

## Current Scenario and Challenges of Urban Leprosy in a Tertiary Care Regional Centre in Western India - A 5 Year Observational Retrospective Study

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Leprosy is a chronic infectious disease caused by *Mycobacterium leprae*, affecting mainly the peripheral nerves and skin. The target of elimination of leprosy as a public health problem (<1/10,000) at the National level was achieved in the year 2005 in India. Post-elimination, new cases of leprosy still continue to occur. Diagnosis, treatment and control of leprosy in urban settings have different challenges than in rural areas. The study aims to understand the current trend of leprosy in an urban cluster. This is a retrospective study conducted by analyzing records of Urban Leprosy Centre, Seth LG Hospital, Ahmedabad, Gujarat (India) from January 2010 to December 2014. A total 872 new cases of leprosy reported at the centre during the study period of 5 years which included 559 (64.1%) males and 313 (35.9%) female patients. Of the total 872 cases, 698 (80.04%) patients were suffering from Multibacillary (MB) type of leprosy and 174 (19.96%) were suffering from Paucibacillary (PB) type of leprosy. The ration of MB/PB cases were 4.01 in these years and has been rising during last three years. Of total 115 new cases reporting in the year 2014, 98 patients (85.2%) were migrants from other states of Uttar Pradesh, Bihar, Maharashtra and Rajasthan. This study shows continued reporting of new leprosy cases in the post elimination era with high proportion of Multibacillary cases showing the possibility of delayed diagnosis and increased risk of transmission of infection in the community. Most of the cases were in migrants who had migrated from adjoining states for work and livelihood. Migration could be one of the reasons and may be leading to duplication of leprosy cases data although these regions may have achieved the goal of elimination as a public health problem. Control of urban leprosy thus needs evidence based strategies of timely access and appropriate management.

**Key words :** Urban Leprosy, Migration, Post-elimination challenges

### Introduction

Leprosy remains an important public health problem in some endemic pockets in several countries throughout the world, including India. Migration has been identified as one of the social

determinants that can influence health, is a recognized risk for various Neglected Tropical Diseases (NTDs) and is considered a possible factor in leprosy as well (Magalhães & Rojas 2007, Watts 2006, Kloos et al 2010, Drummond &

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Marcopito 2006). Even though the basic strategy for controlling leprosy in urban and peri-urban areas or satellite cities is similar to rural areas, in NLEP in India, the operational strategies may differ from area to area. These strategies take into account, leprosy endemic pockets, socio-economic background, mobility of the population, existing diagnostic and treatment services, participation of private health sectors and health seeking behaviors of the population at risk. This paper is an attempt to draw the attention of urban health/municipal health planners and other health administrators, including NLEP, to analyse, implement and sustain the leprosy control activities with adequate funding even after the reduction of registered prevalence rate has been achieved to less than one case per ten thousand population in their administrative districts.

### Patient and Methods

It is an analysis of retrospective leprosy cases reporting to the Urban Leprosy Centre of Department of Dermatology, Venereology and Leprosy, Seth LG Hospital (Ahmedabad Municipal Corporation Medical Educational Trust Hospital), Ahmedabad, Gujarat, India. The study period was of 5 years from 1st January 2010 up to 31<sup>st</sup> December 2014. All cases that fulfil the case definition of leprosy case were included in the study (WHO 1998). Two of the three cardinal features of leprosy were required to make the diagnosis of leprosy and inclusion in the study.

Age, sex, education status, type of residence, native of the state or migrant, occupation, type of leprosy, presence or absence of disabilities were noted in the study. Clinical spectrum of the patients was decided after recording detailed clinical history, clinical and slit-skin smear examination. All patients were put on multi-drug therapy (MDT) as per standard NLEP MDT regimen. Exclusion criteria were: Release from treatment (RFT) cases, who had completed their treatment in the past and presented only for follow up visits were excluded in the study. Those patients who wish to take medicines from their native state were also excluded from the study.

### Results

In this study, total new patients of leprosy presenting to the Urban Leprosy Centre were 872. Among them, there were 559 (64.10%) male and 313 (35.89%) females. Males outnumbered female with a ratio of 1.8 : 1 as is also seen in Table 1.

Figure 1 shows decreasing burden of total number of leprosy cases presenting to an Urban Leprosy Centre (ULC) over the 5 years.

Of total 872 cases, 698 (80.04%) patients were suffering from Multibacillary (MB) type of leprosy and 174 (19.96%) were suffering from Paucibacillary (PB) type of leprosy. The ratio of MB/PB cases was 4:1. In these years (Table 2). Total number of MB cases showed a declining over

**Table 1 : Table showing the sex wise distribution of the leprosy cases reporting to the urban centre**

Year of reporting	Male cases	Female cases	Total cases
2010	157	85	242
2011	128	70	198
2012	109	58	167
2013	103	47	150
2014	62	53	115
Total	559	313	872

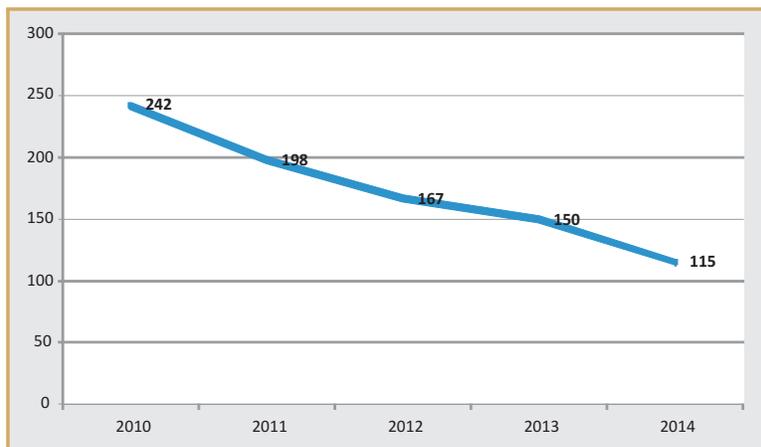


Fig 1 : The trends of total number of leprosy cases reporting to ULC from the year 2010 to 2014.

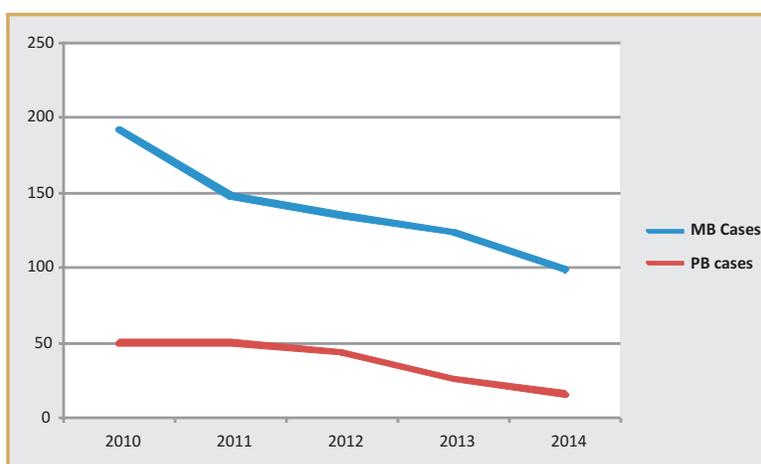


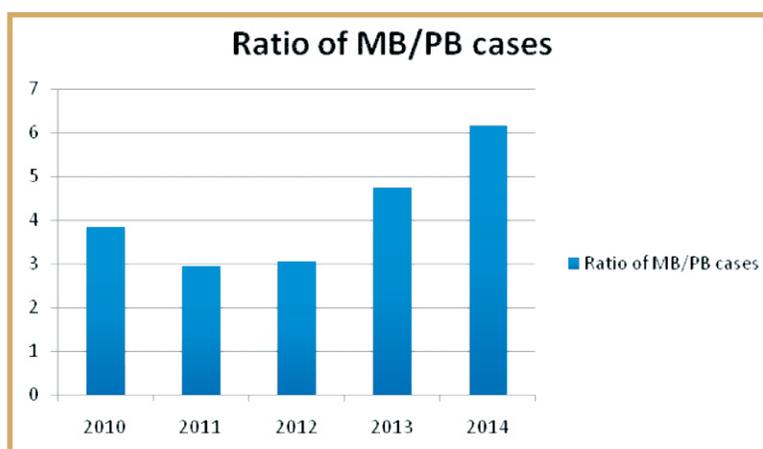
Fig 2 : Figure showing the trends of reporting of MB and PB cases during the study period

Table 2.1 : Proportion of Multibacillary (MB) and Paucibacillary (PB) and grade 2 disability in leprosy patients reporting to the ULC during the years under study

Year of report	MB cases	PB cases	Ratio of MB to PB cases	Presence of Grade 2 disability
2010	192	50	3.8	42
2011	148	50	3	33
2012	135	44	3.1	29
2013	124	26	4.8	25
2014	99	16	6.2	18

**Table 2.2 : Bacteriological index in leprosy cases reporting to ULC**

Bacteriological Index (BI)	Year of study				
	2010	2011	2012	2013	2014
0	29	33	31	19	14
+1	21	17	14	07	02
+2	76	48	53	47	31
+3	67	41	39	42	30
+4	32	26	23	19	21
+5 or more	17	23	19	16	17

**Fig 3 : Ratio of MB/PB cases reporting to ULC over the 5 year period****Table 3 : Table showing the reasons of migration in the year 2014 as obtained by detailed history of patients**

Type of migration	No. of patients (percentage)
Migration for work	43/98 (43.87%)
Temporary migration to obtain treatment	17/98 (17.34%)
Relative of a migrated workman	13/98 (13.26%)
Distress Migration	25/98 (25.51%)

the 5 years (Fig 2). Although the total number of cases reporting to the facility has been declining over the years, yet the proportion of MB cases reporting as compared to the PB cases is showing a rising trend from 2011 onwards to 2014 (Table 2.1, Fig 3).

Of the total 884 patients registered in the study over 5 years 147 patients had Grade 2 disability at the time of diagnosis. (Table 2.1). Bacteriological index of the patients at the time of diagnosis is mentioned in Table 2.2. It is notable to see that despite the decline in number of leprosy cases

over the years, proportion of patients with high bacteriological index are increasing in recent years.

Of the total 115 cases reported and examined in the year 2014, 98 patients had migrated from other states. Large proportion of migrant cases come from states of Uttar Pradesh, Bihar, Maharashtra and Rajasthan in that order. There were several reasons for migration among which the most important during the year was temporary migration for work. Of the 98 migrated patients in the year 2014, 30 patients sought treatment and consultation due to lack of confidence in local health facilities and set up. Some of the reasons for seeking treatment in UC are shown in Table 3.

### Discussion

Leprosy, is still a public health problem, in some areas and clusters in India. The precise, knowledge of its spatial distribution and clustering, particularly in the urban municipalities is patchy. In Brazil, improving surveillance and taking appropriate intervention measures in urban areas has been recommended to further reduce the disease burden (Peena et al 1996). Prevalence rate of leprosy in Gujarat for the year 2012-2013 was 0.96 per 10,000 population and for the year 2013-2014 was 0.83 per 10000 population (NLEP progress reports 2012-13, 2013-2014). The recent increase in the prevalence rate to 0.98/10,0000 (NLEP annual report 2015-2016) in the state of Gujarat and Ahmedabad city is mostly attributed to active search campaigns for the detecting the back log cases and the migrant cases registered in Gujarat. Of the total 33 districts, 21 districts were reporting a ANCDR of <10/100,000; 2 districts between 10-20/100,000; 5>20-50/100,000; 4>50-1000/100,000; and 1>100/100,000. Some of the reasons for the continued reporting of new cases could be

migration, 10-20% leprosy patients first reporting to private health sectors for which only lately, reporting mechanism has been established (NLEP annual report 12-13). Multiple registrations of needs to be checked, as duplication of cases would also inflate the statistics.

Migration of persons affected by leprosy was hinted at as early as 1930 (Bhaskara Rao 1930), from India as well as other countries. All new cases of leprosy in Isfahan Province (Iran) were found to be migrants (Asilian et al 2005). Chudasama et al (2007) suspected increase in leprosy cases in Surat district due to labour migration. These observations suggest that migration contributes to reporting of cases in urban areas where the people come to work. As per reports of Census India, population of Ahmedabad in 2011 (Census 2011) was 5,570,585 compared to 3.51 million in 2001. The estimated population of Ahmedabad in 2014 is around 7 million people in the city and approximately 8 million in the urban settings. Migration may have contributed significantly to this increase in population in Ahmedabad city as well as to persisting endemicity of leprosy also (Table 3).

Distress Migrants are defined as, those who move away for short or long periods from their usual place of residence. Distress migration is thus movement from one's usual place of residence which is undertaken in conditions where the individual and/or the family perceive that there are no options open to them to survive with dignity, except to migrate. A proportion of new cases reporting in Ahmedabad appear be due to this problem.

It is important to mention that municipality hospital is a reference centre for neighboring towns and few patients from states of Rajasthan and Uttar Pradesh, Maharashtra and even Madhya Pradesh use the address of relatives

or acquaintances to come to the city to take treatment.

The remaining challenges pertain to increasing the awareness among people strengthening of health systems and building and sustaining leprosy expertise so that cases are diagnosed and treated early. Strengthening of referral systems/facilities is required on urgent basis within the integrated health systems for early diagnosis and improving management of acute and chronic complications. High proportion of smear positive cases and more than average deformity rates indicate late reporting and have relevance in transmission. There is thus need to develop more effective tools and procedures for early detection and management of leprosy reaction and nerve damage in such settings. For building and sustaining the leprosy expertise collaboration with partners is required that will cover training programmes. Improving community awareness through effective information, education and communication (IEC), to promote voluntary reporting and to eliminate the stigma and social discrimination faced by patients. It is essential to ensure such initiatives are locally appropriate, cost effective and sustainable. Web based reporting of leprosy cases has been launched recently by NLEP to make reporting of cases easier and partnering with NGOs and private practitioners to report the cases being treated. This will also help in avoiding duplication of cases. National programme also needs to strengthen integrated supervisory activities to improve the quality of leprosy services in the field by collaborating with all stakeholders to effectively share the challenges and work together to overcome them. Innovative approaches including accompanied MDR can be helpful to ensure that underserved pockets such as urban slums and migrant groups get appropriate treatment.

The National Workshop of IAL (2005) discussed the role of dermatologists in the leprosy control programme and recommended that teaching and practicing dermatologists should play an active role to provide clinical expertise needed during the integration process. It was suggested that doctors working in urban clinics and NGOs working in the area should provide field services and follow up of cases, besides the diagnostic and treatment services. A decade later, these recommendations remain relevant and should be given due emphasis.

### References

1. Aasilian A, Faghihi G, Momeni A et al (2005). Leprosy profile in Isfahan (A Province of Iran). *Int J Lepr.* **73**: 129-130.
2. Bhaskara Rao P (1930). Working of the skin clinics R.M. Headquarters Hospital, Tanjore, for the year 1929. *Lepr India.* **2**: 76-78.
3. Census of Ahmedabad urban population (2011). <http://www.census2011.co.in/census/city/314-Ahmedabad.html>[http://pblabour.gov.in/pdf/acts\\_rules\\_employment\\_interstate\\_migrant\\_workmen\\_regulation\\_ofand\\_co.pdf](http://pblabour.gov.in/pdf/acts_rules_employment_interstate_migrant_workmen_regulation_ofand_co.pdf).
4. Chudasama RK, Godara N, Tripathi VS et al (2007). An observation of leprosy situation in Surat district from 2001 to 2006. *Indian J Dermatol Venerol Lepr.* **73**: 434-435.
5. Drummond JA and Marcopito LF (2006). Internal migration and distribution of chagas disease mortality, Brazil 1981-1998. *Cad Saude Publica.* **22**: 2131-40.
6. Kloos H, Correa-Oliveira R, Reis DC et al (2010). The role of population movement in the epidemiology and control of schistosomiasis in Brazil: a preliminary typology of population movement. *Mem Inst Oswaldo Cruz.* **105**: 578-86.
7. Magalhães MCC and Rojas LI (2007). Spatial Differentiation of Leprosy in Brazil. *Epidemiologia e Serviços de Saúde.* **16**: 75-84.
8. National IAL workshop on the role of dermatologists in leprosy eradication (2005). *Indian J Lepr.* **77**: 287-93.

9. NLEP - Progress Report for the year 2012-13. Published by Central Leprosy Division Directorate General of Health Services Nirman Bhawan, MoHFW. Government of India. New Delhi. <http://nic.in/pdf/report>.
10. NLEP - Progress Report for the year 2013-14. Published by Central Leprosy Division Directorate General of Health Services Nirman Bhawan, MoHFW. Government of India. New Delhi. <http://nic.in/pdf/report>.
11. NLEP - Progress Report for the year 2015-16. Published by Central Leprosy Division Directorate General of Health Services Nirman Bhawan, MoHFW. Government of India. New Delhi. <http://nic.in/pdf/report>.
12. Peena MLF, De Wand-del-Rey ML, Penna G (1996). Spatial distribution of leprosy in the Amazon region of Brazil. *Emerg Infect Dis.* **15**: 1885-1894.
13. Watts S (2006). The Social Determinants of Schistosomiasis. In: UNICEF/UNDP/World Bank/WHO Special Programme for Research and Training in Tropical Diseases. Geneva: *World Health Organization*. 4-90.
14. WHO Expert Committee on Leprosy. (1998) Seventh Report. Technical Report Series no. 874. *World Health Organization*, Geneva.

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