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Original Article

Leprosy Case Detection Campaign (LCDC): An Approach to Accelerate Progress to Achieve Leprosy Free India

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The Elimination of Leprosy at National level was achieved in the month of December, 2005, by India. Afterward it was observed that trend of two important indicators of NLEP i.e. Annual New Case Detection Rate (ANCDR) and Prevalence Rate (PR) are almost static since 2005–2006, whereas the percentage of Grade II disability (G2D) amongst new cases detected showed a rising trend, which indicated delayed detection of cases and quantum of cases lying undetected/ hidden in the community. Hence, in order to address the issues being faced by programme an innovative approach for hidden case detection i.e., Leprosy Case Detection Campaign (LCDC) was introduced by Central Leprosy Division (CLD), Directorate General of Health Services (Dte.GHS), Ministry of Health & Family Welfare (MoHFW), Govt of India. This novel concept is first of its kind in the world as it has various unique features i.e., institutional framework at various administrative levels for planning, implementation and concurrent review of LCDC, formulation and training of search teams, Micro plan preparation, IEC activities, supervision and monitoring by identified supervisors and report submission. The activity was piloted in the limited areas of 50 districts of 7 states during March-April 2016 and in September, 2016 it was expanded to 163 districts of 20 States/ UTs to cover around 360 million population. During 2017, it was implemented in 255 districts of 23 States/ UTs to cover population of around 390 million. These efforts have yielded the desired result which is evident from the fact that approximately 67000 new leprosy cases were detected during the LCDCs in these 2 years (2016-17 & 2017-18) and number of G2D cases per million population also declined by more than 25%, from 4.48 cases per million in 2014-15 to 3.34 cases per million in 2017-18. In addition to the above, the benefits achieved through LCDCs are generation of large number of trained manpower who can suspect, identify leprosy cases and can carry out focussed IEC regarding leprosy.

Keywords : Leprosy Case Detection Campaign, LCDC, Grade II Disability, G2D, NLEP, Leprosy India, Leprosy Innovations

Background

In year 1955, National Leprosy Control Programme was started by Govt. of India (GoI), wherein Dapsone domiciliary treatment was given through vertical units and survey education and treatment activities were implemented. Further,

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in 1983 with the objective to arrest the disease activity in all the known cases of leprosy, National Leprosy Eradication Programme (NLEP) was launched, wherein Multi Drug Therapy (MDT) consisting of Dapsone, Clofazimine and Rifampicin was initiated as a standard treatment for leprosy as per the recommendation given by World Health Organization (WHO). In view of substantial progress achieved with MDT, in 1991 the World Health Assembly resolved to eliminate leprosy at a global level by the year 2000 and in order to strengthen the process of elimination, World Bank supported projects were introduced and implemented in the country from 1993 to 2004. In view of these strenuous efforts put in the NLEP, India achieved the elimination of leprosy as a public health problem, defined as less than 1 case per 10,000 population, at the National level in 2005. Afterward, as the National Rural Health Mission (NRHM) was launched, the programme was subsumed under the aegis of NRHM and then implemented as a centrally sponsored scheme.

Although the disease has been eliminated at the National level, there are Districts & Blocks with prevalence rate >1/10,000 population and new cases still continued to occur. Prevalence of disease and Annual case detection remained static for almost one decade (Fig. 1). This has been a cause of concern (Giri et al 2017, Sengupta 2018). As per the key facts publicized by WHO in Weekly Epidemiological Record (WER), 2017 from 143 countries of all WHO regions, India contributes approximately 60% of the new cases being detected globally. However, through situational analysis of health indicators of NLEP, it was observed that Grade II disability (visible deformity) increased from 3015 (1.87%) in 2005-06 to 5794 (4.61%) in 2014-15 (Fig. 2), which indicated delayed diagnosis and possible presence of that large number of undetected cases are there in the community and transmission of the disease agent is continued.

Analysis of Programme data as well as data generated under National Sample Survey (NSS) of leprosy conducted during 2010 in collaboration among NLEP, ICMR, Panchayat members and treated leprosy persons, suggested that there might be 2,87,445 to 3,80,851 hidden leprosy cases in the community (National sample Survey 2010, Katoch et al 2017).

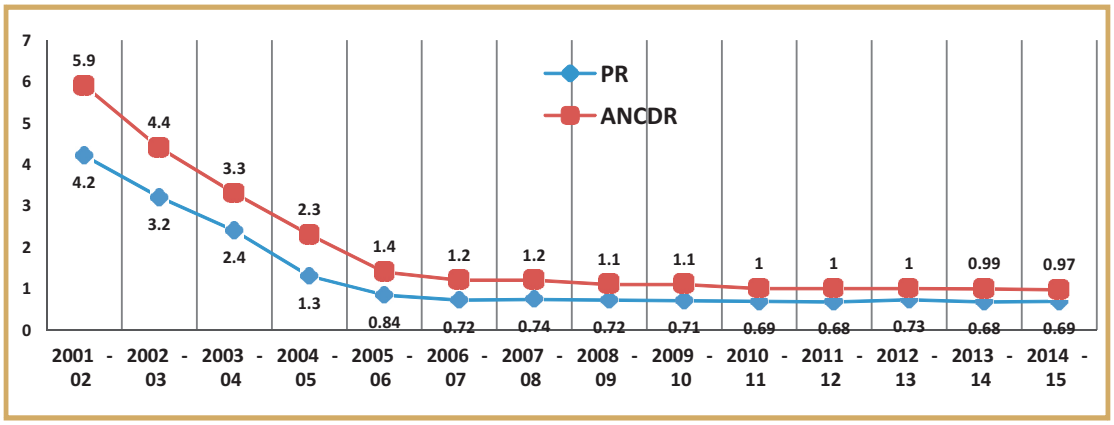


Fig 1 : Trend of Prevalence Rate (PR) and Annual New Case Detection Rate (ANCDR) per 10,000 population, 2001-02 to 2014-15

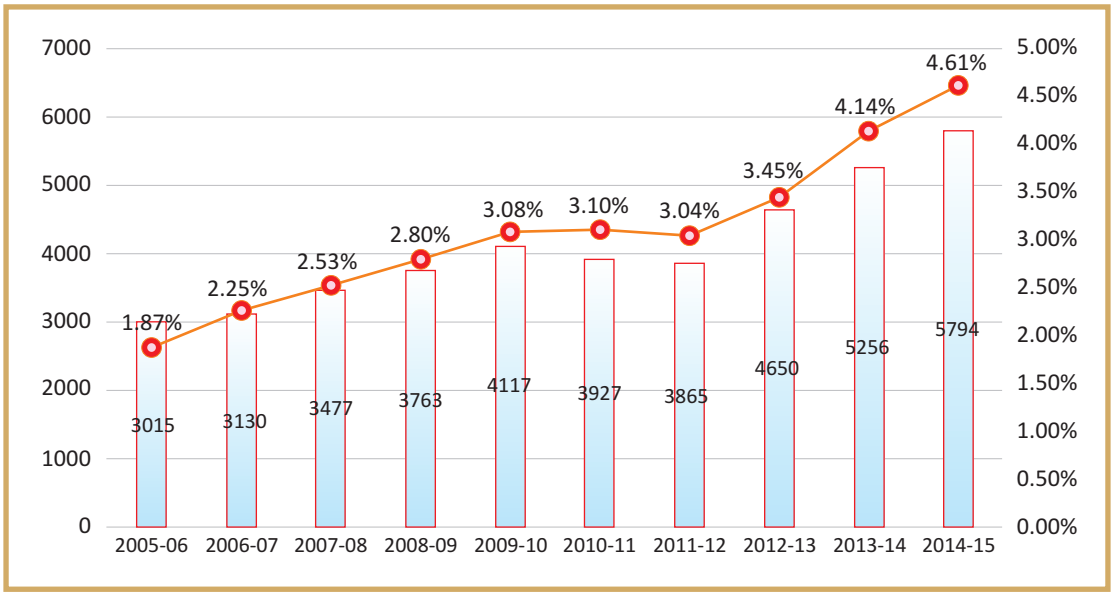


Fig 2 : The trend of number of Gr. II Disability cases and % of Gr. II Disability cases in new leprosy cases detected from 2005-06 to 2014-15

Further, Midterm Evaluation of the National Leprosy Eradication Programme, a joint initiative of WHO and DGHS, India 10 – 21 November, 2014 indicated that the disease burden in the community was higher than the cases being reported. It was also mentioned that "There is presumptive and scientific evidence that the number of cases detected is less than the number that occur. The exact magnitude of the gap cannot however be known" and recommended that "Periodic active case detection campaigns should be undertaken in priority areas with focus on detection of backlog cases as well as new cases.

As depicted in Fig. 3, the Leprosy transmission in the community depend on the infection load i.e., active cases in the community, as only untreated Leprosy affected person (Human beings) is the only known source for *M leprae* in the community. In addition, it is depicted that if a

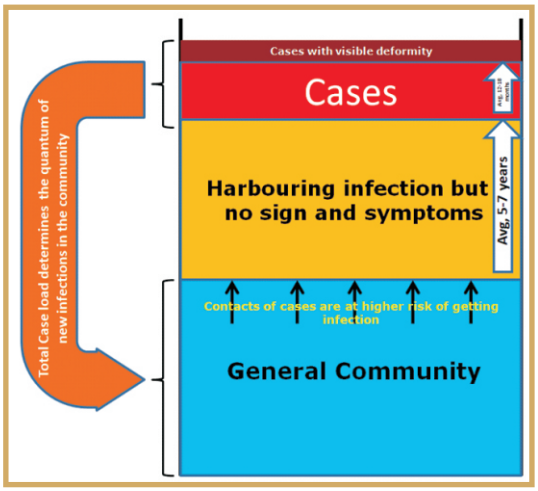


Fig 3 : Transmission Dynamics of Leprosy Disease in the community

leprosy case remains untreated for longer time in the community, the same may present with disability to the healthcare delivery system.

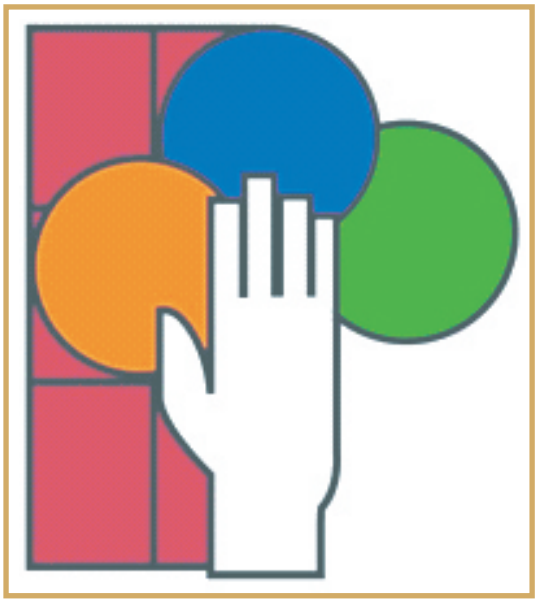


Fig 4 : Logo of Leprosy Case Detection Campaign, India

Hence in order to interrupt the transmission of the disease agent in the community, it is essential to go for early case detection and treatment. In view of same, three-pronged strategy for early detection of leprosy cases in the community has been introduced under NLEP during 2016, which are as under :

i. Leprosy Case Detection Campaign (LCDC) specific for high endemic districts

ii. Focused Leprosy Campaign (FLC) for hot spots (a village or urban area where even a single grade II disability case detected) of low endemic districts

iii. Special plan for case detection in hard to reach areas

This article is focussed on LCDC only. The concept of LCDC may be understood by the logo (Fig. 4) which represents symbolic knock on a closed door by hand which is empowered by three components 1) Hope (orange from sunrise), 2) Purity to remove infection load from community (blue from water) and 3) Capacity building (green to flourish), which are subsumed under the aegis of LCDC. Like other activities operational guidelines have been developed for this purpose (Fig. 5).

Leprosy Case Detection Campaign (LCDC) is a unique initiative of its kind under NLEP, which has been planned and implemented on line with pulse polio campaign in high endemic districts of the country with objectives as given below :

i. to detect hidden leprosy cases

ii. to interrupt the transmission of the disease agent in the community

iii. to draw attention of policy makers towards leprosy

iv. to effectively supplement IEC activities of the programme

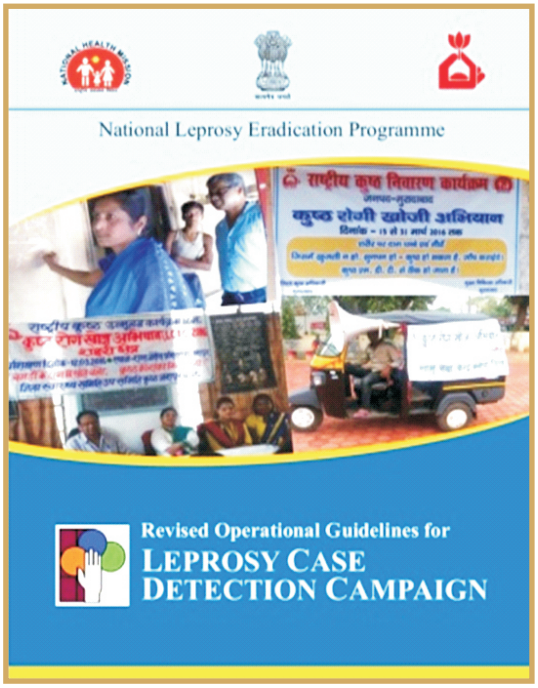


Fig 5 : Operational Guidelines for Leprosy Case Detection Campaign, India

The novel features of the LCDC are as under :

- Formulation and scheduled meetings of various committees at various administrative levels i.e., National, State, District, Block to plan & implement the LCDC.
- Focused training of health functionaries and volunteers of search teams from District to Village level.
- Intensive IEC activities, through miking and display of banners/posters during and before the LCDC.
- House to house visits by search team encompassing one Accredited Social Health Activist (ASHA) and male volunteer i.e. Field Level Worker (FLW) for population of 1,000, as per micro-plans prepared for local areas.
- Physical examination of both the sexes of the community i.e., male by male volunteers and females & children (above 2 years) by female volunteers, in well lighted room of household in minimal clothing maintaining privacy.
- Supervision of house to house search activities through identified field supervisors.
- Scheduled meetings with community leaders /representatives to resolve any issue came across during the campaign.
- Systematic collection and compilation of reports from Field teams and supervisors through formats designed for the purpose.
- Prompt analyses and feedback on data received from teams, supervisors, monitors, medical officers which will help to plan corrective actions.
- Direct monitoring of the LCDC activity by the Central Monitors nominated by Central Leprosy Division.
- Post LCDC evaluation through independent evaluators, after completion of LCDC.

Leprosy Case Detection Campaign: Institutional framework

At the Central level, Central Operation Group comprises of officials from Government of India, International Federation of Anti-Leprosy Associations (ILEP), World Health Organization (WHO) and other partners at the National level is constituted under the chairmanship of Director General of Health Services (DGHS) and the role of the Group is to support pre-planning and to fast track decisions on extent of Leprosy Case Detection Campaign (LCDC). Also to coordinate activities with partner organizations like WHO, ILEP, National and International organizations and State level representatives - Principle Secretary HFW etc. this group is also responsible for monitor the implementation of LCDC activities at National, State and District level.

In the same line at the State, District & Block levels, respective State coordination committee, District Coordination Committee & Block Co-ordination Committees have been formed to ensure inter-sectoral coordination, supervision, support and full utilization of resources from partner government and nongovernment departments and also to monitor preparedness for the highest quality LCDCs. The meetings among these committees also help to clear obstacles at various levels for planning and implementation of the activity.

As part of Institutional framework State Leprosy Awareness Media Committee is also formed to develop a media plan with timeline. This committee will ensure about adequate utilization all available resources and channels for delivering simple and clear messages to the community, which will help to ensure success of LCDC & more acceptability and cooperation to health teams during house to house visits.

LCDC Control Room (only during LCDC) : LCDC control room in the office of the State Leprosy Officer and District Leprosy Officer set up to :

- Monitor preparedness of LCDC in blocks/ PHCs/ urban areas on a day to day basis
- Mobilize human and other resources like transport, logistics etc. as and when required.
- Ensure inter-sectoral coordination and full utilization of resources from partner, government and non-government departments
- Monitor implementation of the programme during the campaign
- Provide feedback to the state/ district coordination committee on progress being made and also on any obstacles being faced.

Activities at various administrative level during LCDC

Central Level:

- Organisation of Central level workshop for planning and implementation of Leprosy Case Detection Campaign with National and State level stakeholders of the programme.
- Finalisation of Operational Guidelines of LCDC (NLEP 2016, Fig. 5) in consensus with the State Leprosy Officers and other stakeholders of the programme and dissemination of same.
- Designation of Central monitors for monitoring of LCDC in various States.
- Concurrent coordination with National and State level stakeholders for successful implementation of LCDC.
- Formulation of National level whatsapp group for sharing the status of LCDC activities undertaken.
- Compilation and analysis of daily records submitted by States/UTs and monitoring reports submitted by various monitors.
- Dissemination of analysed information to States / UTs to take timely corrective measures.
- Coordination with ILEP in India to ensure Post LCDC evaluation after completion of activity.

Fig 6 : State level workshop during LCDC, Assam

Fig 7 : District Coordination Committee Meeting during LCDC, Balod, Chhattisgarh

State level:

- Organisation of State Co-ordination Committee Meeting with the objective to channelize State resources for successful implementation of LCDC.
- Organisation of State Leprosy Awareness Media Committee Meeting (Fig. 6) to formulate the IEC plan and select best suitable media approach for communication prior and during the campaign.
- Conduction of two days training workshop for District (Fig. 7) and Sub-district level officers to sensitize the district & block level planners on the strategy to be followed, need for preparing micro plans for their areas, sort out issues of coordination between the implementing partners and need of physical examination of each and every person of the community to identify all suspects in the community.
- Monitoring of the activities during LCDC days compilation & analysis of daily reports submitted by districts and take corrective measures for successful LCDC.
- Review of the LCDC activity after completion and formulation of note for future activity.

District level :

- Organisation of District Co-ordination Committee meeting before each LCDC with the objective to materialize inter-sectoral coordination for LCDC implementation and after LCDC to review the LCDC implementation.
- Organisation of District Micro planning Meeting/Urban Area Planning Meeting to sensitize the block medical officers (BMOs) and the urban area planners on how to prepare micro plans for their areas for the upcoming LCDCs with special attention to problem pockets.
- Monitoring of the activities during LCDC days compilation & analysis of daily reports submitted by blocks and take corrective measures for successful LCDC.
- Review of the LCDC activity after completion and formulation of note for future activity.

Block level :

- Organisation of meeting of Block Co-ordination Committee before, during and after LCDC with the objective to materialize inter-sectoral coordination for LCDC implementation in block, resolve issues if any regarding LCDC and plan corrective measures timely.
- Dissemination of the important decision taken during the meeting to higher-level committee.
- Organisation of one day orientation training at blocks/ward level to orient search teams and field supervisors regarding (Fig. 8) identification of suspects in the community through physical examination as well as interpersonal communication.

Fig 8 : Training of ASHAs, Male volunteers and supervisors in a block

Fig 9 : Glimpses of IEC done during the LCDC

Fig 10 : House-marking done by Teams during LCDC

- Dissemination of instruction sheet for search team, tally sheets, info kit on frequently asked questions, suspect case definition, daily itinerary and logistics to search teams and supervisors.

Village level :

- Intensive IEC activities (Fig. 9), through making & display of banners/posters during and before the LCDC.
- House to house search by trained search teams (Fig. 10) for identification of suspects through physical examination (Fig. 11)
- Physical examination of both the sexes of the community i.e., male by male volunteers (Fig. 12) and females & children (above 2 years) by female volunteers/ ASHA workers (Fig. 11), in well lighted room of household in minimal clothing maintaining privacy.

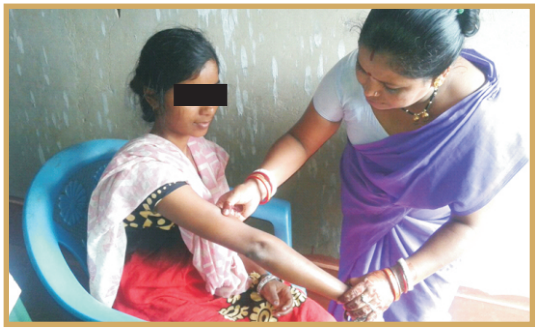


Fig 11 : Physical examination by an ASHA of a female member of household

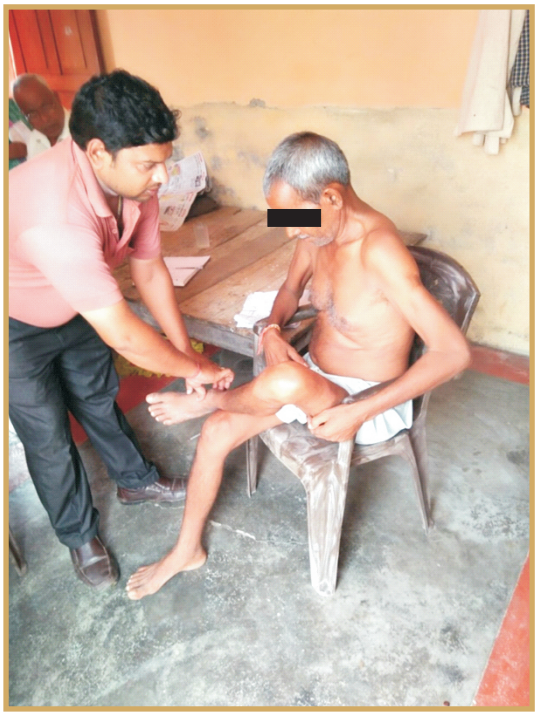


Fig 12 : Physical examination by a Male volunteer of a male member of household

Fig 13 : Supervision of LCDC team work by Supervisors (5 teams are assigned per Supervisor)

- Referral of suspect for confirmation by Medical Officer, PHC using referral slips using standard criteria recommended for medical officers (NLEP website).
- Supervision of house to house search activities through identified field supervisors (Fig. 13).
- Meetings with community leaders/ representatives to resolve any issue came across during the campaign.
- Proper house marking and recording of each day's work done by search teams on the tally sheets.
- Systematic collection and compilation of reports from search teams by supervisors and further submission in channel.

Leprosy Case Detection Campaign: From 2016 to 2017

Using the before mentioned institutional framework and methodology LCDC was piloted in limited areas of 50 districts of 7 States namely Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Maharashtra, Odisha and Uttar Pradesh during March – April, 2016 to assess the feasibility using draft guidelines developed based on experiences gained during pulse polio campaigns.

Further, during September, 2016, LCDC was implemented in 163 districts of 20 States and UTs to cover population of approximately 360 million. Wherein, more than 5.5 lakh suspects were identified out of which more than 34,000 cases confirmed. In addition, approximately 6.8 lakhs

male and female field volunteers were trained for suspect identification in community, inter personal IEC activities done at doorstep of around 720 lakh households by 3.4 lakh search teams.

In addition, it is also mentioned that in those 163 districts, where LCDC were conducted in Sept 2016, new leprosy cases detected in 2015-16 & 2016-17 are 76327 & 85932 respectively (Table 1). In districts, where LCDC was not conducted in Sept 2016, cases detected in 2015-16 & 2016-17 are 50820 & 49962.

Furthermore, during 2017 LCDC was implemented in window period from 2nd October – 19th November, 2017 in 255 districts of 21 States/ UTs to cover population of approximately 702 million. During this year more than 7.1 lakh suspects were identified out of which more than 32,000 leprosy cases confirmed.

Table 1 : State wise number of confirmed cases during LCDC, 2016 and LCDC, 2017

S. No.	State	Confirmed Cases 2016	Confirmed Cases 2017
1	Andaman & Nicobar	Not conducted	5
2	Andhra Pradesh	163	883
3	Assam	175	280
4	Bihar	8,087	8,875
5	Chandigarh	10	4
6	Chhattisgarh	2,711	2,311
7	Dadra & Nagar Haveli	96	108
8	Daman & Diu	Not conducted	5
9	Delhi	75	Not conducted
10	Goa	Not conducted	2
11	Gujarat	3,539	1,716
12	Haryana	26	26
13	Jharkhand	2,228	1,344
14	Karnataka	137	264
15	Lakshadweep	45	15
16	Madhya Pradesh	2,070	1,689
17	Maharashtra	4,300	5,073
18	Mizoram	Not conducted	3
19	Nagaland	4	Not conducted
20	Odisha	5,152	4,411
21	Tamilnadu	174	Not conducted
22	Telangana	Not conducted	515
23	Uttarakhand	7	Not conducted
24	Uttar Pradesh	2,921	1,718
25	West Bengal	2,752	3,467
	Total	**34,672**	**32,714**

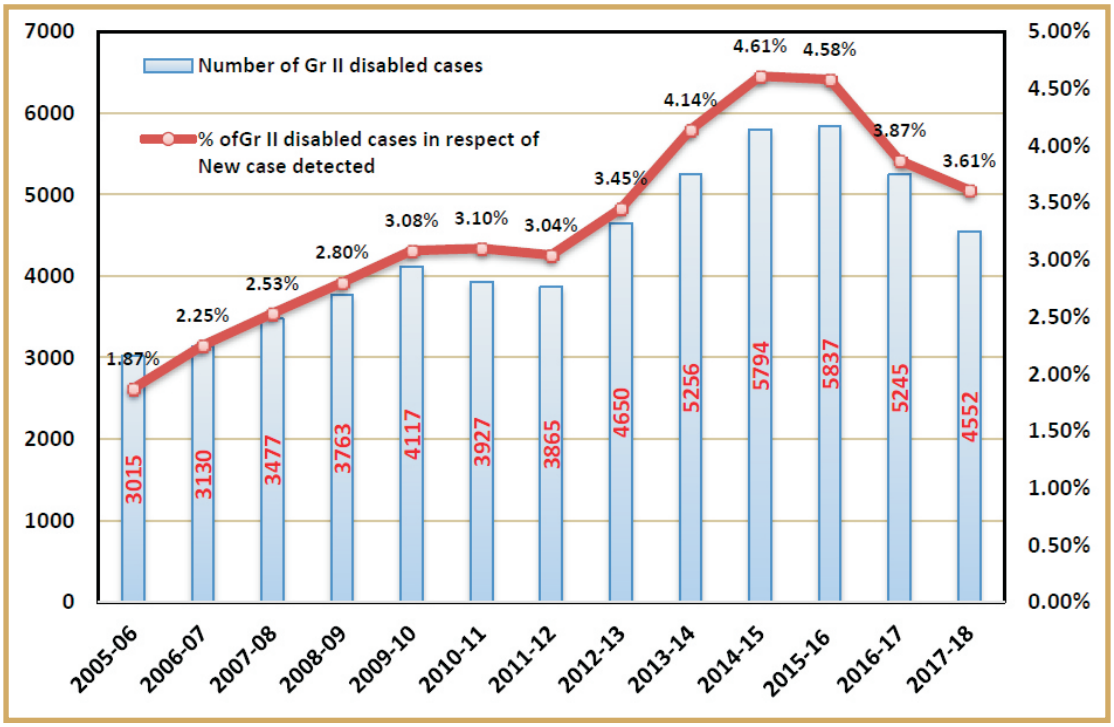
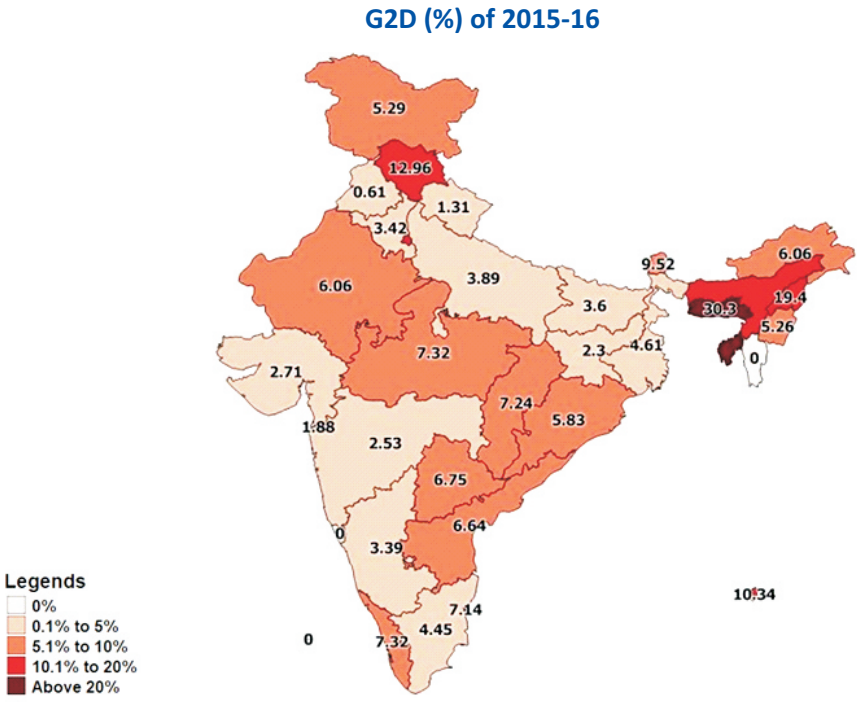


Fig 14 : The impact of this innovation on Grade II Disabilities, showing declining trend



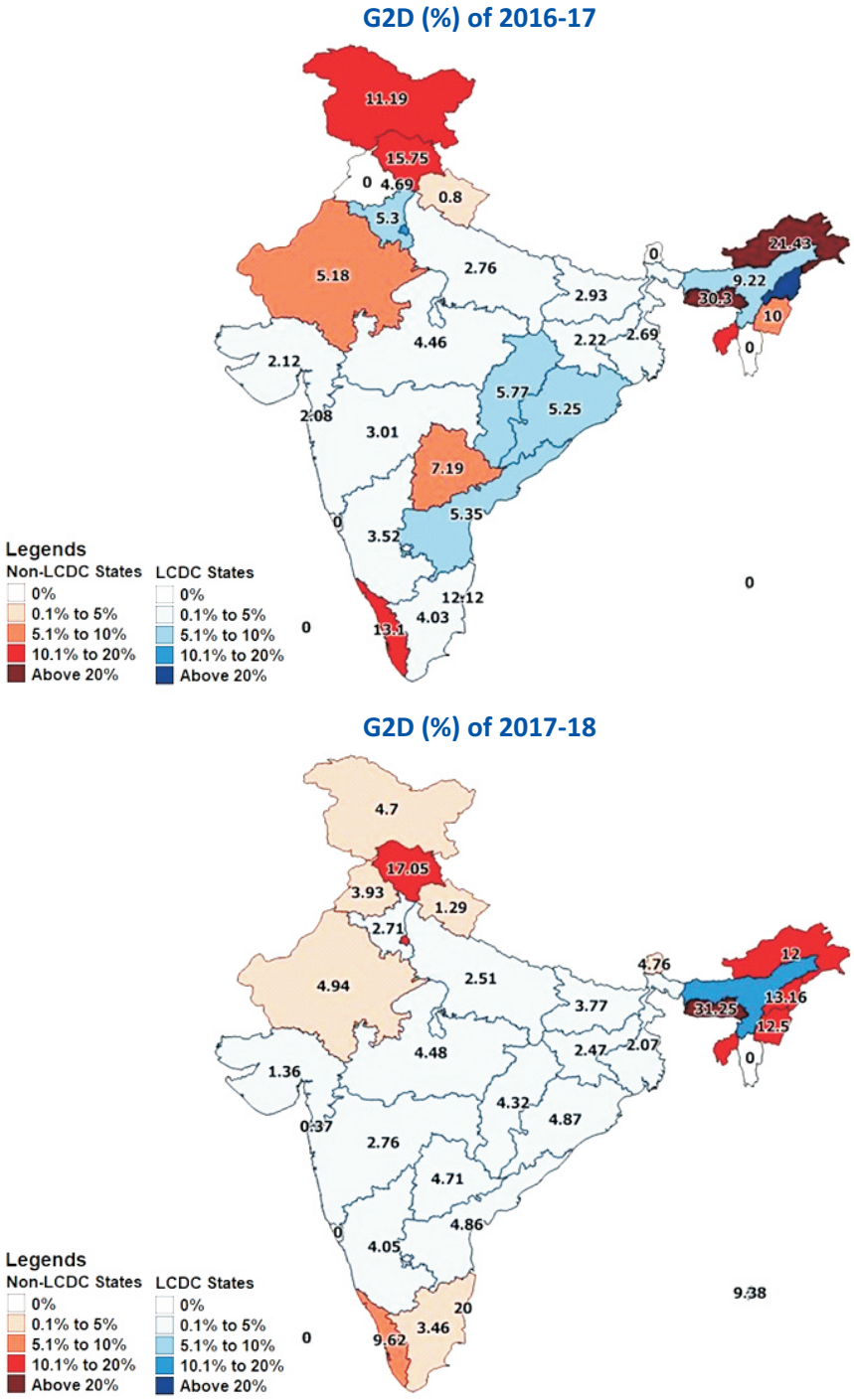


Fig 15 : Impact of LCDC campaigns on geo-spatial distribution of G2D % amongst States/UTs of India in the Years 2015-16, 2016-17 & 2017-18

It is found that in just 14 days of active search each year during LCDC; more than 67,000 new cases were detected in early stage of leprosy during two years (Table 1). Hence, this campaign have a visible impact on the Grade II disability percentage trend which have been decreased from 4.61% as on 31st March, 2015 to 3.61% as on 31st March, 2018 (Fig. 14). These changes can also be seen in geo-spatial distribution of disabilities (Fig. 15).

Conclusion

Leprosy Case Detection Campaign as an approach and novel concept has been able to serve its main purpose of its introduction i.e., detection of leprosy cases in early stage without visible deformity which is evident since the data of last two years. In addition to case detection the campaign has provided the awareness to volunteers and community regarding Leprosy disease through interpersonal communication and training component of the activity. The model is inspiring the other National Health Programme to replicate the same in their programme. It is recommended to continue this activity until transmission of this disease is stopped altogether, to achieve "Leprosy free India" in true sense.

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