

*SHORT REPORT*

## **Improving quality of care using mobile technology: experiences from the Urban Leprosy Project in Kolkata, India**

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### *Summary*

*Objectives:* Urban leprosy control has been a challenging area for the programme. Effective counselling is often compromised due to lack of time and space, despite the availability of trained and well-meaning healthcare personnel. We therefore sought to use mobile technology to improve communication.

*Methods:* We piloted a strategy in Kolkata called ‘*aami achi*’ (meaning ‘I am there’ in Bengali) whereby mobile numbers were shared between the leprosy trained supervisor and patients registered for MDT. A total of 105 patients who had accessed the helpline service were interviewed over the telephone.

*Results:* The most common reasons for accessing service over mobile telephony included ‘redness and swelling’, enquiry about availability of the supervisor during a visit to hospital, ‘forgotten the way to take MDT’, stress due to discoloration and other side-effects, and to allay anxiety about the disease. Patients reported improved knowledge of disease and expressed satisfaction with the personalised care provided. The supervisors considered mobile counselling to be effective as it had led to the early detection of reactions, enabled effective referrals, helped patients to manage periods of anxiety and stress, and led to a reduction in the number of interrupters and defaulters.

*Conclusion:* Mobile telephony allows ongoing communications and engagement with patients, leading to improved adherence and patient empowerment through information in a simple, cost-effective way.

## Introduction

Kolkata is the capital of the Indian state of West Bengal. According to the 2011 Census, the population of Kolkata was 4.5 million.<sup>1</sup> With a density of population of 24,306 people per square kilometre, Kolkata is one of the most populous metropolitan areas in the country. About one-third of the population lives in slums. In Kolkata, there are two broad categories of slums: those that are officially authorised are called *bustees*. There are also a large number of squatter settlements, which are not authorised. These squatter settlements have grown up by the side of canals, large drains, garbage dumps, railway tracks and roads.<sup>2</sup> There are a total of 2,011 registered and 3,500 unregistered slums in Kolkata.<sup>3</sup> These slums are home to essentially disadvantaged populations living in poor socio-economic conditions characterised by insecure residential status, poor structural quality of housing, overcrowding, inadequate access to safe water and sanitation, and poor health outcomes.

Kolkata is endemic for leprosy and over the years there has been an increase in prevalence rate (PR), as new cases continue to be detected. In 2015–16, the ANCDR was 19.28 and PR 2.01. At 13.98%, the proportion of Grade-2 disability among new cases is the highest in the state. The trend of epidemiological indicators for leprosy in Kolkata is presented in Table 1.

The treatment completion rate (TCR), which is an important indicator of the effectiveness of patient management, was a mere 40 percent during 2013–14, indicating poor follow-up of patients and lack of counselling services. Diagnosis and treatment of leprosy is undertaken in clinics run by the Kolkata Municipal Corporation. Leprosy services are also provided in six Medical colleges, seven State general hospitals, the School of Tropical Medicine and The Premananda Memorial Leprosy Hospital of The Leprosy Mission (TLMI).

Urban health programmes in general and leprosy control in particular is still primitive in India.<sup>4</sup> This is due to certain challenges inherent to urban settings: a high level of stigma, low awareness of the disease and poor MDT service coverage due to the inadequate involvement of both the general health care system and the private sector. Effective counselling is often inhibited by lack of time and space in hospitals, despite the availability of trained and well-meaning healthcare personnel. Indeed a recent study conducted in urban slums in Kolkata revealed 'hardly any (respondents) knew the early signs and symptoms of leprosy, or where to get proper diagnosis and treatment'.<sup>5</sup> It is well-acknowledged that the most important challenge in urban leprosy control is the lack of coordination among multiple stakeholders and service providers. The importance of such coordination in an urban context in the spirit of partnership and collaboration has been highlighted by the Central Leprosy Division.<sup>6</sup>

**Table 1.** Trend of Epidemiological Indicators for Leprosy in Kolkata (2010–16)

Year	New cases	ANCDR/100,000	PR/10,000	% Gr II disability	% Child
2015–16	923	19.28	2.01	13.98	3.68
2014–15	925	19.57	2.13	16.11	5.8
2013–14	548	11.75	2.50	10.77	6.4
2012–13	495	10.75	2.31	10.10	3.84
2011–12	531	11.68	2.05	9.22	6.40
2010–11	540	12.04	2.19	8.89	5.37

## Methods

GLRA India started the Kolkata Urban Leprosy Project in August 2014. The objectives of the Project were to bridge the gaps in delivery of services to the people affected by leprosy, form an interface to coordinate the activities between different stakeholders and complement the efforts of the government and other organizations to enable successful implementation of National Leprosy Programme in Kolkata.

As part of the strategy, all major hospitals in Kolkata have now been supported with a trained NLEP supervisor, who provide services on specific dates as per the leprosy clinic dates of the hospital. The records and registers have been streamlined. Periodic nerve function assessment (NFA) by skilled staff and self-care training is provided. Advocacy meetings have been held with Kolkata Municipal Corporation officials. In order to strengthen referral services, mapping of referral centres in Kolkata has been accomplished.

We piloted a strategy called '*aami achhi*' (meaning 'I am there' in Bengali) which entailed the sharing of mobile numbers between the leprosy trained supervisor and patients registered for MDT. The strategy was based on high mobile penetration, even among the slums in Kolkata. This initiative was part of a bigger project by GLRA-India, in partnership with the State Leprosy Cell, Government of West Bengal to lend support and coordination to urban leprosy activities in Kolkata. Until December 2015, mobile numbers were shared with a total of 340 patients across three major hospitals in Kolkata. Patients were encouraged to give 'missed call' on the dedicated helpline at any time; following which the supervisor would provide call back.

We studied the utilisation pattern of the mobile counselling service. A total of 105 patients who had accessed the helpline service were interviewed over telephone. In order to avoid bias, a different supervisor to the usual care-provider conducted this telephonic interview.

## Results

The most common reasons for accessing services over mobile telephony by the patient included 'redness and swelling', enquiry about the availability of the supervisor during a visit to hospital, 'forgotten the way to take MDT', stress due to discolouration and other side-effects, and to allay anxiety about the disease. The supervisors had also helped in disease disclosure to spouses and other relatives.

All patients reported an improved knowledge of the disease and expressed satisfaction with the personalised care provided.

The supervisors reported receiving an average four to five calls per day. They were convinced about the effectiveness of mobile counselling as it had led to the early detection of reactions, enabled effective referrals and helped patients to manage periods of anxiety and stress. The patients were receptive to their advice and this had led to a reduction in the number of interrupters and defaulters.

The most challenging issue was to deal with several 'unrelated health problems' for which the patients sought their advice over phone.

## Discussion and Conclusion

Patient-oriented counselling is a necessary adjunct to clinical care in leprosy. Mobile telephony allowed patients to freely express their fears and anxieties, and promoted coping skills. This led to improved adherence to treatment; indeed the TCR improved to 62 percent in 2015–16. The strategy enabled early identification of reactions, which helped in timely decision-making and response.

Provider and patient must be partners in order to achieve goals of therapy, especially in treatments of long duration. Systems that encourage ongoing communications and engagement with patients, such as through mobile telephony can improve adherence and lead to patient empowerment through information in a simple, cost-effective way.

## Contributors

All the authors were involved in planning, drafting and finalisation of the paper. VL, SP, SRD and AS were involved in data collection.

## References

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