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2482827/2022/O/O NCDC

Vol. 6 / Issue 03 / 2021

Disease Alert

प्रकोप चेतावनी

Monthly Surveillance Report

From

Integrated Disease Surveillance Programme

National Health Mission

In This Issue:

2482827/2022/O/O NCDC
Vol. 6 / Issue 03 / 2021

FOOD POISONING OUTBREAK INVESTIGATION

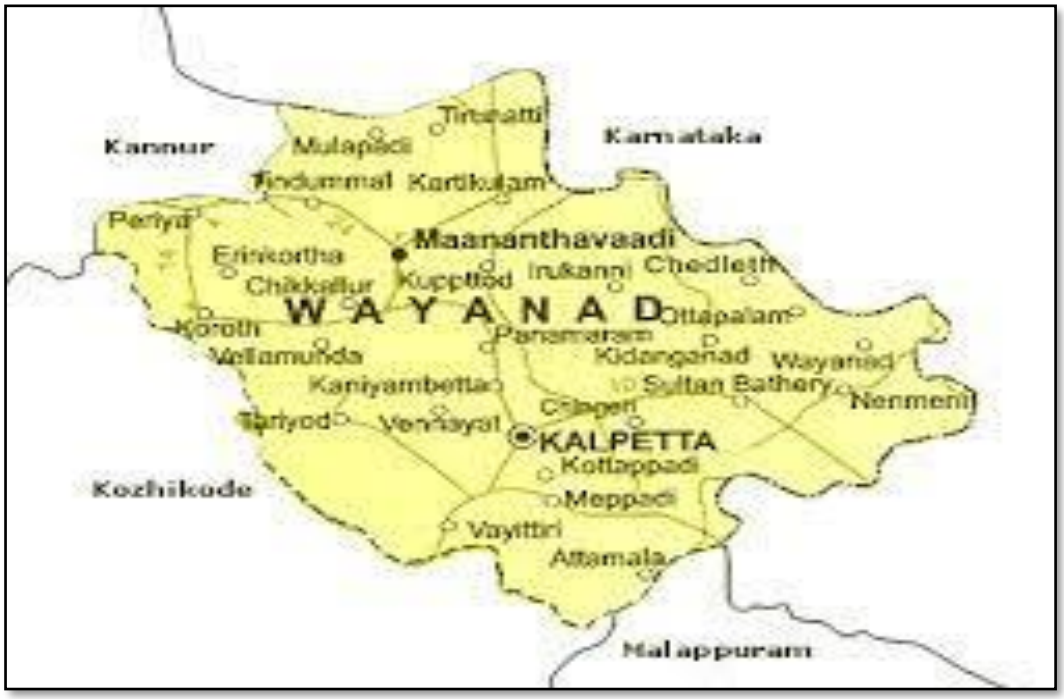
SULTHAN BATHERI MUNICIPALITY, WAYANAD, KERALA

BACKGROUND

District Wayanad is located in northern part of Kerala and adjoins Tamil Nadu border. The district has a population density of 397 inhabitants per square kilometre (1,030/sq mi). It has literacy rate of 89.32%, the lowest in the state.

Sulthanbathery Taluka of Wayanad district has total population of 297,863 as per the Census 2011. Out of which 146,792 are males while 151,071 are females. In 2011 there were total 72,206 families residing in Sulthanbathery Taluka. The Average Sex Ratio of Sulthanbathery Taluka is 1,029.

Fig. 1: Geographical location of Food Poisoning outbreak, Wayanad (March 2021)



Food poisoning, also called foodborne illness, is illness caused by eating contaminated food. Infectious organisms — including bacteria, viruses and parasites — or their toxins are the most common causes of

food poisoning. They can contaminate food at any point of processing or production. Contamination can also occur at home if food is incorrectly handled or cooked.

Food poisoning symptoms, which can start within hours of eating contaminated food, often include nausea, vomiting or diarrhoea. Most often, food poisoning is mild and resolves without treatment. But some people need to go to the hospital.

Causes of Food poisoning

Contamination of food can happen at any point of production: growing, harvesting, processing, storing, shipping or preparing. Cross-contamination — the transfer of harmful organisms from one surface to another — is often the cause. This is especially troublesome for raw, ready-to-eat foods, such as salads or other produce. Because these foods aren't cooked, harmful organisms aren't destroyed before eating and can cause food poisoning.

Many bacterial, viral or parasitic agents cause food poisoning. The following table shows some of the possible microorganism with their incubation periods:

Microorganism	Incubation period
Campylobacter	2 to 5 days
Clostridium botulinum	12 to 72 hours
Clostridium perfringens	8 to 16 hours
Escherichia coli (E. coli)	1 to 8 days
Giardia lamblia	1 to 2 weeks
Hepatitis A	28 days
Listeria	9 to 48 hours
Noroviruses (Norwalk-like viruses)	12 to 48 hours
Rotavirus	1 to 3 days
Salmonella	1 to 3 days
Shigella	24 to 48 hours
Staphylococcus aureus	1 to 6 hours
Vibrio vulnificus	1 to 7 days

2482827/2022/O/O NCDC
Vol. 6 / Issue 03 / 2021

DETAILS OF INVESTIGATION

- On March 4, 2021, 11 students of were admitted in Taluk Hospital, Sulthanbathery, Wayanad.
- The students had symptoms of vomiting, abdominal pain and nausea.
- These students were inmates of a hostel (Deen Dhayal Upadhyaya Girls' Hostel) in Kaippanchery under Thirunelly Subcentre of Chethalayam Family health centre.
- The total number of inmates in the hostel were 30 at the time of outbreak
- The food was prepared by "Kudumbasree" (women self-help group) in a home and taken to the hostel in containers in an autorickshaw.
- The hostel has a borewell but water from the borewell is used only for cleaning and bathing purpose. Drinking water is usually supplied by "Kudumbasree" group only.
- The food is served by the food committee members in the dining area
- The students started showing symptoms after having the breakfast which was served at 7.30 am
- The laboratory parameters couldn't identify any features suggesting infective pathogens.
- Five among the eleven students were discharged the next day as their symptoms improved and the remaining six were discharged the next day i.e., on 05-03-2021.
- The menu for break-fast on 04-03-2021 was Poori-Bhaji and tea. Dinner for the previous night was Rice, Sambhar and Chutney.

LABORATORY INVESTIGATIONS

No stool samples were collected because of the short stay of the cases at the district hospital. Water sample from the hostel sent for chemical and biological analysis which turned to be negative. Food samples were sent for analysis and were found coliform negative.

ENVIRONMENTAL INVESTIGATIONS

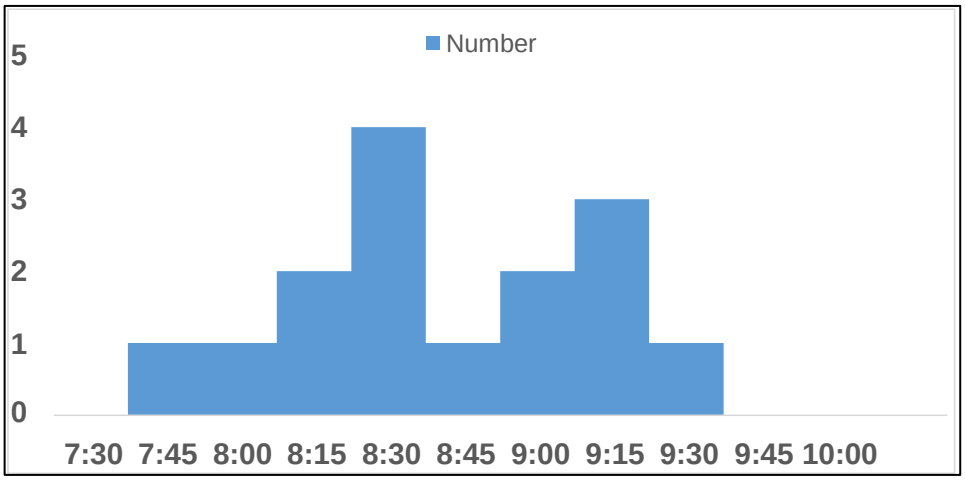
Hostel's mess inspections and key informant interviews were conducted with hostel warden and mess staff to assess the process of raw material procurement, their quantity, storage, preparation, storage of cooked food, time and place of preparation and serving, soap and water used for washing vegetables and utensils, type of utensil used and history of infection among food handlers. Food & water sampling was also conducted.

2482827/2022/O/O NCDC
Vol. 6 / Issue 03 / 2021

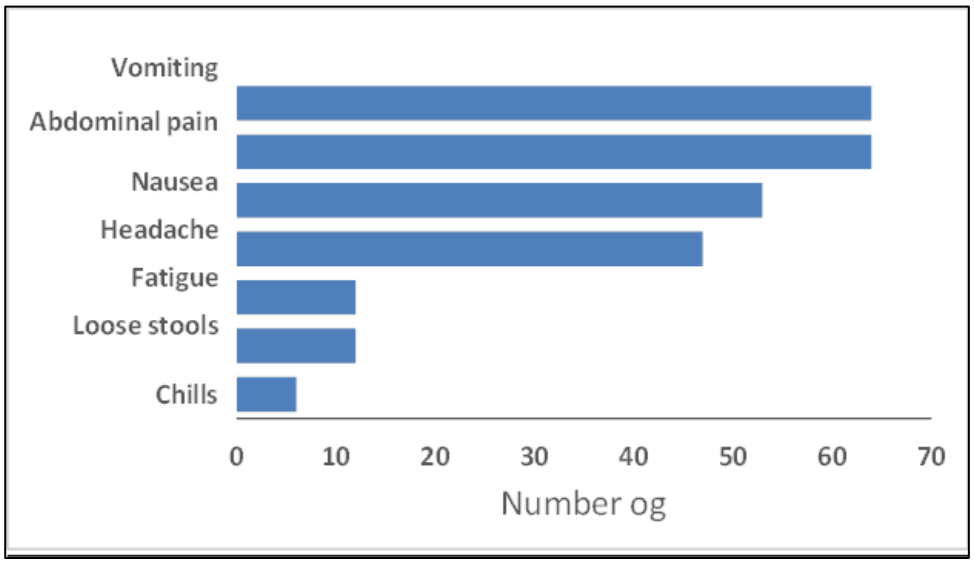
RESULTS

- The epidemic curve points out a point source outbreak.
- The Median incubation period while considering breakfast as the probable cause of the outbreak is 2 hours 15 minutes with range (15 min- 2 hours) and for dinner is 14 hours (11 hours 45 min to 13 hours 45 minutes).
- After consumption of breakfast the symptoms started appearing in about 15 minutes also rules out the breakfast being contaminated by pathogens infective in nature.

Food poisoning cases in DDU hostel Sulthan Bathery by time of reporting on 04.03.2021 (N=16)



Symptoms types associated with Food poisoning outbreak in Sulthan Bathery on 04.03.2021



2482827/2022/O/O NCDC
Vol. 6 / Issue 03 / 2021

ACTIONS TAKEN

- RRT Investigated the outbreak
- Health education given
- Insisted proper cleaning in hotel
- Maintenance of Personnel hygiene was emphasized
- IEC was given including use of only boiled water of drinking

No new cases reported from hostel after 06.03.2021. So, outbreak was declared as closed.

CONCLUSION

Descriptive analysis suggests that it was a point source food poisoning outbreak which happened in the Deen Dhayal Upadhyaya Girls Hostel, Sultan Bathery. A total of 11 cases has been reported. Environmental findings suggest that the hygiene and sanitation of the hostel's mess was poor. There was no proper storage of raw and cooked food. From the descriptive analysis, we can hypothesize that eating infected food or drinking contaminated water might be the reason for the outbreak.

RECOMMENDATIONS

Short term

1. Prioritize food safety and good hygiene practices in the hostel's mess area with provision of cold storage for both raw and cooked food items
2. Training of food handlers regarding the safe practices during food preparation
3. Access to safe drinking water by chlorinating the drinking water supply

Long term

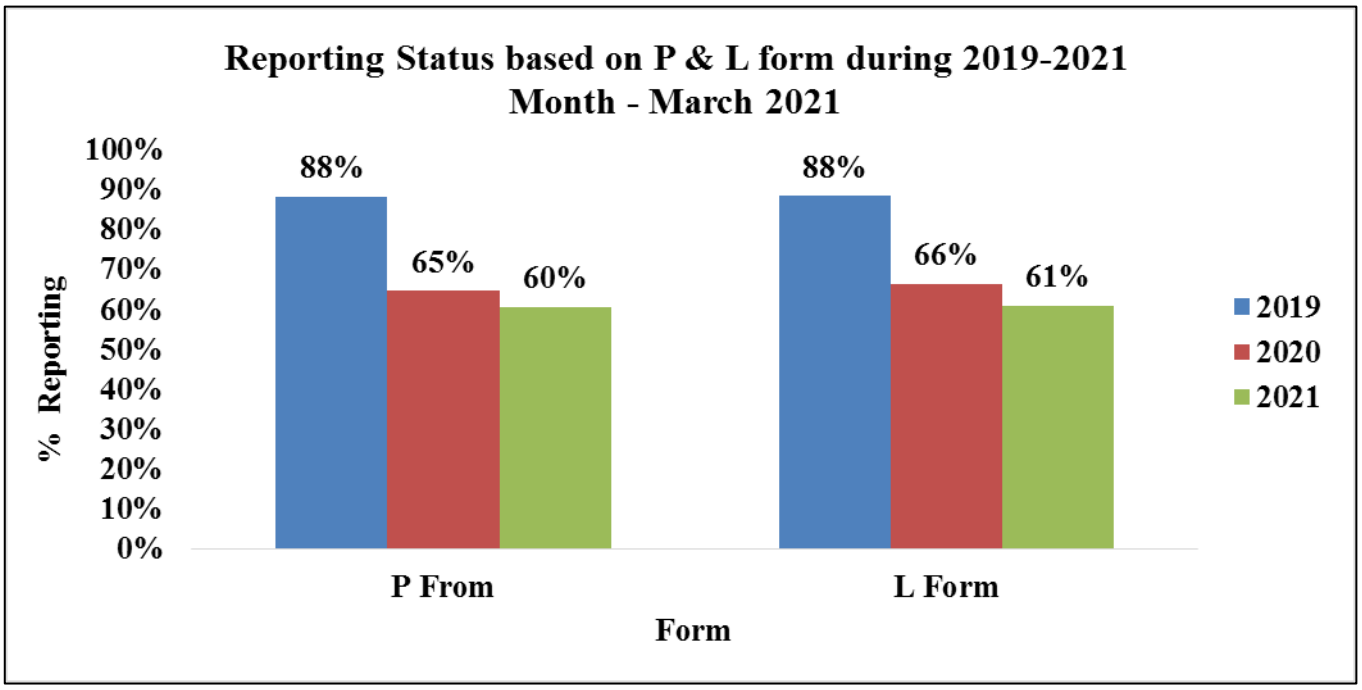
1. Pre-employment and regular medical examination of the food handlers

2. Periodic IEC activities to increase the awareness among food handlers regarding the personal hygiene, effective food handling, cleaning and sanitation in the kitchen area
3. Regular water testing for chlorination and contamination of drinking water
4. Regular visits of food safety officer to ensure the compliance with food safety standards
5. During any outbreak of food poisoning, stool samples and all the suspected food samples should be collected and tested on priority basis
6. Ensure microbiological testing of food samples and timely sharing of results to find the source and timely containment of the outbreak

2482827/2022/O/O NCDC
Vol. 6 / Issue 03 / 2021

Surveillance data of Enteric Fever, Acute Diarrhoeal Disease, Viral Hepatitis A & E, Dengue Leptospirosis, Dengue, Chikungunya, Leptospirosis and Seasonal Influenza A (H1N1) During March 2019 - 2021*

Fig. 2: RU-wise reporting based on P & L forms during March 2021



As shown in Fig. 2, in March 2019, 2020 and 2021, the 'P' form reporting percentage (i.e. % RU reporting out of total in P form) was 88%, 65% and 60% respectively across India, for all disease conditions reported under IDSP in P form. Similarly, L form reporting percentage was 88%, 66% and 61% respectively across India for all disease conditions, during the same month for all disease conditions reported under IDSP in L form.

The completeness of reporting has decreased in March 2021 compared to the same month in previous years for both P and L forms, thereby compromising on the quality of surveillance data.

2482827/2022/O/O NCDC
Vol. 6 / Issue 03 / 2021

Fig. 3: State/UT wise P form completeness % for March 2021

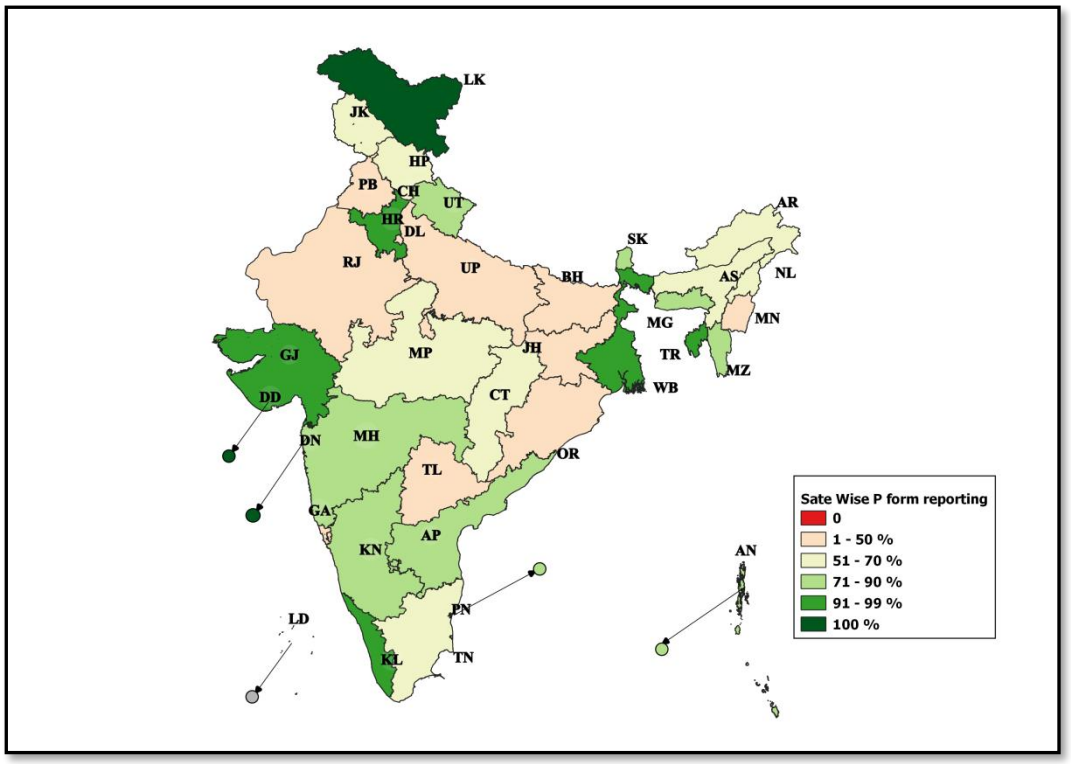


Fig. 4: State/UT wise L form completeness % for March 2021

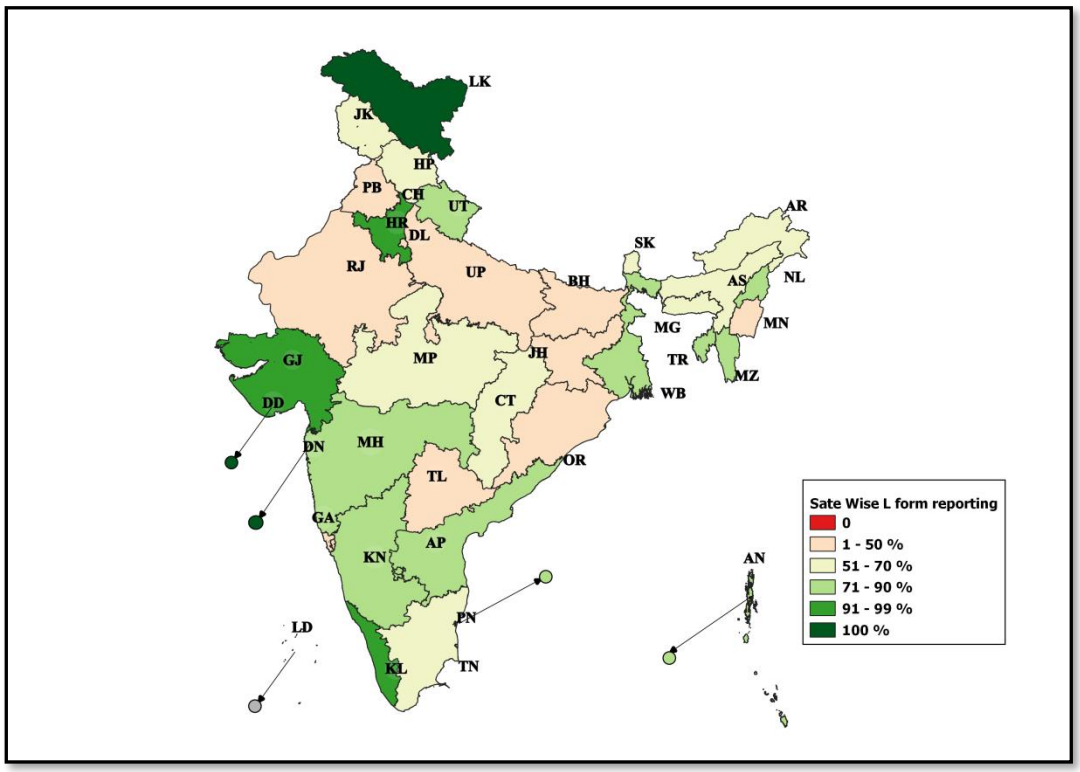
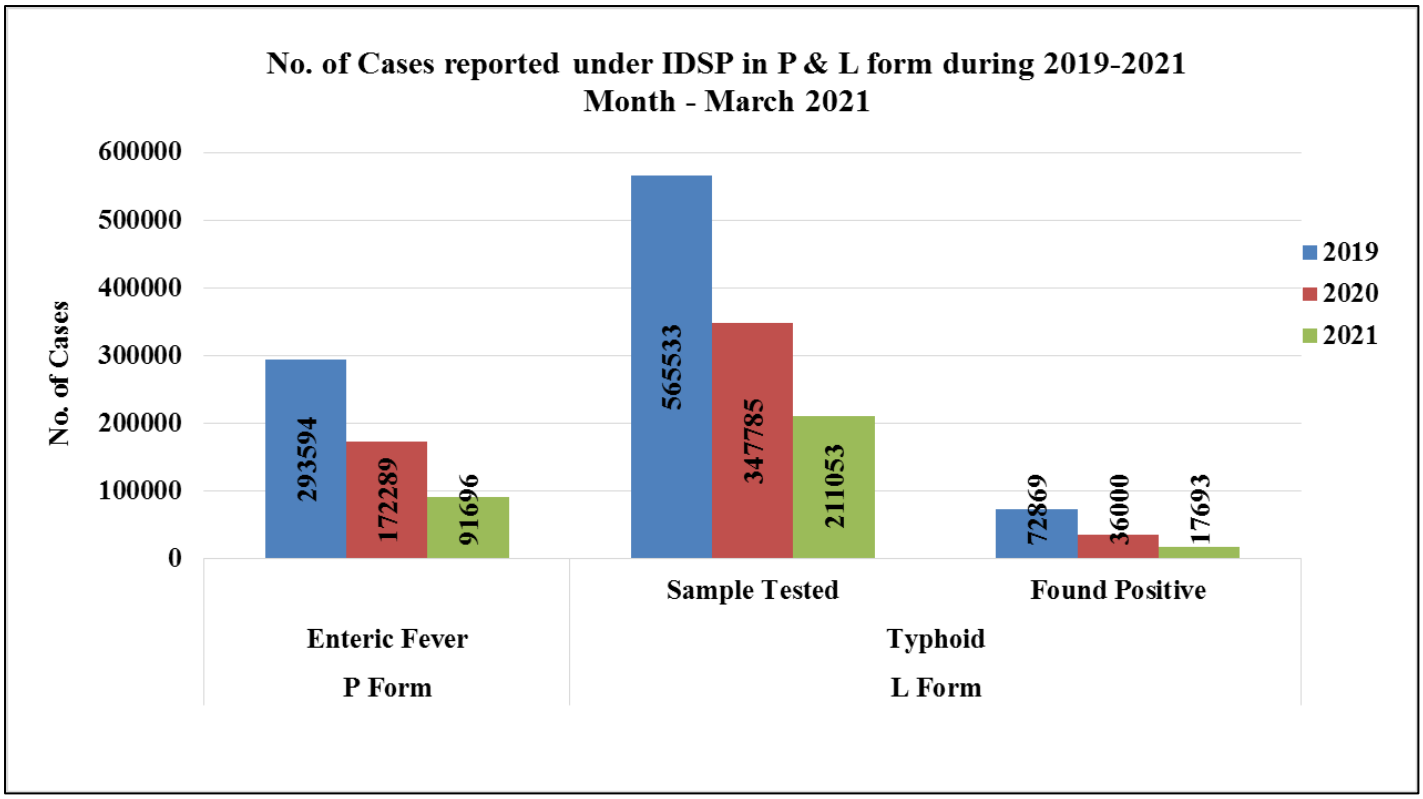


Fig. 5: No. of Enteric Fever Cases reported under P & L form during March 2019 - 2021

As shown in Fig. 5, number of presumptive enteric fever cases, as reported by States/UTs in 'P' form was



293594 in March 2019; 172289 in March 2020 and 91696 in March 2021. These presumptive cases are diagnosed on the basis of standard case definitions provided under IDSP.

As reported in L form, in March 2019; 565533 samples were tested for Typhoid, out of which 72869 were found positive. In March 2020; out of 347785 samples, 36000 were found to be positive and in March 2021, out of 211053 samples, 17693 were found to be positive.

Sample positivity has been 14%, 13% and 10% in March month of 2019, 2020 & 2021 respectively.

Limitation: The test by which above mentioned samples were tested could not be ascertained, as currently there is no such provision in L form.

2482827/2022/O/O NCDC
Vol. 6 / Issue 03 / 2021

Fig. 6: State/UT wise Presumptive Enteric fever cases & outbreaks for March 2021

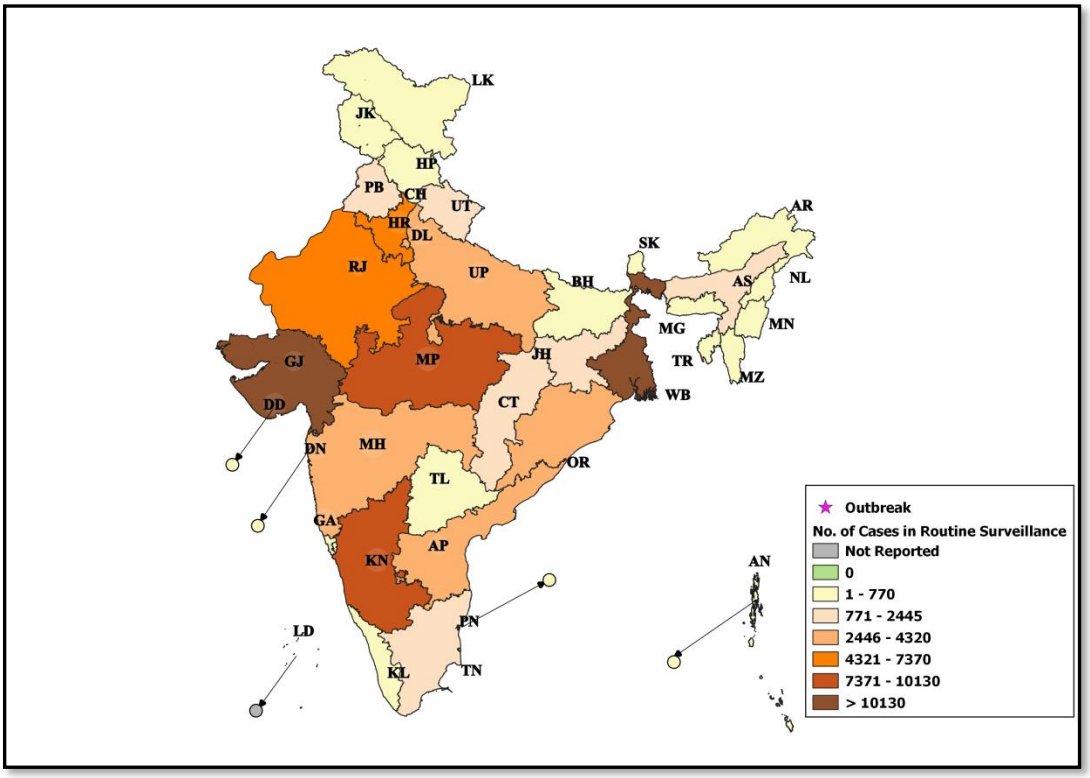
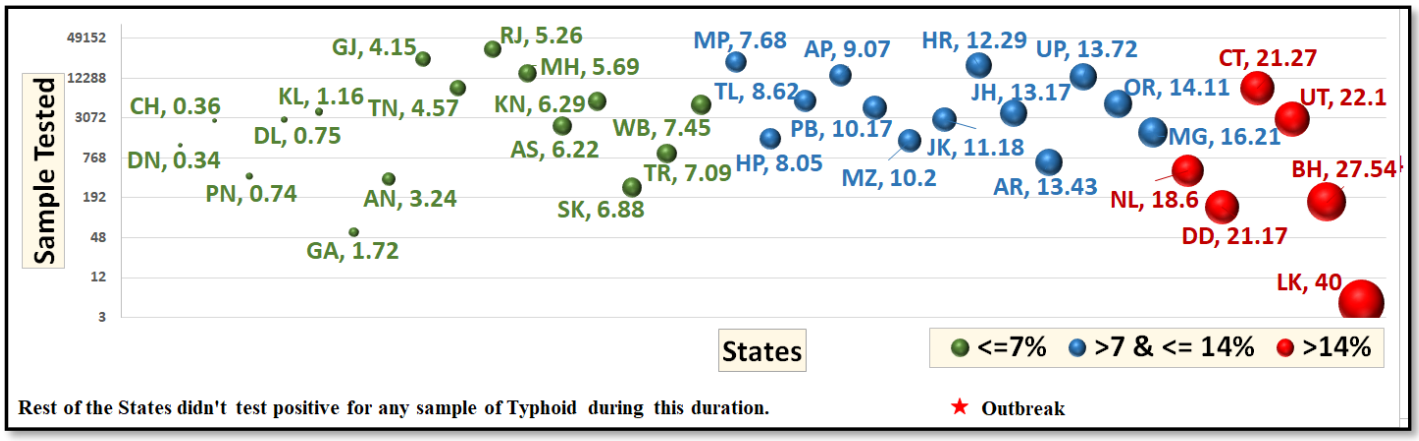
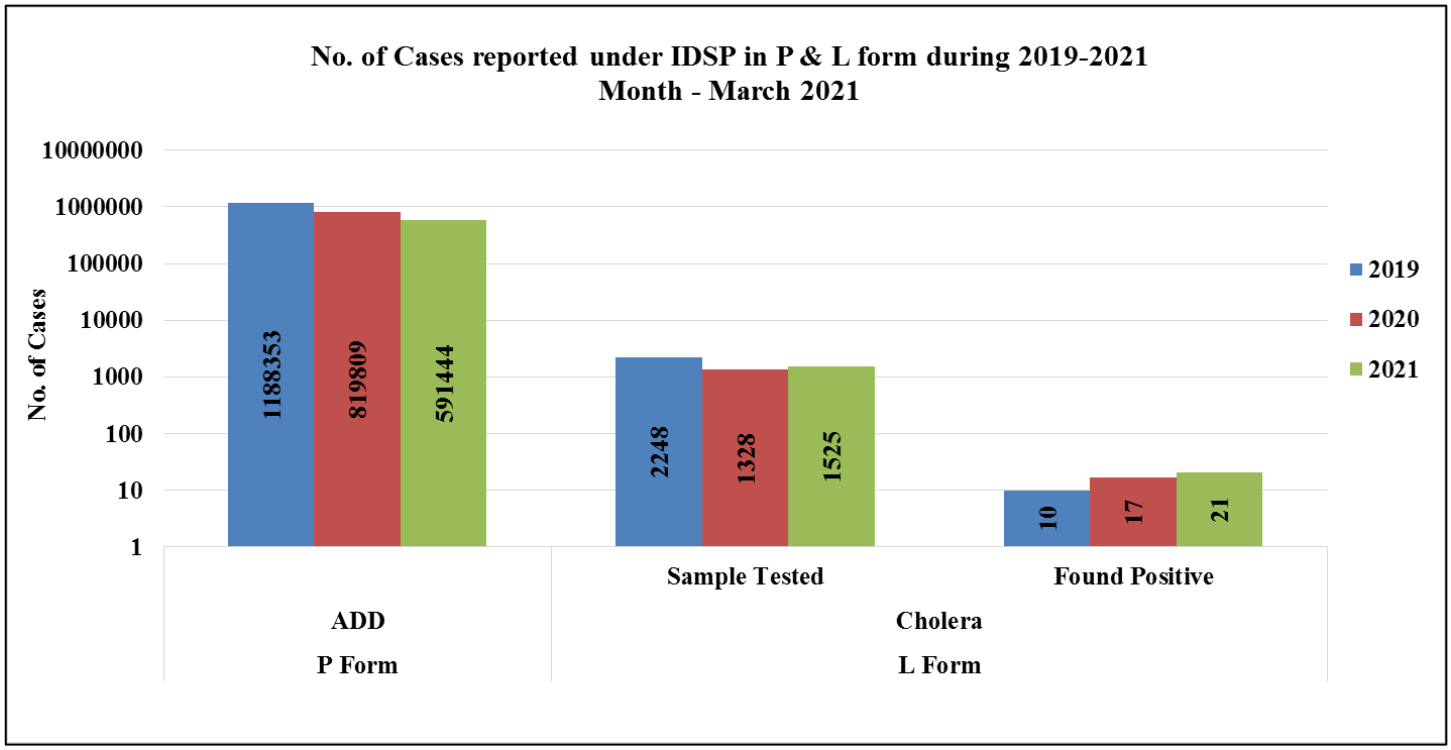


Fig. 7: State/UT wise Lab Confirmed Typhoid cases and outbreaks for March 2021



2482827/2022/O/O NCDC
Vol. 6 / Issue 03 / 2021

Fig. 8: No. of ADD Cases reported under IDSP in P Form & Lab confirmed Cholera cases in L form during March 2019 - 2021



As shown in Fig. 8, number of Acute Diarrhoeal Disease cases, as reported by States/UTs in 'P' form was 1188353 in March 2019; 819809 in March 2020 and 591444 in March 2021. These presumptive cases are diagnosed on the basis of standard case definitions provided under IDSP.

As reported in L form, in March 2019, 2248 samples were tested for Cholera out of which 10 tested positive; in March 2020, out of 1328 samples, 17 tested positive for Cholera and in March 2021, out of 1525 samples, 21 tested positive.

Sample positivity of samples tested for Cholera has been 0.44%, 1% and 1% in March month of 2019, 2020 & 2021 respectively.

Fig. 9: State/UT wise Presumptive ADD cases and outbreaks for March 2021

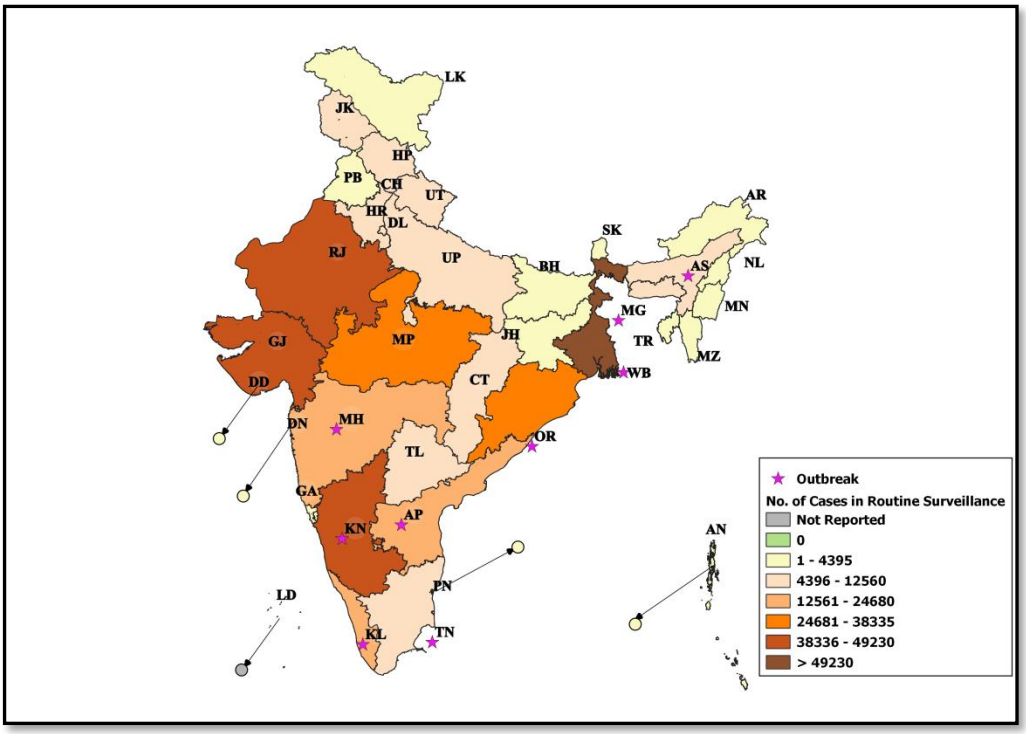
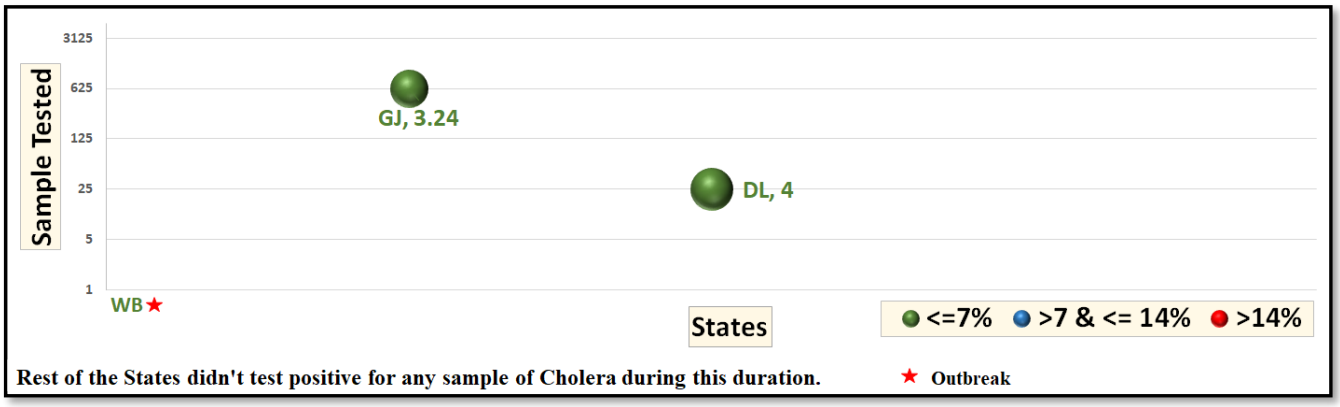


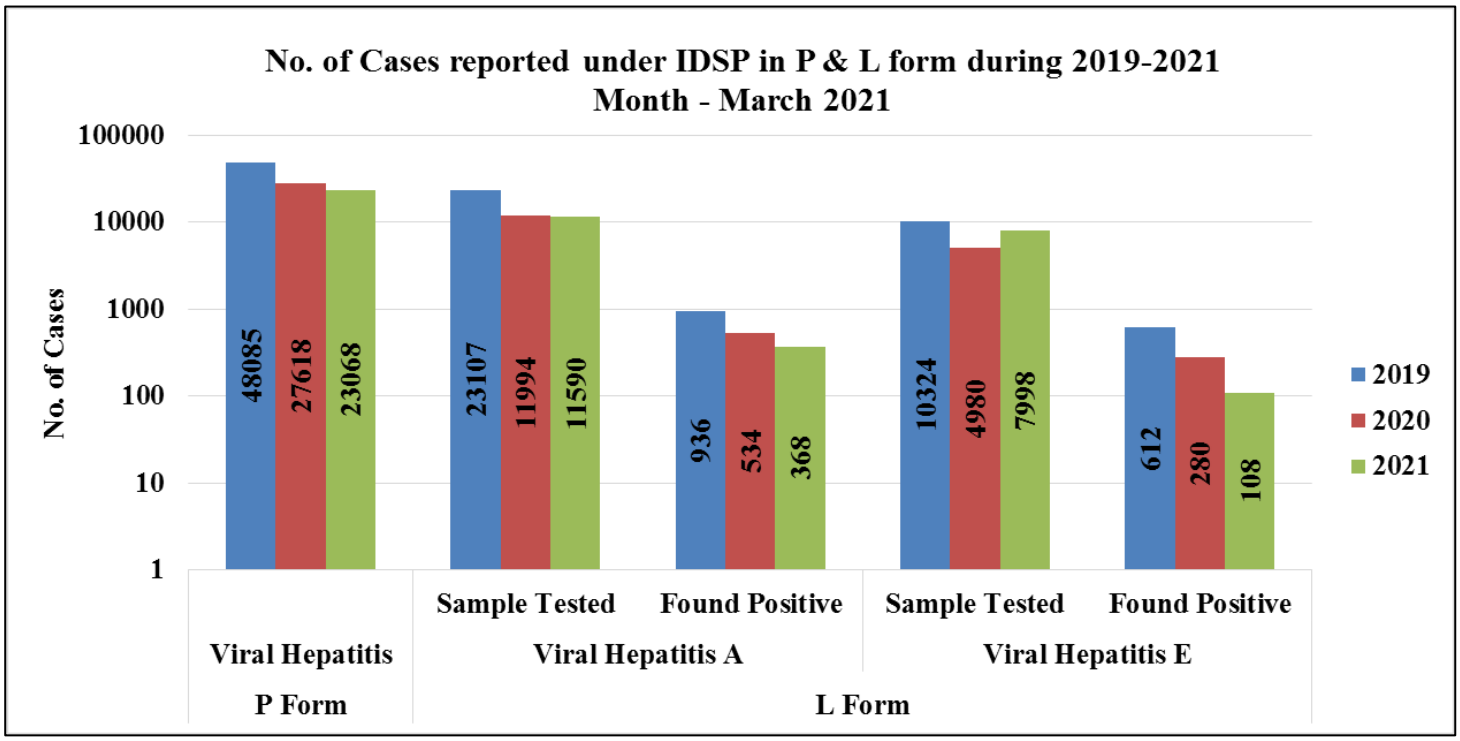
Fig. 10: State/UT wise Lab Confirmed Cholera cases and outbreaks for March 2021



2482827/2022/O/O NCDC
Vol. 6 / Issue 03 / 2021

Fig. 12: State/UT wise Presumptive Viral Hepatitis cases and outbreaks for March 2021

Fig. 11: No. of Viral Hepatitis Cases reported under IDSP in P form & Viral Hepatitis A & E cases reported under L form during March 2019 - 2021



As shown in Fig. 11, the number of presumptive Viral Hepatitis cases was 48085 in March 2019, 27618 in March 2020 and 23068 in March 2021. These presumptive cases were diagnosed on the basis of case definitions provided under IDSP.

As reported in L form for Viral Hepatitis A, in March 2019; 23107 samples were tested out of which 936 were found positive. In March 2020 out of 11994 samples, 534 were found to be positive and in March 2021, out of 11590 samples, 368 were found to be positive.

Sample positivity of samples tested for Hepatitis A has been 4%, 4% and 3% in March month of 2019, 2020 & 2021 respectively.

As reported in L form for Viral Hepatitis E, in March 2019; 10324 samples were tested out of which 612 were found positive. In March 2020; out of 4980 samples, 280 were found to be positive and in March 2021, out of 7998 samples, 108 were found to be positive. Sample positivity of samples tested for Hepatitis E has been 6%, 6% and 1% in March month of 2019, 2020 & 2021 respectively.

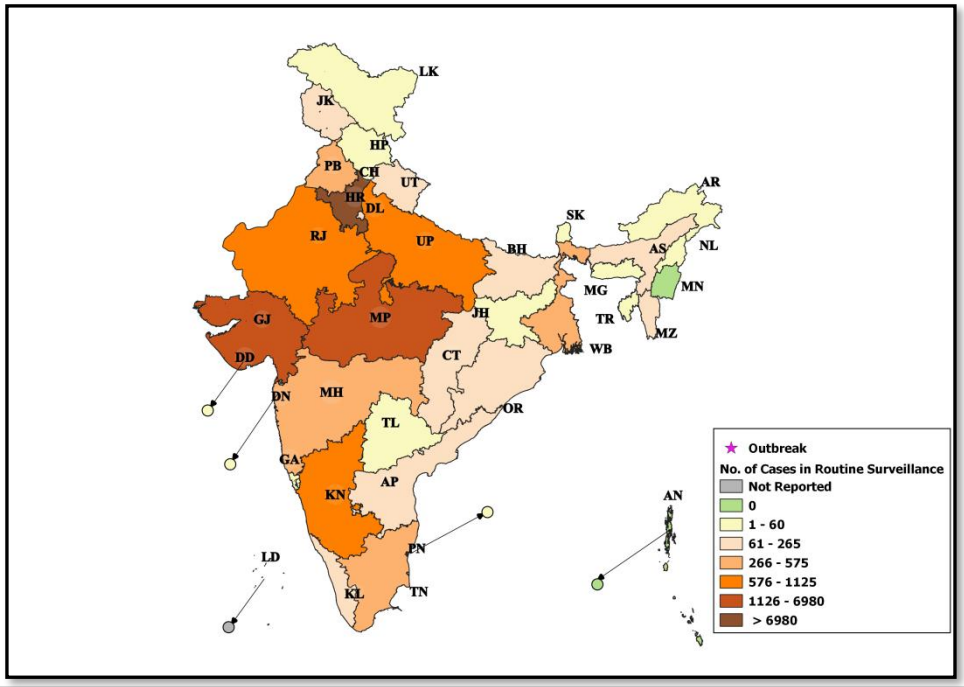


Fig. 13: State/UT wise Lab Confirmed Viral Hepatitis A cases and outbreaks for March 2021

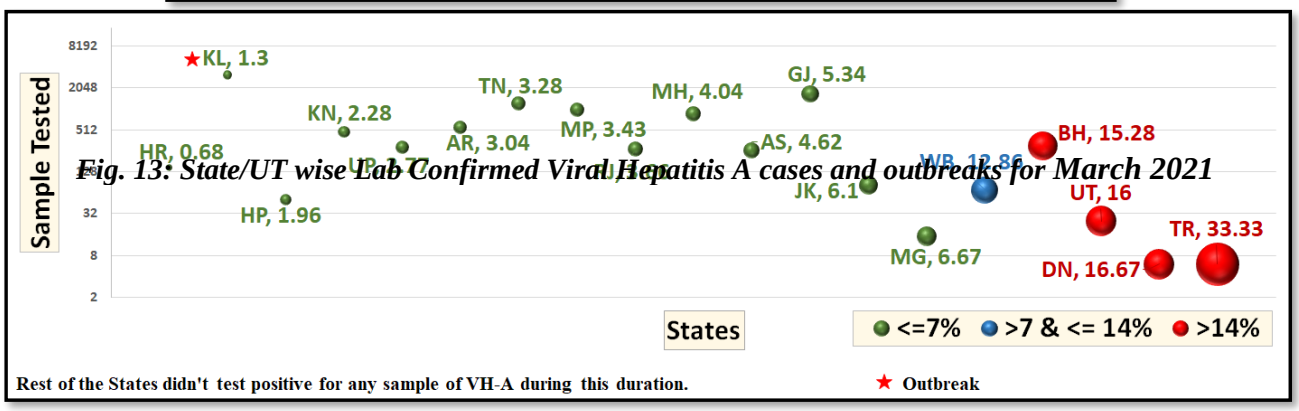
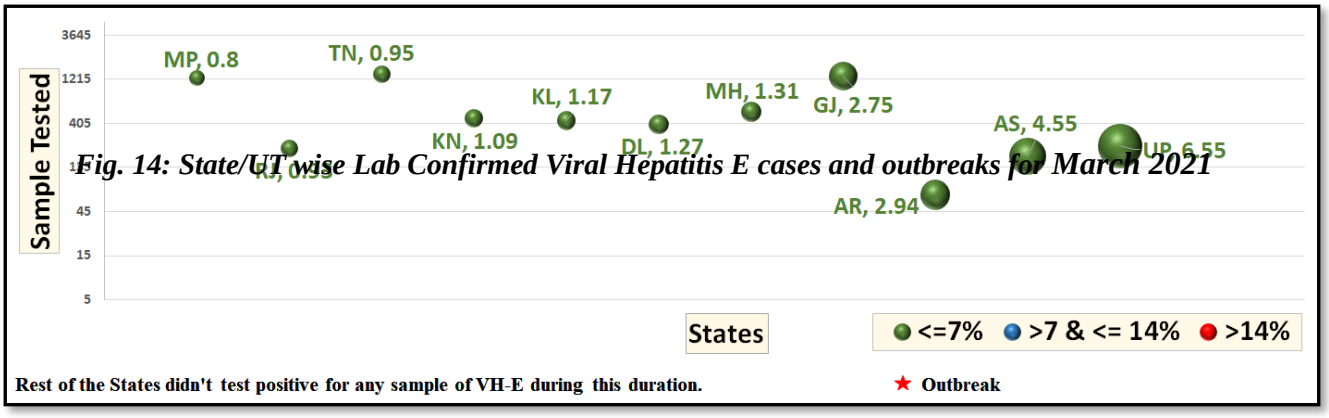
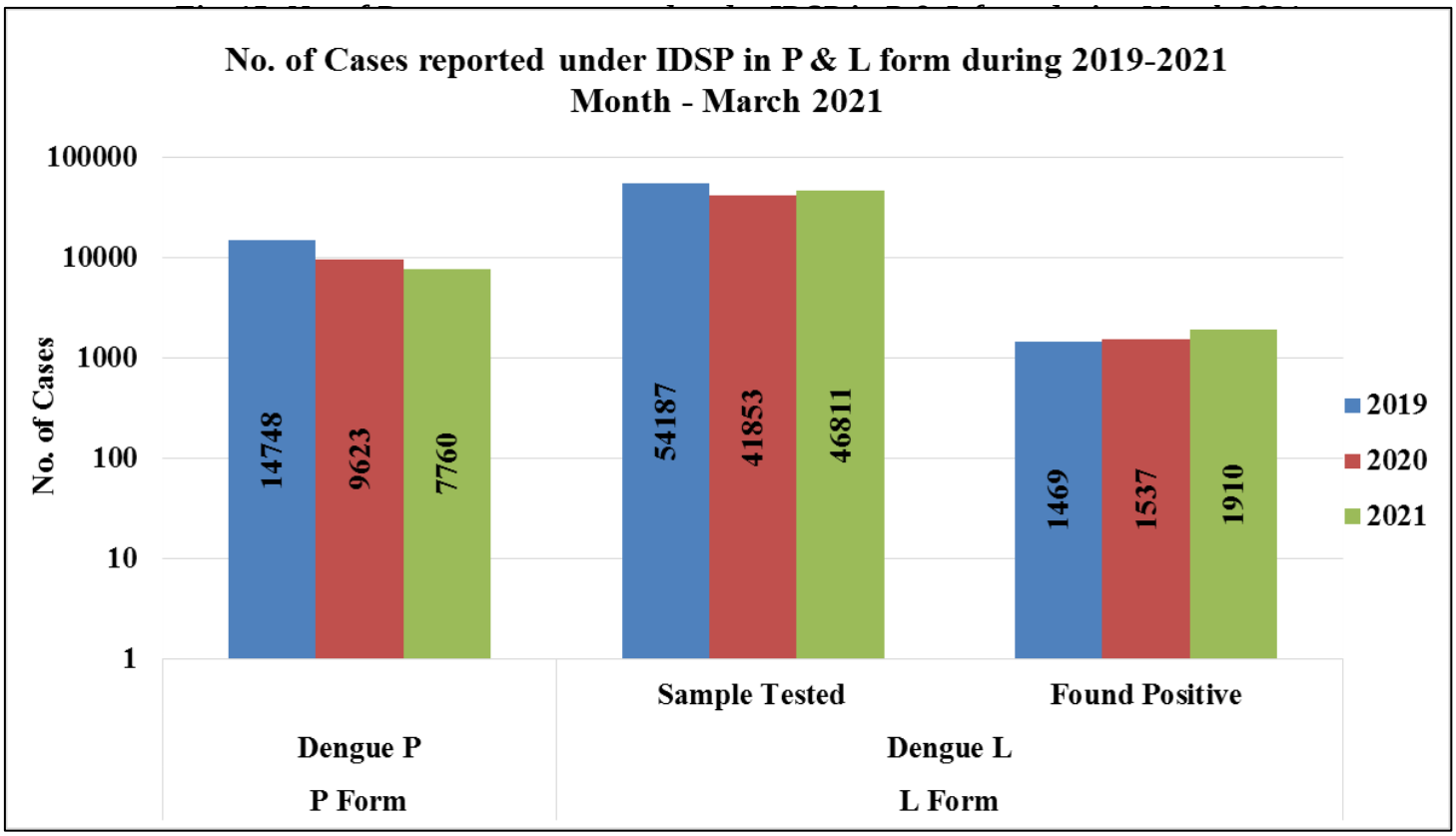


Fig. 14: State/UT wise Lab Confirmed Viral Hepatitis E cases and outbreaks for March 2021



2482827/2022/O/O NCDC
Vol. 6 / Issue 03 / 2021



As shown in Fig. 15, number of presumptive Dengue cases, as reported by States/UTs in 'P' form was 14748 in March 2019; 9623 in March 2020 and 7760 in March 2021. These presumptive cases are diagnosed on the basis of standard case definitions provided under IDSP.

As reported in L form, in March 2019; 54187 samples were tested for Dengue, out of which 1469 were found positive. In March 2020; out of 41853 samples, 1537 were found to be positive and in March 2021, out of 46811 samples, 1910 were found to be positive.

Sample positivity of samples tested for Dengue has been 3%, 4% and 4% in March month of 2019, 2020 & 2021 respectively.

2482827/2022/O/O NCDC
Vol. 6 / Issue 03 / 2021

Fig. 16: State/UT wise Lab Confirmed Dengue cases and outbreaks for March 2021

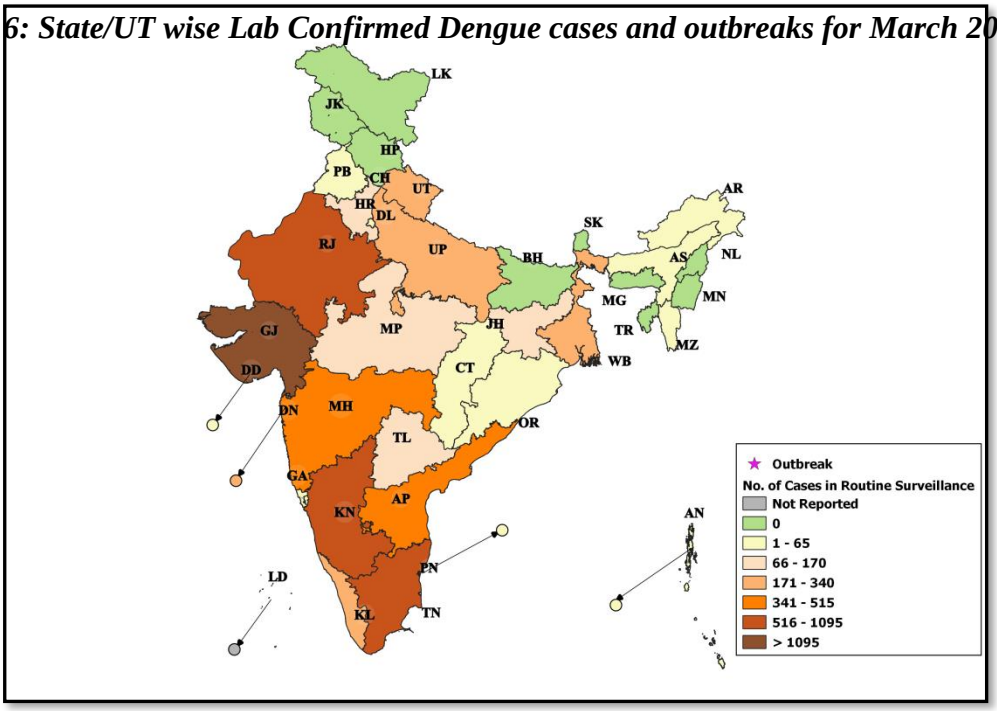
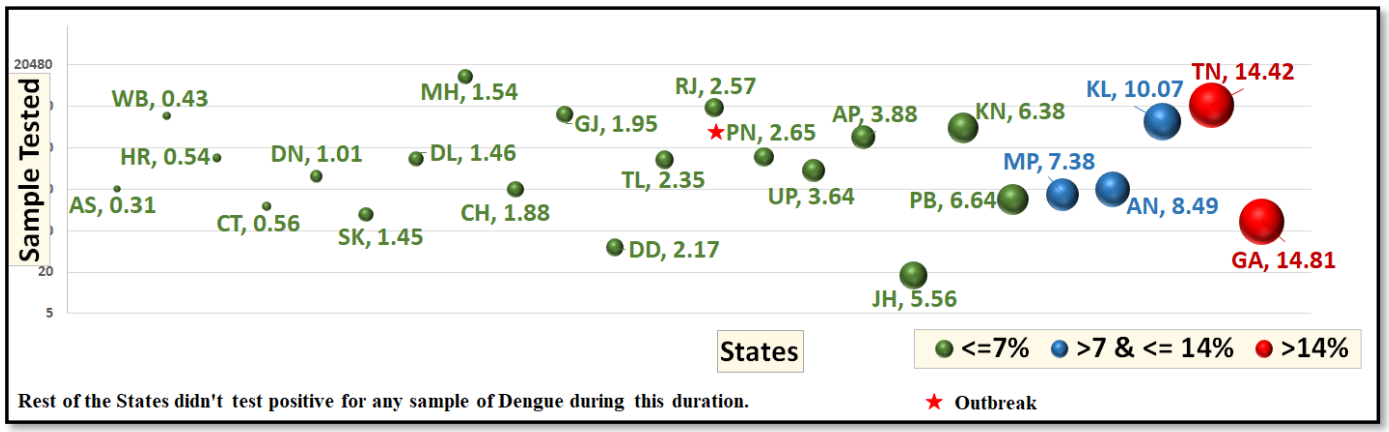
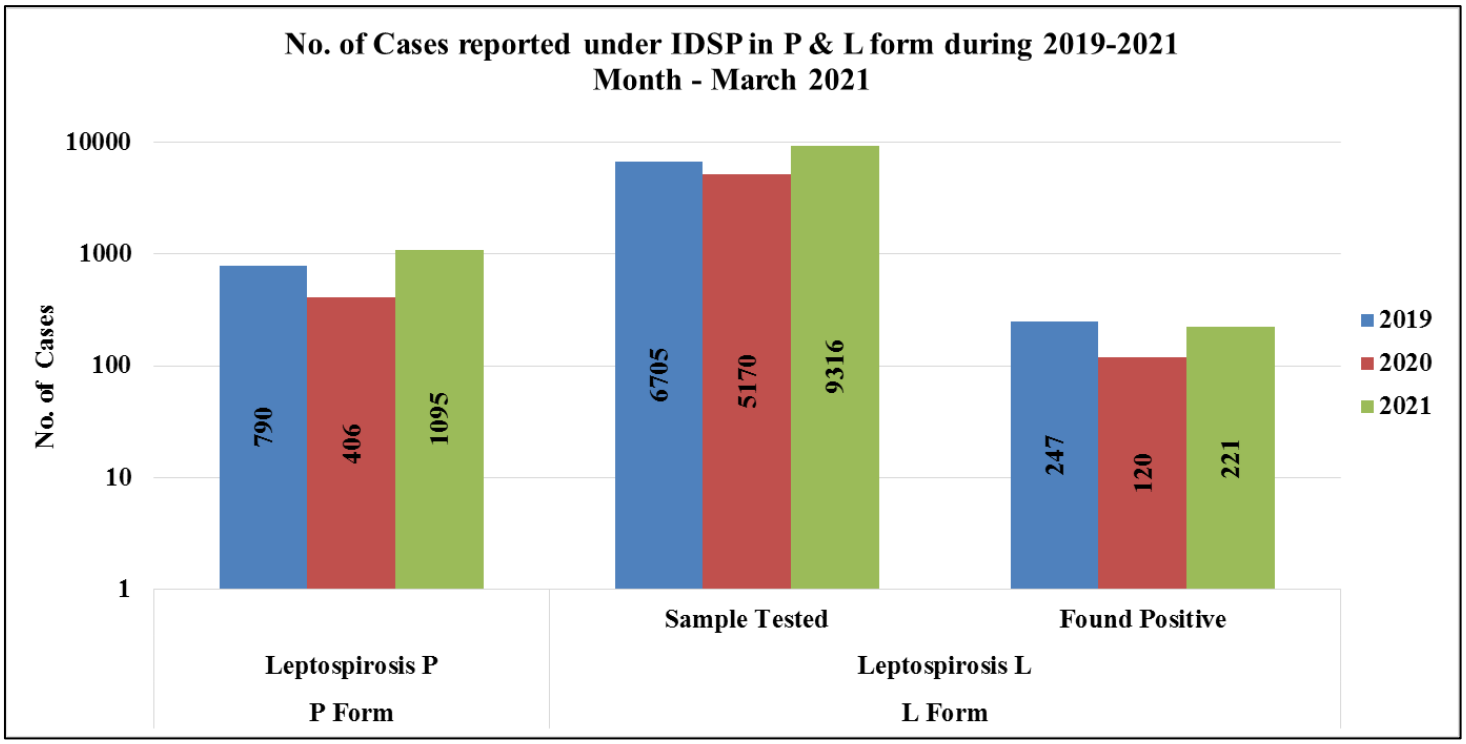


Fig. 17: State/UT wise Presumptive Dengue cases and outbreaks for March 2021



2482827/2022/O/O NCDC
Vol. 6 / Issue 03 / 2021

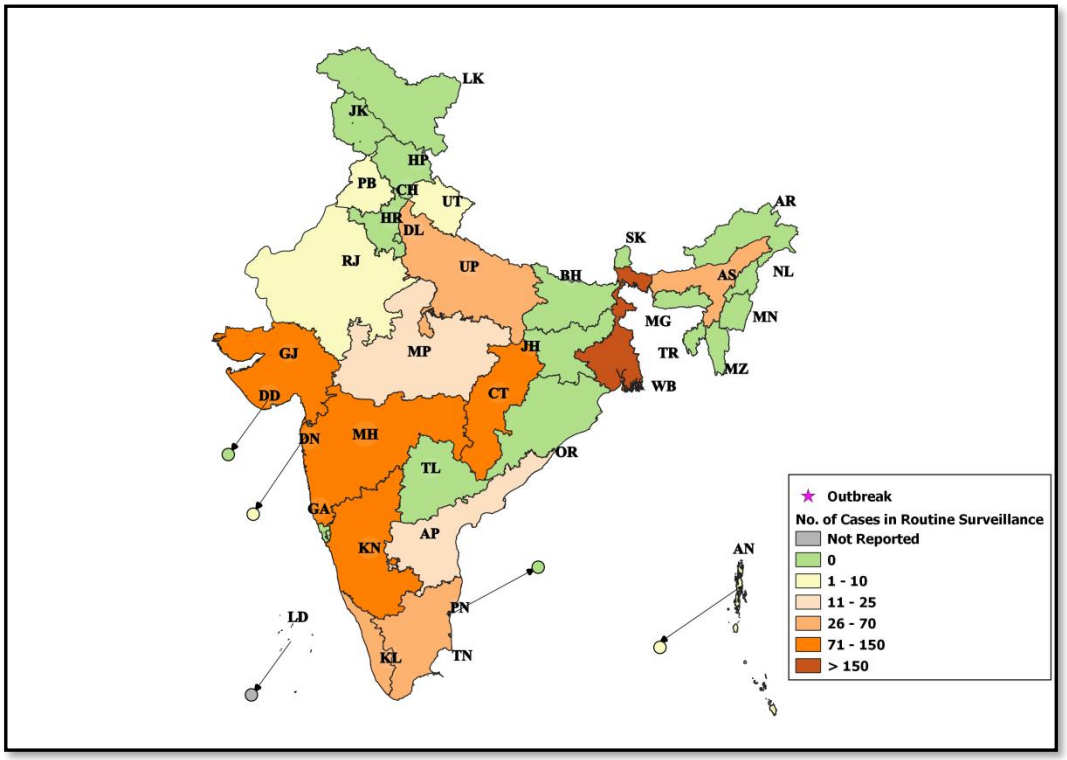


As shown in Fig. 18, number of presumptive Leptospirosis cases, as reported by States/UTs in 'P' form was 790 in March 2019; 406 in March 2020 and 1095 in March 2021. These presumptive cases are diagnosed on the basis of standard case definitions provided under IDSP.

As reported in L form, in March 2019; 6705 samples were tested for Leptospirosis, out of which 247 were found positive. In March 2020; out of 5170 samples, 120 were found to be positive and in March 2021, out of 9316 samples, 221 were found to be positive.

Sample positivity of samples tested for Leptospirosis has been 1%, 4% and 2% in March month of 2019, 2020 & 2021 respectively.

2482827/2022/O/O NCDC
Vol. 6 / Issue 03 / 2021



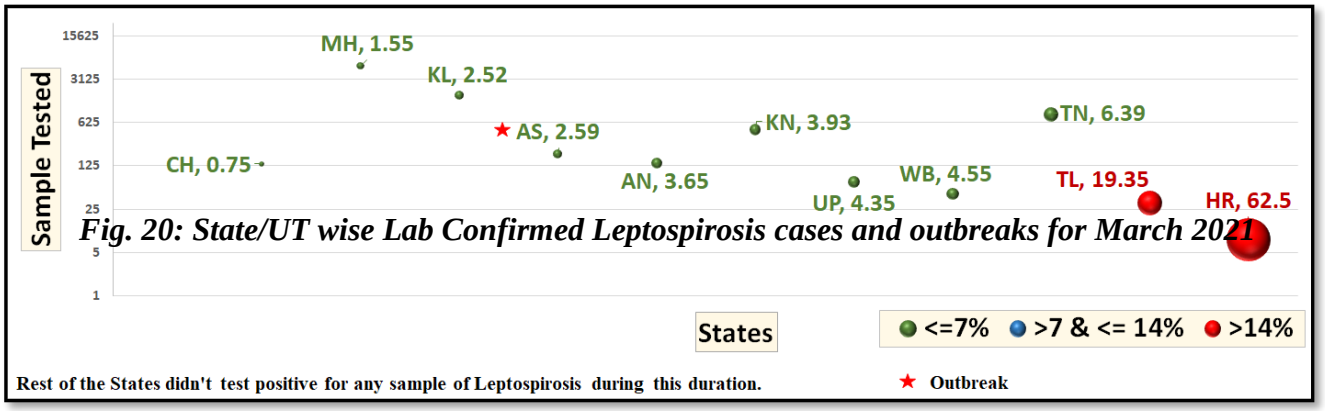
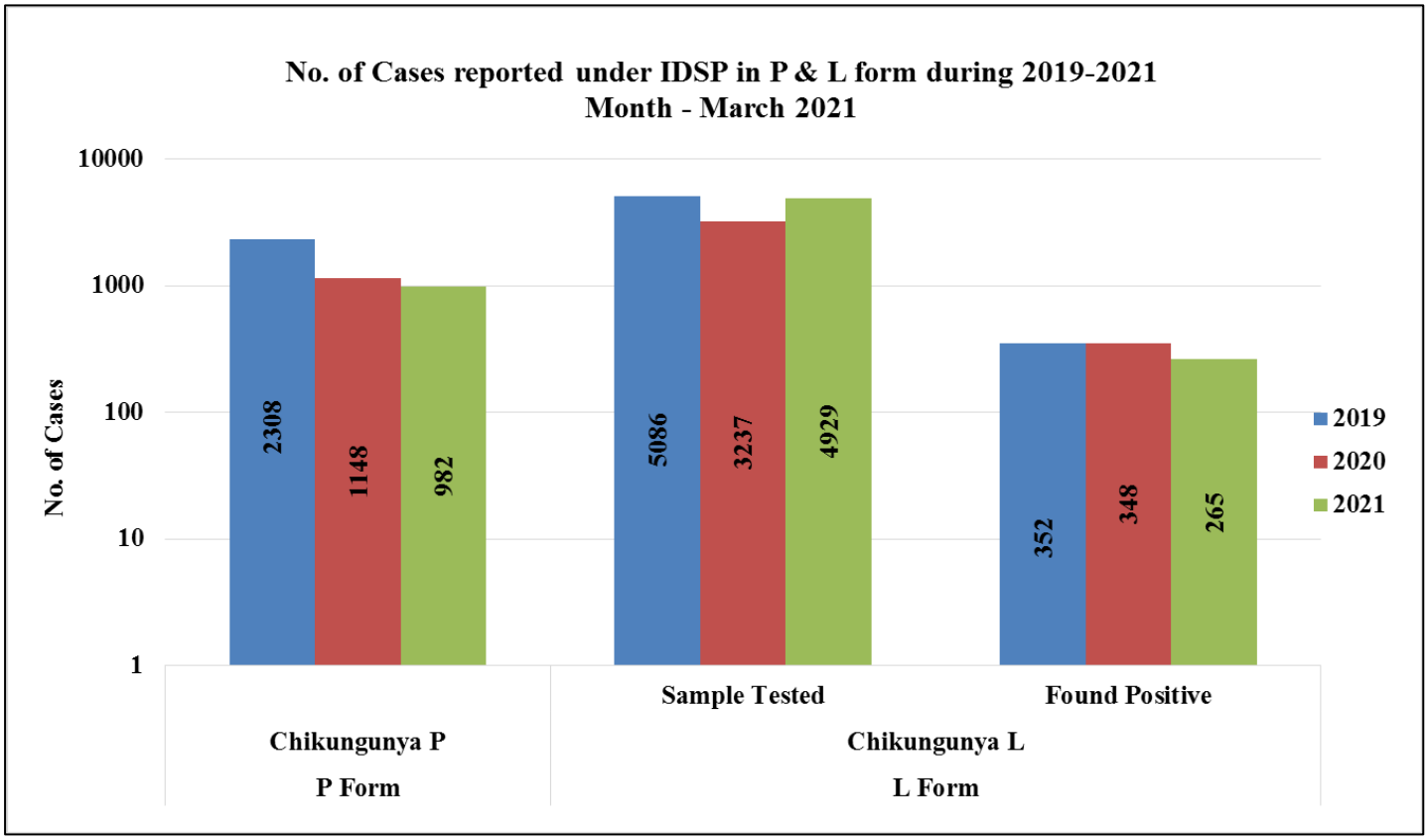


Fig. 20: State/UT wise Lab Confirmed Leptospirosis cases and outbreaks for March 2021

2482827/2022/O/O NCDC
Vol. 6 / Issue 03 / 2021

Fig. 21: No. of Chikungunya Cases reported under IDSP in P & L form during March 2019 - 2021



As shown in Fig. 21, number of presumptive Chikungunya cases, as reported by States/UTs in 'P' form was 2308 in March 2019; 1148 in March 2020 and 982 in March 2021. These presumptive cases are diagnosed on the basis of standard case definitions provided under IDSP.

As reported in L form, in March 2019; 5086 samples were tested for Chikungunya, out of which 352 were found positive. In March 2020; out of 3237 samples, 348 were found to be positive and in March 2021, out of 4929 samples, 265 were found to be positive.

Sample positivity of samples tested for Chikungunya has been 7%, 11% and 5% in March month of 2019, 2020 & 2021 respectively.

2482827/2022/O/O NCDC
Vol. 6 / Issue 03 / 2021

Fig. 22: State/UT wise Presumptive Chikungunya cases and outbreaks for March 2021

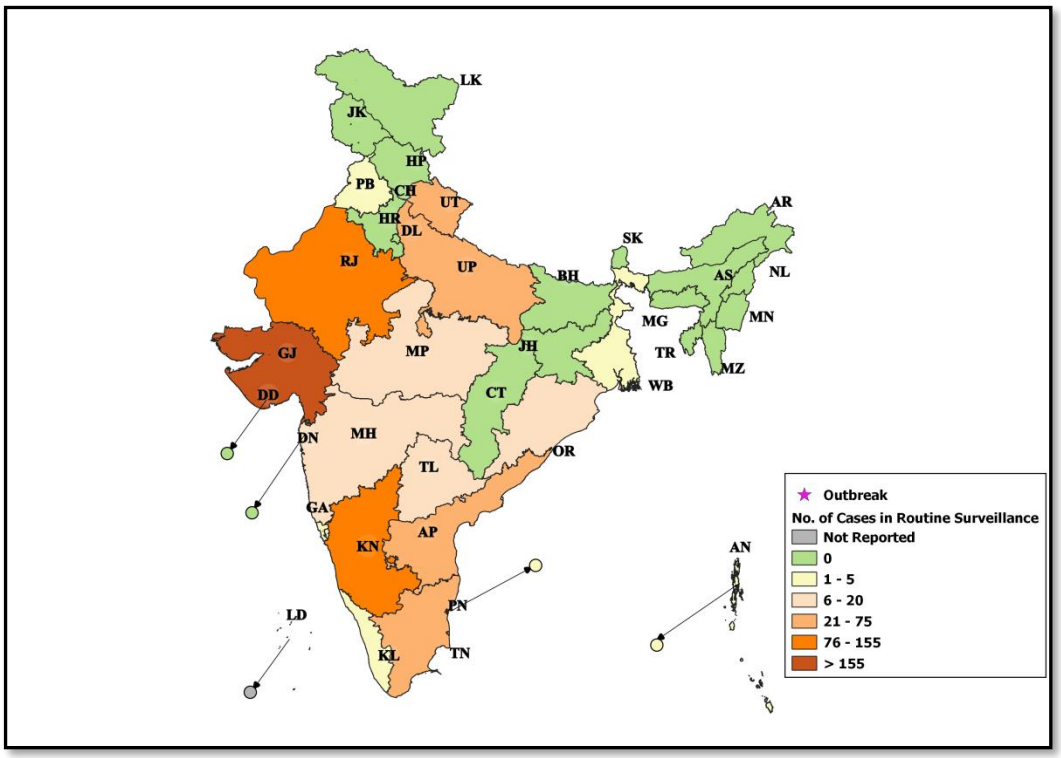


Fig. 23: State/UT wise Lab Confirmed Chikungunya cases and outbreaks for March 2021

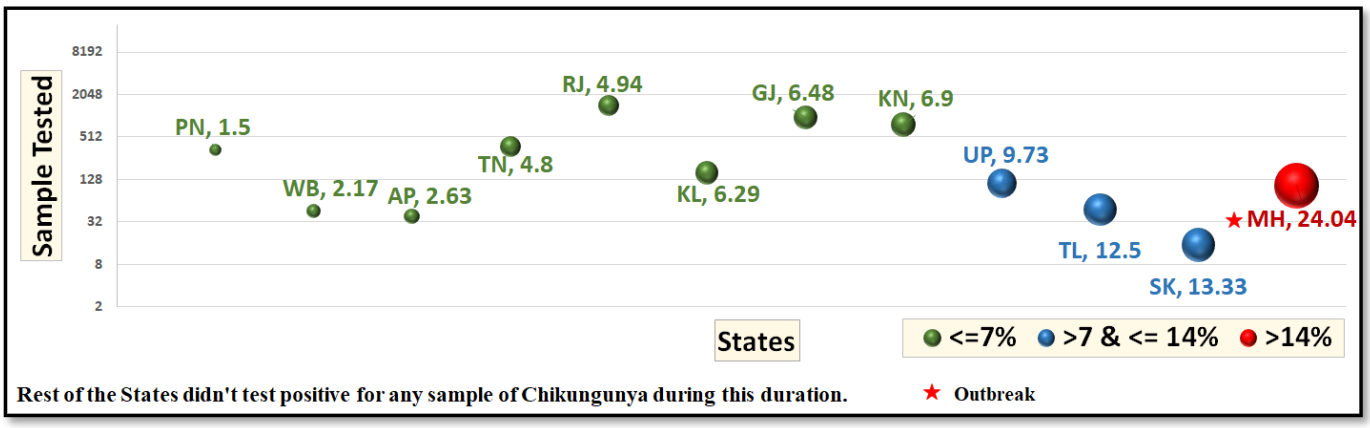
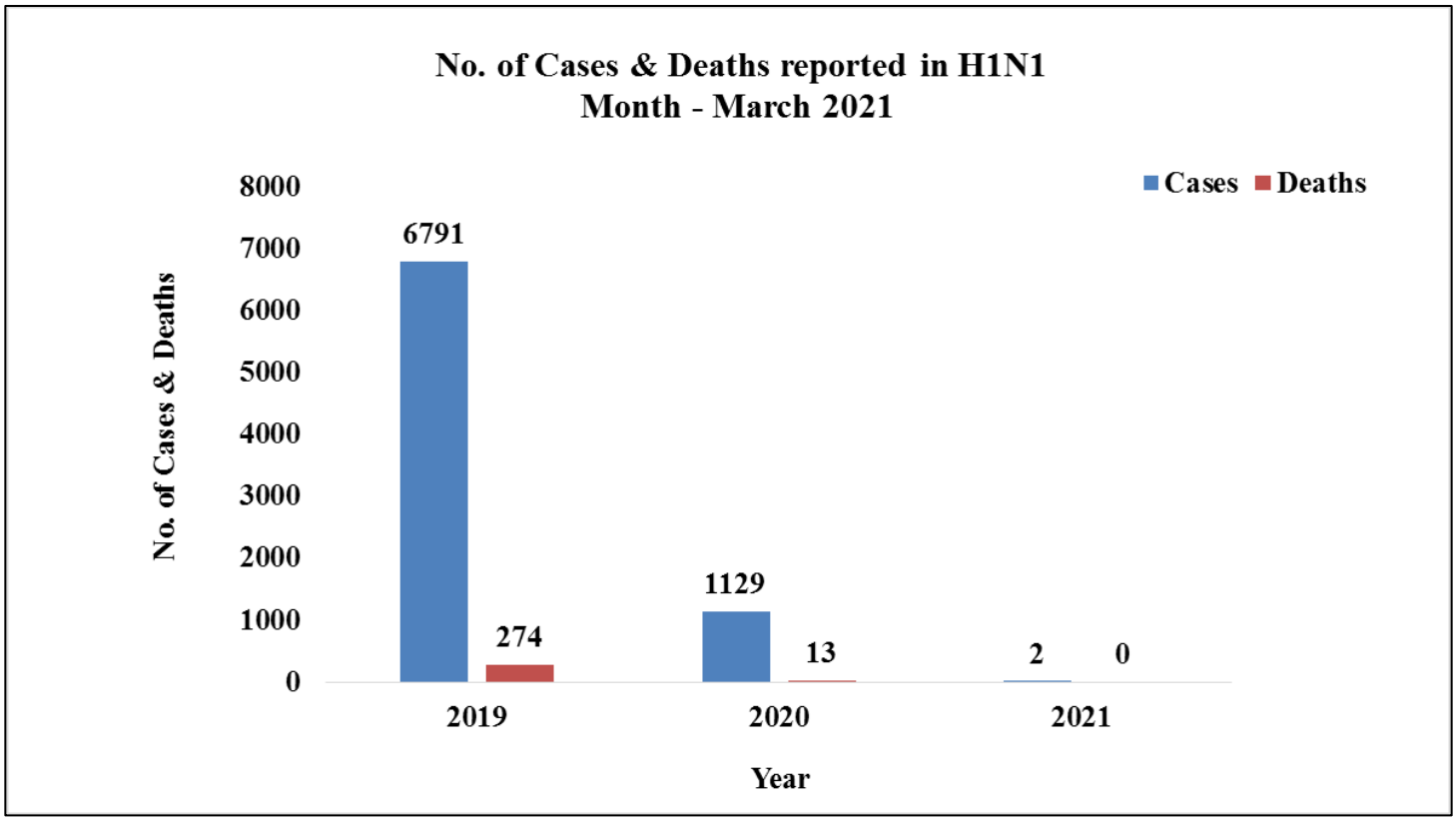


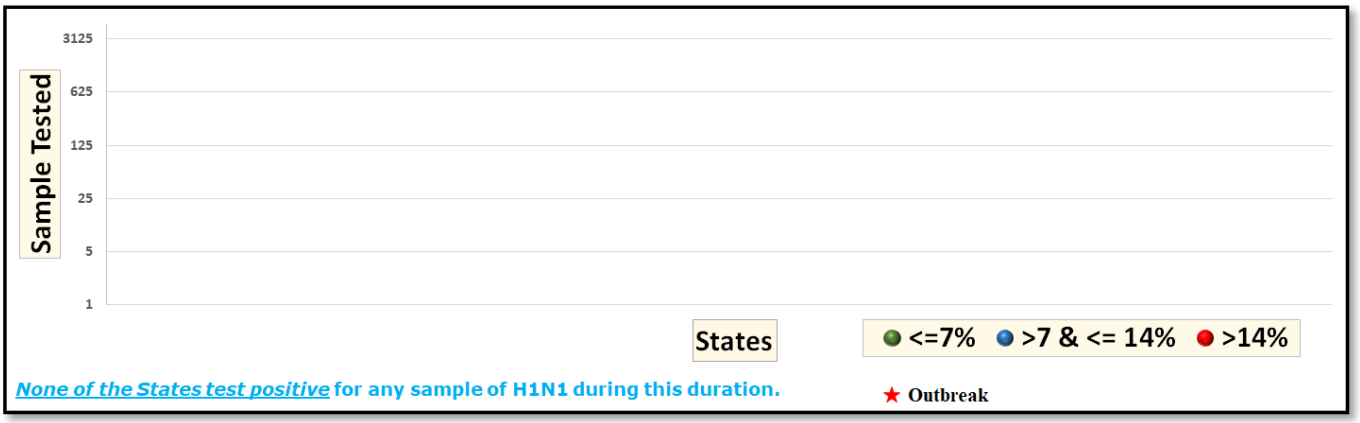
Fig. 24: H1N1 cases reported under IDSP in L Form during 2019-2021 in March 2021



As shown in Fig. 24, as reported in L form, in March 2019, there were 6791 cases and 274 deaths. In March 2020, there were 1129 cases and 13 deaths; and in March 2021, there were 2 cases and 0 deaths.

Case fatality rate for H1N1 were 4%, 1.15% and 0.00% in March month of 2018, 2019 & 2020 respectively.

Fig. 25: State/UT wise H1N1 cases and outbreaks for March 2021



Action From The Field

Glossary:

- **P form:** Presumptive cases form, in which cases are diagnosed and reported based on typical history and clinical examination by Medical Officers.
- **Reporting units under P form:** Additional PHC/ New PHC, CHC/ Rural Hospitals, Infectious Disease Hospital (IDH), Govt. Hospital / Medical College*, Private Health Centre/ Private Practitioners, Private Hospitals*
- **L form:** Lab confirmed form, in which clinical diagnosis is confirmed by an appropriate laboratory tests.
- **Reporting units under L form:** Private Labs, Government Laboratories, Private Hospitals(Lab.), CHC/Rural Hospitals(Lab.),
- HC/ Additional PHC/ New PHC(Lab.), Infectious Disease Hospital (IDH)(Lab.), Govt. Hospital/Medical College(Lab.), Private Health Centre/ Private Practitioners(Lab.)
- **Completeness %:** Completeness of reporting sites refers to the proportion of reporting sites that submitted the surveillance report (P & L Form) irrespective of the time when the report was submitted.

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Data shown in this bulletin are provisional, based on weekly reports to IDSP by State Surveillance Unit. Inquiries, comments and feedback regarding the IDSP Surveillance Report, including material to be considered for publication, should be directed to: Director, NCDC 22, Sham Nath Marg, Delhi 110054. Email: dirnicd@nic.in & idsp-npo@nic.in

Prepared by: Central Surveillance Unit, IDSP under guidance of Director, NCDC