Innovations/Best practices under NLEP in Dadra & Nagar Haveli

Leprosy, an infectious disease caused by *Mycobacterium leprae*, affects skin and nerves and can lead to deformities of the hands, feet and face. The disease remains endemic and major public health problem in the district of Dadra and Nagar Haveli since so long and the prevalence rate kept on increasing from 2.93 in the year 2015 to 6.7 in the year 2017.

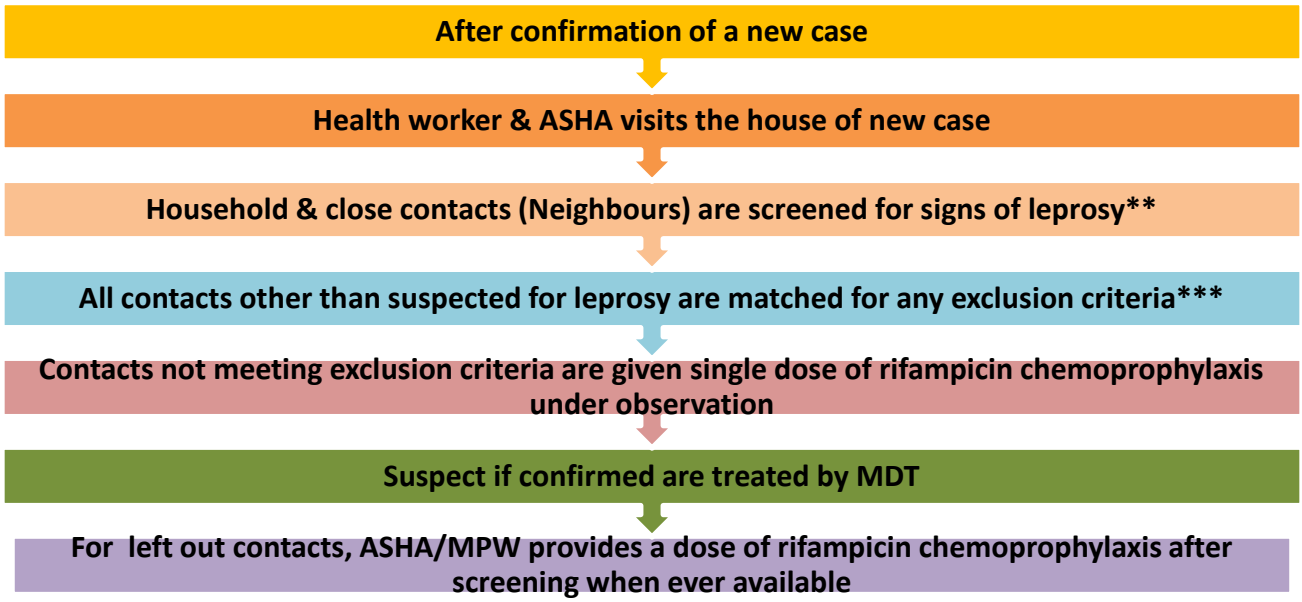
Leprosy prevalence in DNH has been high and is a major health issue. To combat the situation, various innovations/best practices has been planned & implemented in the U.T. such as:

1. **Leprosy Post Exposure Prophylaxis**-2015 to till date. **First State/UT in India to implement**
2. **Hb testing** of all Leprosy patients & **IFA Supplementation** to anemic patients
3. **Active Case Finding Survey in every Quarter** of the year
4. **GIS Mapping** of all cases reported since 2005
5. **Skin Smear of all** diagnosed cases
6. **Post Treatment follow-up** up to 5 years after RFT & **Contact Tracing** through various modes
7. **Universal MDT –** Same MDT to PB & MB – 2019. **First in India to implement it.**

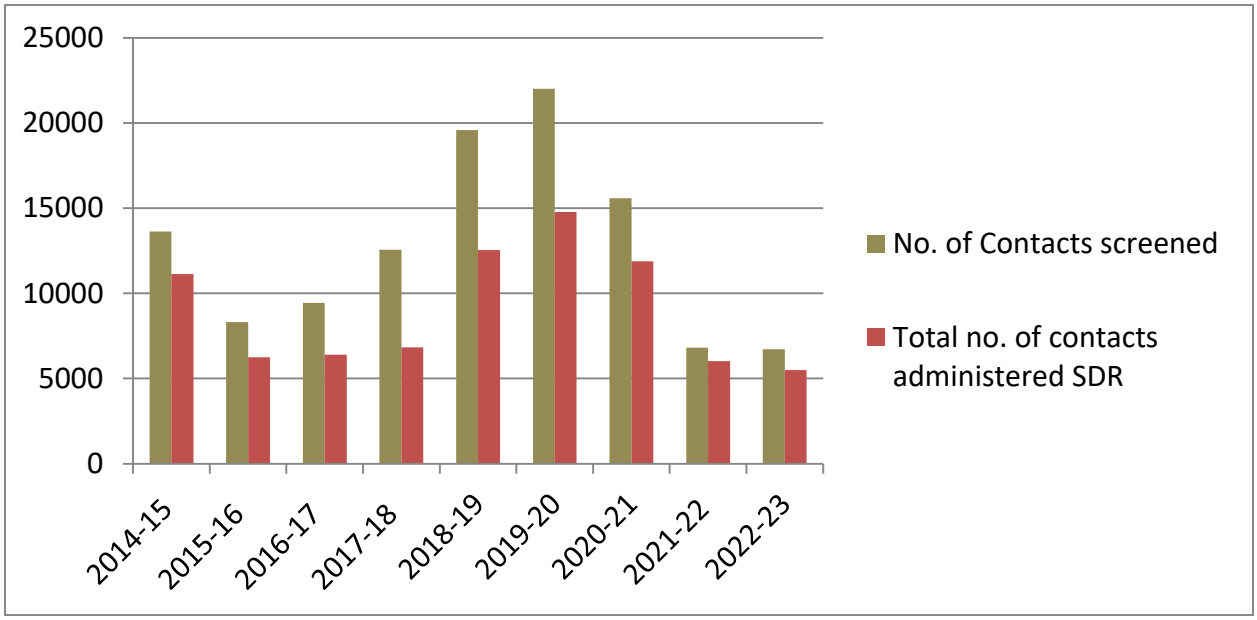
1. LEPROSY POST EXPOSURE PROPHYLAXIS

Post Exposure Chemoprophylaxis Project was started on 3rd March 2015 and continued till date. Symptomatic persons were promptly referred for "Multi Drug Therapy" (MDT) and asymptomatic contact persons were offered post-exposure prophylaxis (single dose Rifampicin), to reduce their risk of developing leprosy by 50-60%. This active contact tracing of newly diagnosed patients is a targeted strategy to prevent leprosy and to accelerate diagnosis and prompt treatment among those most at risk.

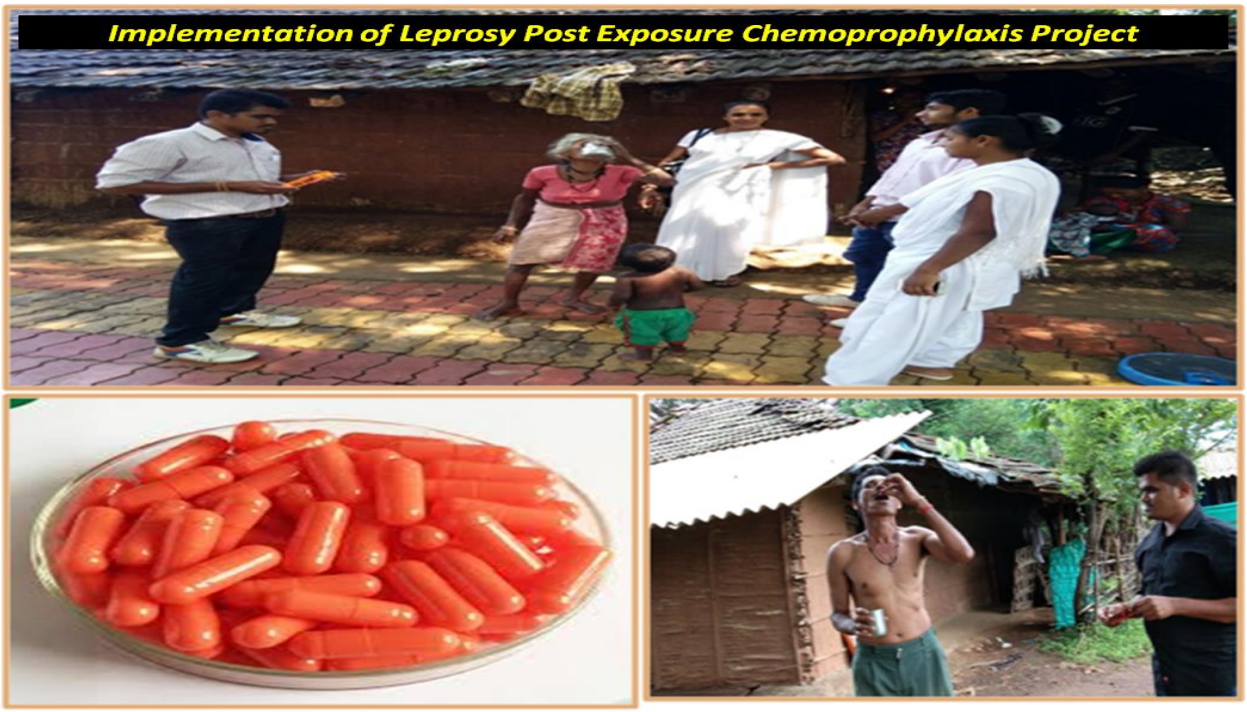
Methodology



Implementation:



Year	Index cases	No. of healthy contact eligible for SDR	No. of eligible contacts Administered SDR	No. of cases diagnosed among Contact tracing
During LPEP Project				
2014-15	**320/318**	**13639**	**11125**	
2015-16	**425**	**8312**	**6254**	**12**
2016-17	**384**	**9438**	**6399**	**21**
2017-18	**273**	**12554**	**6829**	**8**
After LPEP Project				
2018-19	**261**	**12803**	**12535**	**12**
2019-20	**200**	**15079**	**14780**	**06**
2020-21	**144**	**11975**	**11889**	**8**
2021-22	**109**	**7765**	**7765**	**3**
2022-23	**92**	**6716**	**6030**	**2**

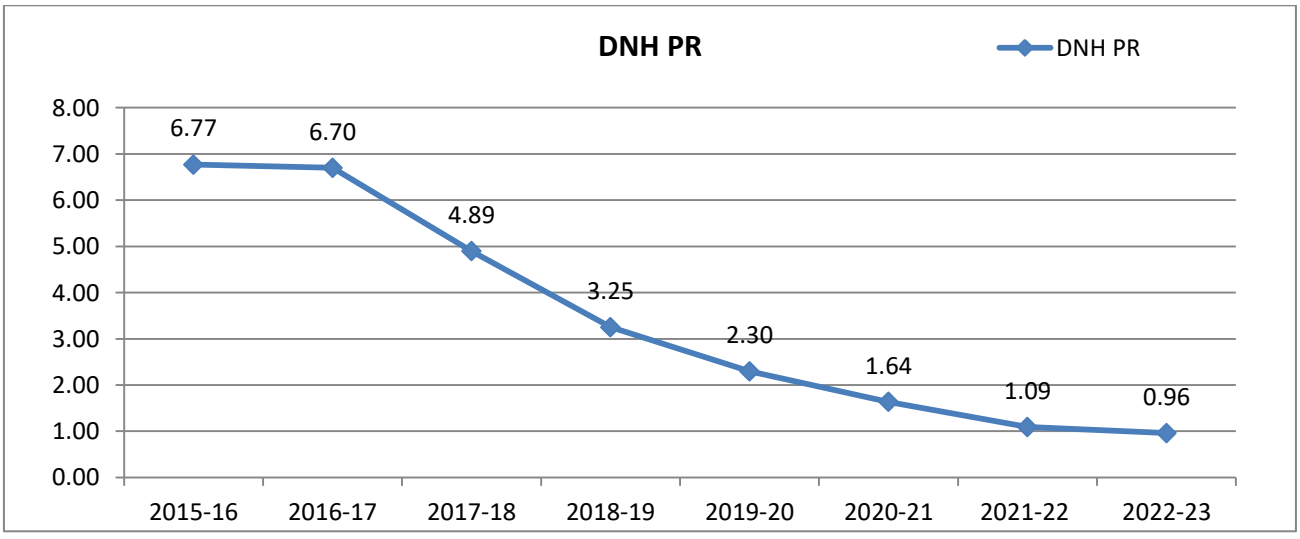


Key Challenges

- Multiple visits to contact houses.
- Difficulty in convincing contacts of urban areas.
- Difficulties in covering social contacts in schools.

Outcome:

After the implementation of LPEP Project the prevalence rate of Leprosy increased slightly in the year of inception due to increase in case detection & new case detection during contact examination. But within a period of 2 years the rising trend started to show a decline. The decline was further substantiated in the 3rd year.



Recognition –This innovation of the UT was appreciated by the Central Leprosy Division, MoHFW, Government of India and this initiative was selected as an innovation for 'Poster Presentation' in the National NHM Summit for Innovations/Good Practices – 2018.

2. PROVISION OF Hb TEST IFA SUPPLEMENTATION IN LEPROSY PATIENTS

Dapsone is considered to be one of the safest drugs for treating leprosy patients but anemia as probable side effects of dapsone may hampers our treatment process. Also, during the routine home visits and follow up of patients, it was found that many patients were pale. Therefore we started testing Hb (Hemoglobin) level of the leprosy patients and found that many patients were anemic. This inspired us to test further at the time of diagnosis and start the treatment process along with IFA to the anemic patients (Hb<11mg/dl).

Implementation

Diagnosis/Examination by Medical Officer

↓

Hb estimation along with Skin Smear test of all leprosy patients

↓

If the Hb is <11gm/dl, IFA provided for 3 months along with leprosy treatment

Achievements & Outcome

This intervention is being provided since September 2019 in the district of Dadra & Nagar Haveli. It is being observed that after this intervention of giving Iron Folic Acid therapy for three months, the leprosy patients were shown significant improvement in treatment completion rate from 94.8 % in the year 2016-17 to 100% in the year 2022-23. The following details of this intervention are as below:

Year	2019-20	2020-21	2021-22	2022-23
No. of total Leprosy cases	200	144	109	92
No. of patient tested for Hb	149	139	98	87
No. of patients found to be anemic (Hb<11)	67*	68	28	22
No. of patients on IFA	54	63	28	22

*Innovation was started in September 2019 leading to fewer patients tested for Hb that year

Positive Impact

Treatment completion rate is significantly improved after the initiation of this IFA therapy to anemic leprosy patients. Therefore, we can say that our intervention is quite successful in the district of Dadra & Nagar Haveli.

3. ACTIVE CASE FINDING ACTIVITIES IN EVENING HOURS

Males and Females both are equally susceptible to Leprosy provided all other factors are similar. There is no scientific basis which can explain that females are more prone to get affected by Leprosy. The national level data on new Leprosy cases indicate significant continuous male dominance. The national data from 2012 -2018 showed an average of 39% females and 61% males among new cases. This was in contrast to what has been observed in D&NH (approx. 58% females and 42% males).

Contrary to the female proportion among new Leprosy cases in Dadra & Nagar Haveli, the analysis showed more Grade II Disability among the males.

Implementation

In 2016, the Data analysis of new cases and G2D indicated that a fair proportion of males were being missed during the active case finding surveys. The issue was reviewed by the NLEP unit of D&NH and it was decided to trap the missing males (those who are on job during the day time) during active case finding drives by modifying the timing of these surveys.

As an intervention, the survey timing was modified (from the erstwhile 9:00 am – 5:00pm) to 9:00am to 01:00 pm in the first half and 5:00 pm to 8:00 pm in the second half.

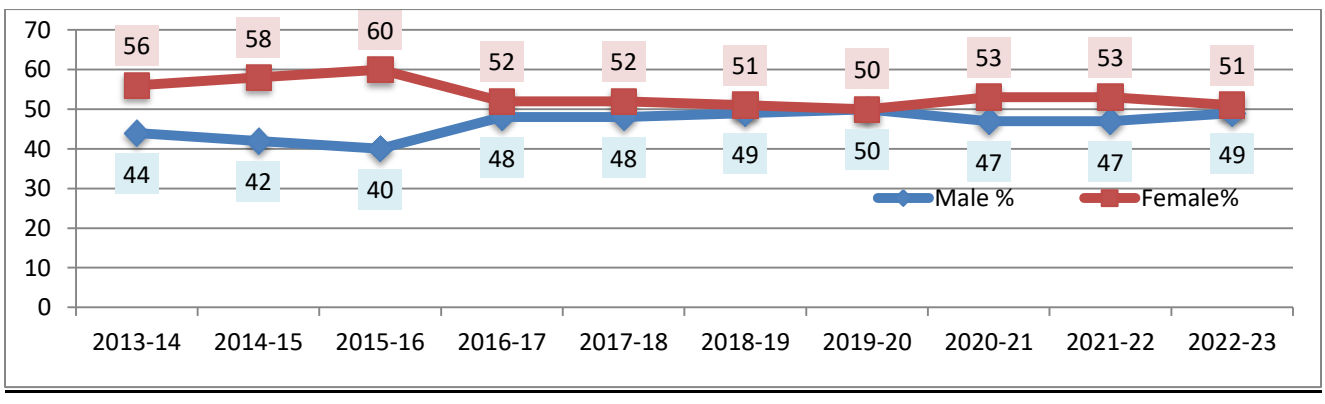
During the first half, the team comprising of one male & one female visited the houses to screen households. The houses with unavailable males/females were noted and their probable time of availability is recoded. The male volunteer/MPW started visiting those houses in evening hours after 5 pm to screen the missing males/females. The female accompanied the team till 6 pm only to screen females missed during first half. The objective of this modified timing was to cover the majority of males and some working females who are not available at home during day time.

For the first time, ,the number of males among new cases outnumbered the females in both the ACF surveys in 2016.

Achievements & Outcome

This innovative approach was started for the first time in May 2016 and is continued till date.In the year of implementation itself, the proportion of males increased from 45% (in ACF surveys prior to 2016) to 56%. That indicated the presence of hidden male cases in the community. This conclusion was further reinforced by the fact that 62.5% of G2D cases at diagnosis were males. In the year 2016 -17, the female proportion of new cases decreased from 57.89% in 2015-16 to 47%.There is also perceptible increase in male proportion of new Leprosy cases in Dadra and Nagar Haveli after the year 2016.The perceptible benefits of this approach are –

1. The proportion of males in cases confirmed out of suspects identified between 5-8 pm was 33/45 (73.33%), indicating our objective was met.
2. The female proportion among new cases is slightly lower than males, 47% which is a desired level.
3. The number of G2D which was predominantly in males, got drastically reduced and reached 'Zero'



Male & Female cases diagnosed during evening survey:

Year	Total	Male	Female
2016-17	15	13	2
2017-18	17	11	6
2018-19	13	9	4
2019-20	14	9	5
2020-21	7	7	0
2021-22	5	5	0
2022-23	4	4	0

Recognition –This innovation of the UT was appreciated by the Central Leprosy Division, MoHFW, Government of India and this initiative was selected as an innovation for 'Oral Presentation' in the National NHM Summit for Innovations/Good Practices – 2020.

4. GIS MAPPING OF ALL LEPROSY CASES SINCE 2005

GIS databases store graphical information such as country, region, district and sub-district administrative boundaries, and the location of cities, towns, and villages. These geographical features can be used to map the epidemiological data contained within the standard databases. This process provides an excellent means of analyzing epidemiological data, revealing trends, dependencies and inter-relationships that would otherwise remain hidden in data shown only in tabular format

GIS mapping of all leprosy cases was started in the year 2016 and all the cases diagnosed since 2005 have been mapped.

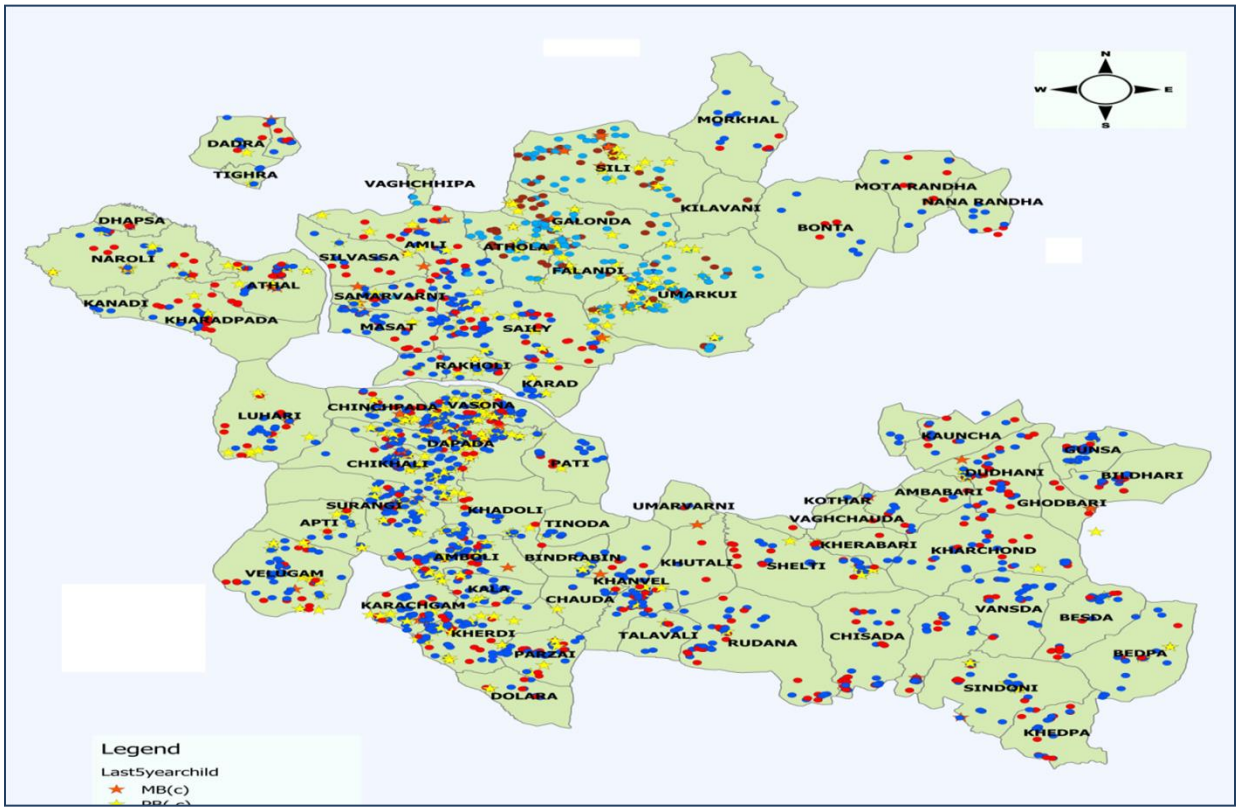
Objectives: –

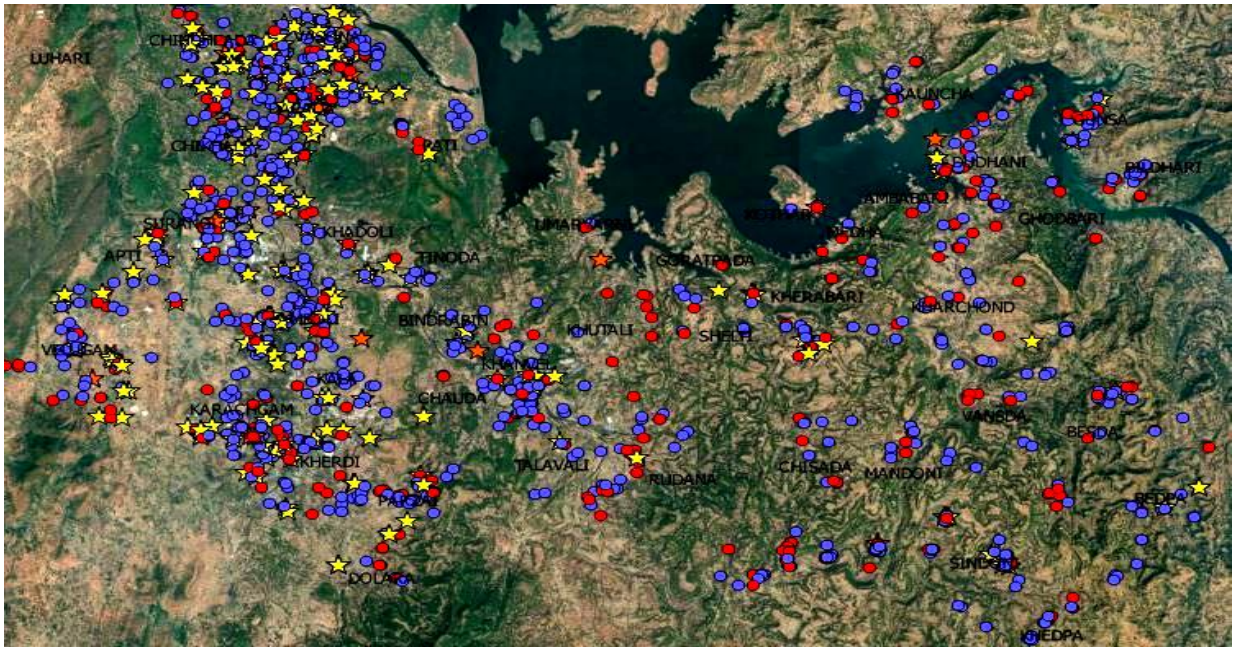
- Trend analysis
- Vulnerability mapping
- Prediction & Planning

Achievements and outcomes:

Q GIS (free version) software has been used for mapping. Co-ordinates have been taken using **'Magellan Explorist 610'** hand held GIS equipment**.** GIS mapping of 99% of total Leprosy cases has been carried out in the district of DNH from 2005-06 to 2022-23.

Year	Total Leprosy cases	GIS (Pt. location mapped)	Left Out
2005-06	139	133	6
2006-07	116	112	4
2007-08	146	145	1
2008-09	121	118	3
2009-10	153	150	3
2010-11	202	198	4
2011-12	234	229	5
2012-13	368	366	2
2013-14	319	318	1
2014-15	318	317	1
2015-16	425	425	0
2016-17	384	383	1
2017-18	273	270	3
2018-19	261	257	4
2019-20	200	200	0
2020-21	144	144	0
2021-22	109	109	0
2022-23	92	92	0
	4004	**3966 (99%)**	**38**





5. SKIN SMEAR OF ALL DAIGNOSED CASES

Leprosy is a chronic neglected tropical disease, classified into two groups: multibacillary (MB) and paucibacillary (PB) leprosy based on the number of skin lesions and nerve involvement. The skin smear is a valuable, cost-effective tool in the routine management of the patient with Hansen's disease. The smear is a means of estimating the number of acid-fast bacteria present, reported as the Bacterial Index (BI), and is important in determining the type and severity of disease as well as assessing the response to treatment. In Dadra & Nagar Haveli, skin smear is done in all the diagnosed cases.

Benefits:

- To confirm a diagnosis of skin smear-positive multibacillary leprosy in a suspect
- To help diagnose multibacillary relapse in a patient who has previously been treated
- To help with the classification of new patients.

Details of smear taken leprosy cases and their outcomes is detailed below:

Year	NCD	Smear Taken	Positive
2017-18	273	216	10
2018-19	261	260	16
2019-20	200	186	14
2020-21	144	142	10
2021-22	109	97	5 (2 Biopsy +ve)
2022-23	92	82	8

Mechanism of circulation of information to ground level:

Dadra & Nagar Haveli have PMWs who have assigned PHIs and serves as a linkage between the district NLEP unit and the Public Health Facilities of the district. Therefore, all the information is circulated through them to the centers.

Discussion regarding new innovation/intervention during monthly Review Meeting of PMWs and NLEP staff

Duties assigned to PMWs for implementation at groud level in coordination with concerned Medical Officer

Circular/communication is issued (if needed)to Concerned Medical Officer rearding activitiy/innovation

Report is submitted to NLEP unit

Reports validation done by State Leprosy Team. Modifications suggested, if any, is communicated back to the PHI for implementation.

The concerted efforts and introduction of District specific innovations in addition to strengthening the routine programme specific activities started showing their effects within a couple of years. All the major indicators of Leprosy started improving and currently the district of Dadra & Nagar Haveli is on the verge of elimination Leprosy after being the first UT/State to reach the state of "Zero" grade II disability in the year 2019.