Lepr Rev (2018) **89,** 77–82

SHORT REPORT

Implementing the Global Leprosy Strategy 2016–2020 in Nepal: lessons learnt from active case detection campaigns

LAURA GILLINI*, ERWIN COOREMAN*, BASUDEV PANDEY**, CHUDAMANI BHANDARI***, JOS VANDELAER****, RAJAN RAYAMAJHI****, SANAE ISOZUMI*****, VENKATA PEMMARAJU* & ETSUKO KITA*****

**World Health Organization, Global Leprosy Programme, Regional Office for South-East Asia (SEARO), New Delhi, India*
***Central Regional Health Directorate, Ministry of Health, Nepal*
****Department of Health Services, Ministry of Health, Nepal*
*****World Health Organization, Country Office, Nepal*
******Sasakawa Memorial Health Foundation, Tokyo, Japan*

Accepted for publication 8 March 2018

Background

After reaching the goal of elimination of leprosy as a public health problem (point prevalence <1 per 10,000 population) at global level in 2000, new leprosy cases continue to occur. Over 200,000 new cases are notified each year with an observed decline of the new case detection rate of only about 3% per year. In order to accelerate the decline of the disease burden, in 2016 the Global Leprosy Strategy "Accelerating towards a leprosy-free world" was launched.[1] One of the key areas of intervention, as explained in the Operational Manual,[2] is the promotion of early diagnosis through active case detection campaigns in high burden areas, among high risk groups and in hard-to-reach areas. Active case detection campaigns used to be the backbone of leprosy control in the pre-elimination era before 2000,[3–6] but lack of funding and unclear policy guidance post-elimination, has led to this activity being downscaled or phased out. Nepal reached elimination of leprosy as a public health problem at national level in 2010. Since then no active detection campaigns have been routinely organized. Sasakawa Memorial Health Foundation (SMHF) and the Government of Nepal decided to jointly fund a pilot project in the Banke and Bardiya districts (Figure 1) during the

Correspondence to: Laura Gillini, World Health Organization, Global Leprosy Programme, Regional Office for South-East Asia (SEARO), New Delhi, India (E-mail laura.gillini@gmail.com)

0305-7518/18/064053+06 $1.00

Figure 1. Map of Nepal, highlighted in red Banke and Bardiya districts where the leprosy detection campaigns were carried out.

first half of 2017, consisting of active case detection campaigns, providing additional support to the annual funding from The Nippon Foundation (TNF) for leprosy control activities.

The campaigns were funded by channeling resources through the WHO Country Office which identified, in collaboration with the Leprosy Control Division of the Ministry of Health, two NGOs (one in each pilot district) to facilitate the implementation of the campaigns under the leadership of the district health office. Additional funding (approximately US$ 20,000) was provided by the Ministry of Health of Nepal to contribute to training of volunteers and to carry out supervision during the campaigns.

The districts of Banke and Bardiya were chosen because the (routinely reported) annual new case detection rate had been consistently at least double the national average (Table 1).

The active case detection project in Nepal focused on active case detection in targeted areas (household to household) by trained volunteers. About 80% of the population of the two districts was targeted through covering households served by the district health facilities with high numbers of leprosy cases. The NGOs in collaboration with the district health officials identified and trained volunteers, including existing female community health volunteers (FCHVs), and specifically recruited male volunteers to screen households in search for skin lesions and other signs of leprosy disease. Among those, some were people affected by leprosy (former patients). Supervisors were identified among health care workers posted at

Table 1. Trend of the new leprosy case detection rate between 2013 and 2016 in Banke and Bardiya districts, Nepal

	Annual new case detection rate/100,000 population		
Year	Nepal	Banke	Bardiya
2013/2014	11·8	25·4	18·1
2014/2015	11·0	22·4	22·6
2015/2016	10·7	34·9	23·1

health facilities in the two districts, in addition to supervisors from the two NGOs, from the central-level MoH staff and from WHO. Incentives were provided to both volunteers and supervisors.

Awareness about the upcoming door-to-door screening activities was raised through health facilities banners, announcements by mobile megaphones and media (newspapers articles and radio announcements). Those with lesions or other signs of the disease were referred by the volunteers to the nearby health facility to confirm the diagnosis. As well as the household screening, information, education and communication (IEC) activities on leprosy were carried out in 600 schools, during which the signs and symptoms of the disease were explained to the students.

The campaigns were carried out in January, 2017, falling into the reporting year 2016/2017 (the Nepalese Calendar starts and ends in mid-July).

Methods

Two separate monitoring missions were conducted in the districts where the active case detection campaigns were carried out: in May 2017 by SMHF staff; and in July 2017 by WHO through the Global Leprosy Programme and Country Office staff. The first mission collected information on coverage, number of cases diagnosed with leprosy, along with financial information including the governmental contribution to the campaigns. The WHO mission assessed outcomes in terms of 'additional' cases detected compared to previous years, and attempted to assess the number of cases presumed to have leprosy by volunteers against the ones that referred themselves for diagnostic confirmation. This mission also explored the role of health care staff by visiting the District Public Health Offices in both districts, one Primary Health Care centre and one Health Post in Banke, and two Health Posts in Bardiya. Over 20 health care workers were interviewed in these health facilities. The same team also made a home visit to one FHCV who was involved in the campaign.

Results

The coverage of the campaign was high, as summarized in Table 2.

A higher proportion of the population was reached in Bardiya where the volunteers continued to screen for two additional days beyond the 5 days planned, in order to be able to examine family members that were absent during the first visit. In Banke leprosy was diagnosed in 10% of the suspects who were referred by the volunteers to the health facilities

Table 2. Active case detection campaign coverage by district

	Banke	Bardiya
Total district population	561,497	459,499
Campaign target population	373,202 (66%)	413,447 (90%)
Number of Screened persons	206,772 (37%)	323,758 (70%)
Number of schools provided IEC	106 (63,000 students)	225 (69,641 students)
Number of screened households	41,354 (44% of households)	73,759 (89% of households)

for confirmation and in Bardiya, in 7% of them. The campaign detected 137 new leprosy cases in Banke and 145 in Bardiya, totaling 282 leprosy cases detected during the campaigns. The total cost of the campaign was US$ 119,569 which resulted in a cost per patient diagnosed of US$ 424. The number of 'additional cases contributed by the campaign' was calculated by subtracting the number of cases detected in the year before the campaign, when patients were diagnosed using a routine passive detection mode. New leprosy cases detected in 2015/2016 in the two districts were 302 while cases detected in the year 2016/2017 were 526 hence 224 'additional' new leprosy cases were found through active screening. This implies a cost of US$ 534 per 'additional' case detected. The increase in terms of number of cases detected resulted in an increase of the case detection rate in both districts by three and by almost seven times, in Banke and Bardiya, respectively (Table 3).

The contribution of those two districts to the annual nationwide case notification was 9·9% in the year preceding the campaign and 16% in the campaign year. The increase in the total number of cases resulted in an increase in the annual new case detection rate for Nepal of 4·7% compared to the year before the campaign, increasing from 10·7 to 11·2 per 100,000 population (Table 3). As expected, due to the effect of earlier detection through active screening, the proportions of multibacillary (MB) cases in the targeted districts were lower in the campaign year compared to the previous year. A higher proportion of children were detected due to the IEC activities conducted in schools. However the increase was limited since the leprosy incubation period is long so that the disease more often affects adults than children. Also a lower proportion of cases with Grade 2 disability (G2D) compared to the previous year was observed, as an effect of earlier detection (Table 4).

From the interviews conducted, it was clear that health care workers at all levels agreed that the campaigns raised awareness about leprosy and facilitated the diagnosis of new cases. They have also contributed to bringing back into care some patients that had abandoned treatment. Having former patients among the volunteers was seen as a strength of the campaigns. One of the challenges identified was that a sizeable proportion of those seen by the volunteers with signs and/or symptoms suspicious of leprosy did not report to the health facilities for diagnostic confirmation. Unfortunately, during the campaign no information system was put in place to monitor this proportion properly. However one of health facilities visited kept the referral sheets given by the volunteers who screened people at household level; when comparing the referral sheets against the number of suspects who reported for screening, out of 332 suspects identified, only 152 reported for examination and diagnostic confirmation at the health facility which means that less than 50% of suspected cases actually

Table 3. Total leprosy cases detected in Banke and Bardhya districts compared to national data (absolute numbers and rates) in two consecutive years. Data for 2016/2017 in Banke and Bardiya include cases detected during the active case search campaigns

	Nepal		Banke		Bardiya	
Year	New leprosy cases	New case detection rate (per 100,000)	New leprosy cases	New case detection rate (per 100,000)	New leprosy cases	New case detection rate (per 100,000)
2015/2016	3054	10·7	196	34·9	106	23·1
2016/2017	3215	11·2	291	51·8	235	51·1

Table 4. Characteristics of the leprosy patients detected in Banke and Bardhya in two consecutive years including the year of the active case detection campaigns (2016/2017)

	2015/2016	2016/2017
Banke		
% MB	54%	46·4%
% Child	8%	8·2%
% G2D	6%	4·8%
Bardiya		
% MB	50%	37·4%
% Child	4%	5·5%
% G2D	3·8%	3·4%

sought confirmatory diagnosis. It is not clear whether the same pattern of low diagnostic confirmation occurred elsewhere. Health care workers mentioned geographical constraints and social stigma in the community as possible reasons for people not seeking diagnostic confirmation. Health staff in both districts felt that 5 days were not sufficient for the volunteers to cover all identified households, since in many instances they needed to return to the same household to complete screening. Similarly it was reported that staff in health facilities were very busy during the days of the campaign due to an increased number of clients. This resulted in longer waiting times for all patients visiting the health facilities. Extra 'surge' staff during the campaigns could have avoided this problem.

Discussion

The campaigns were perceived as beneficial and boosting commitment towards leprosy elimination by all the interviewed staff. Through this ad hoc project a total of 282 new leprosy cases were identified, bringing the annual rate of case detection from 196 in 2015/2016 to 291 in 2016/2017 in Banke, and from 106 in 2015/2016 to 235 in 2016/2017 in Bardiya. The involvement of people affected among the volunteers was reported as a key factor in the success of the campaigns, as well as the involvement of health care workers from central, district and primary health care levels, and NGOs. However, in one location for which data were available, an important proportion of individuals suspected of having leprosy did not report to the health facility for diagnostic confirmation. Systems to reduce the loss to follow-up during referral need to be introduced to ensure detection of all leprosy cases in the community actively screened. Another consideration to be made is related to the relatively high cost of the campaigns against patients diagnosed that might suggest the possibility of integrated campaigns. Even in countries with higher case notification rates compared to Nepal such as Brazil, active screening campaigns for leprosy are carried out as combined efforts with other neglected tropical diseases such as soil-transmitted helminthiasis or trachoma.[8] Detection of tuberculosis (TB) along with leprosy could also be considered, especially since now TB control is also increasingly moving towards a "double approach" having active screening activities in high risk areas/populations in addition to 'routine' passive detection.[9–10] Nepal could consider campaigns that search for both leprosy and TB in the light of the already existing integrated leprosy/TB services delivery model.

Worldwide, several projects funded under the umbrella of the Bangkok Declaration Special Fund have contributed to the organization of active screening campaigns in several countries, e.g. Bangladesh, Democratic Republic of the Congo, Sri Lanka. In addition several 'experimental' active screening modalities have been implemented in other countries (for example in India since 2016.[11] Although such projects were successful, outcomes or challenges faced are yet to be documented by publications in peer-reviewed journals, unlike the experience of the elimination campaigns conducted in pre-elimination era.[12–13] This report is to our knowledge the first that describes outcomes and challenges of a leprosy campaign carried out under the Global Leprosy Strategy 2016–2020. The Global Leprosy Programme's active role in monitoring this experience in partnership with its main donors (The Nippon Foundation, SMHF) led to the documentation of the experience of Nepal which is one of the 22 global priority countries for leprosy, as classified in 2016.[2]

The Nepal experience highlights the fact that many cases of leprosy are still being 'missed' under passive detection modalities so that active detection methods should be considered. When organizing active case detection campaigns, there is a need to develop tools to ensure adequate monitoring of such campaigns in addition to what is elaborated in the Monitoring and Evaluation Guide to the Global Leprosy Strategy 2016–2020.[14] Those tools should include monitoring of the proportion of people with suspected diseases that access care services for diagnostic confirmation. Also, considerations of cost-benefit and the possibility of integrated campaigns could be explored, even in high burden countries, to reduce costs and enhance public health benefits.

References

[1] World Health Organization, Regional Office for South-East Asia. Global Leprosy Strategy 2016–2020: Accelerating towards a leprosy-free world. New Delhi, 2016.

[2] World Health Organization, Regional Office for South-East Asia. Global Leprosy Strategy 2016–2020: Accelerating towards a leprosy-free world. Operational Manual. New Delhi, 2016.

[3] World Health Organization. Leprosy elimination campaigns – detecting and curing patients. *Weekly Epidemiological Record*, 1999; **74**: 329–334.

[4] World Health Organization. Guidelines for carrying out Leprosy Elimination Campaigns, 1996. *Lepr Rev*, 1999; **70**: 408–427.

[5] Dos S, Pereira E, Cunha M *et al.* Leprosy elimination campaign, Amazonas-Brazil 1997. *Lepr Rev*, 2000; **71**: 77–80.

[6] Dharmshaktu NS, Barkakaty BN, Patnaik PK, Arif MA. Progress towards elimination of leprosy as a public health problem in India and role of modified leprosy elimination campaign. *Lepr Rev*, 1999; **70**: 430–439.

[7] Bangkok Declaration towards a leprosy-free world, International Leprosy Summit – Overcoming the Remaining Challenges, Bangkok, Thailand, 24–26 July 2013.

[8] Boletim Epidemiológico, Volume 47 N° 21 – 2016 Secretaria de Vigilância em Saúde − Ministério da Saúde, Brazil ISSN 2358-9450.

[9] World Health Organization Implementing the End TB Strategy: the essentials 2014.

[10] Systematic screening for active tuberculosis: Principles and recommendations. Geneva, World Health Organization, 2013.

[11] NLEP Newsletter October-December 2016, Vol. 1, issue 5, Available from: http://nlep.nic.in/newsletter.html.

[12] World Health Organization Leprosy elimination campaigns: impact on case detection. *Weekly Epidemiological Record* 17 January 2003, 78th Year No. 3, 2003, 78, 9–16.

[13] Feenstra P. Strengths and weaknesses of leprosy-elimination campaigns. *The Lancet*, 2000; **355**(9221): 2089–2090.

[14] World Health Organization, Regional Office for South-East Asia. Global Leprosy Strategy 2016–2020: Monitoring and Evaluation Guide New Delhi, 2017.