprosy control programs, the necessary flexibility has to be observed during the integration process. Furthermore, the process needs to be transparent and must involve all relevant partners. This will facilitate ownership and the commitment to integration.

Stage A – Performing a situation analysis

This first stage includes four types of analysis which are necessary to analyze the current situation and context, in order to prepare a plan for integration. Frequently, parts of this information or analysis are already available, for instance in annual reports and evaluation studies.

1. Epidemiological analysis

The epidemiological analysis should provide an accurate impression of the leprosy problem for the coming years. For this purpose, a set of indicators can be selected which are routinely used in leprosy programs and are summarized in recent WHO and ILEP publications (ILEP, 2001). Such indicators will also be important later on, for monitoring the integration process. The analysis should also include an estimate of the current and future number of disabled patients.

Table 1

Essential stages	
A	Performing a situation analysis
B	Analyzing weaknesses, strengths, and priorities
C	Ensuring commitment to integration by decision-makers
D	Developing a plan for the integration process
E	Making preparations
F	Implementing and monitoring
G	Evaluating

2. Analysis of leprosy services

By using operational indicators such as case detection rates, proportion of disabilities, cure rates, or analytical models such as the Piot model (Piot, 1967), services can be assessed from a public health perspective. It is also useful to bring in the client perspective (van Dijk et al., in press). The structure, tasks, and finances can be analyzed through a more organizational approach. In this analysis it is important to indicate the different tasks and responsibilities of the various categories of health staff and to assess how these will change as a result of integration. Of course, the health facilities, logistical system, and financial arrangements also need to be assessed.

3. Analysis of level of integration and the health system

In several settings steps may already have been made towards integration. Hence, it is always important to assess the current level of integration. The extent of integration can be assessed by using indicators that are also useful when monitoring the integration process. Examples of such indicators are:

- The proportion of health centers with MDT blister packs;
- The proportion of health centers where general health staff conducts diagnoses and provides treatment to leprosy patients; and
- The proportion of supervisors providing adequate technical support to the general health staff.

In addition, an assessment of the health system should be made to identify possible obstacles to integration. If the general health system functions inadequately at different levels (e.g., due to lack of capacity, manpower, attitude), then integration may fail. Questions that need to be answered are:

- What is the capacity of the current general health services in relation to leprosy control? Is the coverage of the current health system adequate?
- What specific obstacles to integration can be expected? In what sense is the private sector involved in leprosy control, and does integration jeopardize the quality? Does any political instability hamper the integration process?

4. Stakeholder analysis

The roles of all involved parties can be identified by means of a stakeholder analysis. Understanding different stakeholders' positions

and attitudes towards integration is crucial to ensure that possible resistance to integration is minimized and conflicts in later phases are prevented. Recent experiences indicate that particularly the resistance of vertical leprosy staff and general health workers has been underestimated (Namadi et al., 2002; Rao et al., 2002). However, patients may also be averse to the idea of integration because of the stigma or because they feel that they are no longer "special".

Stage B – Analyzing weaknesses, strengths and priorities

Weaknesses and strengths can be summarized based on the previous situation analysis. In addition, opportunities and possible threats for the process towards integration can be indicated. This SWOT (strengths, weaknesses, opportunities, threats) analysis will also highlight the aspects in the integration process to which priority should be given. This might include building commitment among some groups, but also perhaps strengthening skills for certain health personnel. If the analysis is incomplete and additional information is required, then focused and rapid health system research may provide answers to certain questions.

Stage C – Ensuring decision-makers' commitment to the principles and process of integration

A crucial stage in every process is to ensure decision-makers' commitment to integration, without which the risks of failure are great. Though commitment by other stakeholders such as staff and patients is also important, this can often be addressed at a later stage.

After decision-makers are identified, they have to be convinced of the need and conditions for integration. One way of achieving this might be to organize a workshop (ILEP, 1997). It is often relevant to confirm the commitment in an explicit way, whereby all parties indicate their commitment to integration. A written declaration at the end of a workshop could be produced and officially endorsed. However, care needs to be taken that the expressed commitment is not just window-dressing or that the concepts of integration are not interpreted differently.

Stage D – Developing a plan for integration

Based on the situation analysis, a plan for integration should be developed. This plan should

be used as a guide for the preparation, implementation, and evaluation of the integration process. It should include not only the expected outcome of the process, but also a strategy, work plan, and timeframe. The plan builds on the situation analysis and consists of five steps.

1. Formulation of objectives/targets

A distinction should be made between objectives and targets in terms of the expected results of leprosy control when the services are integrated, and the objectives of the integration process itself. Objectives should be operationalized insofar as possible in quantifiable targets. Information from the situation analysis should be used to develop achievable objectives and adequate strategies.

Targets in relation to the results of leprosy control in an integrated setting can be defined "more traditionally" as desirable results related to epidemiological (case detection, prevalence) and more operational outcomes (case holding and POD). They are basically no different from those defined for non-integrated programs. An example of a target for the integration process could be the number/proportion of health facilities that provide integrated leprosy in a district or country.

2. Formulation of a strategy for leprosy control and an approach for the integration process

The formulation of the strategy should imply a clear statement about how leprosy services will be provided in an integrated setting. The different activities related to case finding, case holding, POD, rehabilitation, and support activities (training, supervision) have to be defined. This needs to be spelled out in a leprosy control manual, in which the different tasks are also allocated to the various personnel involved in leprosy control. A combination of some activities, e.g., supervision and health education, with those of other programs may be considered (Visschedijk et al., 2000).

In addition, the approach for the process to convert the vertical into integrated services has to be formulated. This approach includes the preparation and actual implementation of the process. In the preparation stage, commitment-building and capacity development are important. As regards implementation, a decision needs to be made as to whether integration will be implemented in a phased manner, after a pilot, or in all areas at the same time.

3. Developing a work plan, budget, and timeframe

In order to translate the objectives and strategies into concrete activities, a detailed work plan should be made. Such a work plan needs to include a time schedule. A budget should be attached, which must also indicate how the process is funded.

4. Developing a monitoring system

A monitoring system is necessary to assess the progress towards integration and to make adjustments where necessary. Such a system can use indicators such as the proportion of health centers with MDT blister packs, and the proportion of health centers where general health staff performs diagnoses and provides treatment to leprosy patients. Furthermore, a routine monitoring system has to be formulated with simple indicators. Useful indicators are the case detection rate, proportion of new patients with visible disabilities, and the cure rate.

5. Finalizing the work plan

Before the work plan and budget can be put into practice and preparations for the integration process can start, the process for integration should be clear to all relevant partners and the financial requirements should be secured. The general outline of the plan should be discussed with the main stakeholders and, where necessary, final adjustments should be made.

Stage E – Making preparations

Before integrated leprosy services can be adequately implemented, some specific preparations have to be made. These activities should preferably be incorporated into the work plan.

1. Building commitment of health staff

Not only decision-makers and donors, but also the health staff (both vertical and general), have to be committed to integration. Such commitment can only be achieved if these groups understand the need for sustainability and, thus, integration. They have to realize that leprosy does not require separate staff or services and that the extra burden of work for the general health staff is limited. Another aspect that has to be addressed is the resistance of previous vertical leprosy staff who fear a reduced status and loss of incentives in terms of transport facilities (motorbikes) and allowances.

2. Strengthening human resources

Commitment-building can often be combined with enhancing the knowledge and skills for leprosy control. The training should be based on the tasks that the health workers have to perform. In most cases, existing training institutions and curricula can be used. However, training is not limited to special training courses. On-the-job training or meetings with training/discussion sessions are often more effective. Inadequate training of previous leprosy staff in supervision, support, and monitoring may lead to a maintaining of vertical characteristics in leprosy control services.

In some circumstances it may be necessary to reallocate personnel. Leprosy staff can sometimes be assimilated into the GHS. Provisions should be made for previous staff to keep appropriate jobs in the health system, whether or not additional training and education are required.

3. Preparing for supervision

An intensive supervision program should be established, particularly during the preparatory phase and the initial period of integrated leprosy services. Supervision is needed to ensure that the skills, performance, and motivation of the general health staff remain sufficient. Supervisors often have to be taught how to provide technical support and on-the-job training.

4. Preparing the support functions (drugs, logistics, supervision)

Before integrated leprosy services can be implemented, the following preparations have to be made to support the services:

- Drugs should be available and distributed;
- Laboratory reagents should be available and distributed;
- A simplified Management Information System (MIS) should be established, and the forms and registers of the recording and reporting system should be available and distributed;
- A plan for continuing education, e.g., through regular meetings, should be formulated.

5. Providing health education to the general public

To ensure that new leprosy patients come to the general health facilities, they have to be informed about the new approach. Information and education through the mass media has to convince them that leprosy is an ordinary in-

fectious disease and that leprosy services provided by general health staff are of good quality. Such a campaign can make use of mass media, posters, and other ways to spread the message. The local context will determine which approach is most appropriate.

Stage F – Implementing the integration process

After the necessary preparations have been made, implementation of the integrated leprosy services can begin according to the work plan. It is important that all stakeholders are familiar with and committed to the integration objectives, strategies, and process. The launch can be highlighted by an official letter or special celebration.

Supervision and logistical support, in which the intermediary level plays a crucial role, should be maintained at an acceptable level throughout the process. Furthermore, it is crucial that the integration process is monitored, using the indicators selected in an earlier phase. During implementation, human resource development should be continued. The incorporation of leprosy (control) into the curricula of medical faculties and paramedical schools would make a significant contribution to the integration process.

Stage G – Evaluation of the integration process

An evaluation can be conducted several years after the start of the implementation of integrated leprosy control. This should include an assessment of whether the targets have been achieved. Lessons concerning the integration process can be derived from such evaluations, which are in turn beneficial for integration processes in other settings. External experts should preferably participate in these evaluations.

Conclusion

In this review we have emphasized that integration of leprosy services into general health services is necessary to sustain leprosy services and to render them more equitable. Based on recent experiences and developments, we have demonstrated that integration is feasible in most settings. Of critical importance is that integration is well prepared and planned, and that certain preconditions are met.

Although there is no blueprint for integration and every setting requires its own approach, common characteristics in the process can be identified. This has enabled the development of a model for integration. The model provides a comprehensive overview of the different stages in the integration process. By applying these stages in a systematic way, leprosy services can be successfully integrated into the general health system.

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