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Disease Alert

प्रकोप चेतावनी

Monthly Surveillance Report

From

Integrated Disease Surveillance Programme

National Health Mission

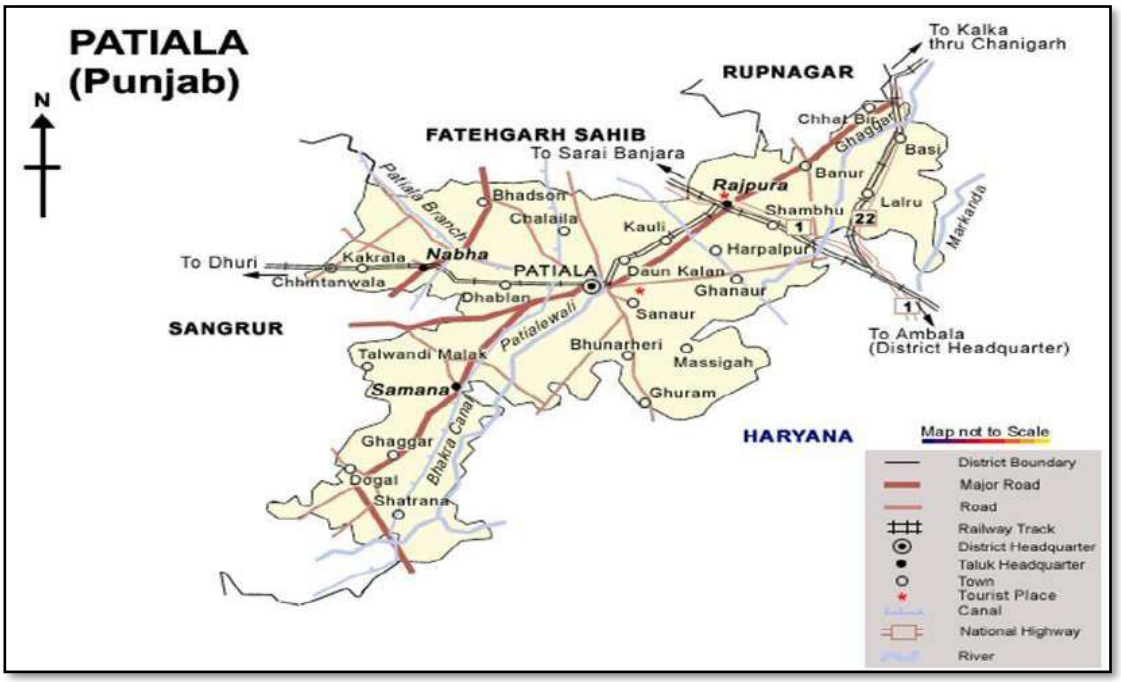
In This Issue:

ACUTE DIARRHOEAL DISEASE OUTBREAK INVESTIGATION, URBAN PATIALA BLOCK (Urban), PATIALA DISTRICT, PUNJAB

BACKGROUND

Patiala had population of 1,895,686 of which male and female were 1,002,522 and 893,164 respectively. Sex ratio is 891. Average literacy rate is 75.3%. The district is spread over 3,325 sq.km (figures as per the reports released by Census of India [2011]).

Figure 1: Location of Patiala district



Diarrhea is a leading cause of illness and death among children in developing countries. About 80% of deaths due to diarrhea occur in the first two years of life. The main cause of death from acute diarrhea is dehydration, which results from the loss of fluid and electrolytes in diarrheal stools.

Diarrhea is defined as the passage of three or more loose or watery stools in a 24-hour period, a

loose stool being one that would take the shape of a container. The most important causes of acute watery diarrhea in India are Rotavirus, *Enterotoxigenic E. Coli, and Shigella*. The infectious agents that cause diarrhea are usually spread by the feco-oral route, which includes the ingestion of fecal contaminated water or food.

DETAILS OF INVESTIGATION:

- Municipal Councilor of Patiala (Urban) informed Civil Surgeon, Patiala on 5th Aug' 22 evening that 7-8 cases of loose stools/vomiting were admitted from New Mahindra colony in different hospitals of Patiala City.
- Rapid Response Team (RRT) supervised by Civil Surgeon, District Epidemiologist (IDSP) and SMO Model town rushed to site. Chlorine pellets and ORS/Zinc was distributed immediately.
- Medical Camp was established in a dharamshala in affected area round the clock for managing diarrhea cases.

Figure 2: Medical camps organized by RRT team

- Immediately house-to-house survey was started by UPHC teams. During house-to-house visits residents were advised to use boil or tanker water or chlorinated water for drinking / cooking purpose and to maintain hand hygiene before eating anything. It was observed that most of the residents were labourers/daily wagers
- House to house teams included Medical Ofiicer, ANMs and ASHAs. IEC activities along with Chlorine pellets/ORS distribution by teams in affected area.

- Announcements regarding prevention in area done by health and Municipal Corporation teams.
- Immediately alternate water supply through tankers was arranged by Joint Commissioner, MCP.
- It was observed that in this area, most of the water & sewerage connections were illegal. MCP teams found two loose connections in area, could be reason for mixing of water.
- State Microbiologist, IDSP also assessed the condition of admitted patients and assesss requirements for sampling.

Figure 3: House to house survey conducted by RRT team

LABORATORY INVESTIGATION:

RRT team took following samples for the confirmation of an outbreak:

1) Stool samples - Sent for pyrogenic growth.
2) Water samples - Sent for bacterial/chemical examination.
3) Blood samples - For Hepatitis A & E examination.

RESULTS:

It was confirmed from the stool culture result obtained from IDSP Lab, MKH that this Acute Diarrhea outbreak was primarily due to the *E.Coli* with mixed Growth of flora.

S. No	Sample	Lab. Name	No. of samples	Results
1	Stool samples	IDSP Lab, MKH Patiala	6	All found *E.Coli* positive with mixed Growth of flora.
2	Water samples	State Public Health Lab., (SPHL), Kharar	7	Out of 7 samples, 6 samples failed with Bacterial/Chemical contamination.
3	Blood Samples	Department of Microbiology, GMC Patiala	3	All 3 samples were negative for Hepatitis A & E.

DESCRIPTIVE EPIDEMIOLOGY:

Clinical case definition: Acute Watery diarrhea (passage of 3 or more loose or watery stools in the Past 24 hours) with or without dehydration.

A) Person wise analysis:

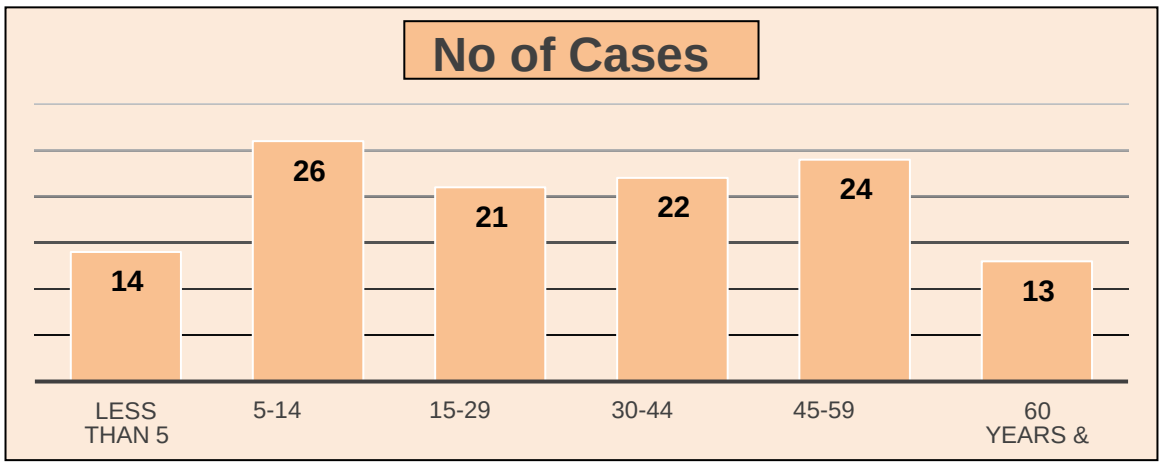


Figure 4: Person-wise breakup of the cases

B) Gender wise analysis: There were 46 Male and 74 Females among affected.

C) Time wise analysis:

Outbreak started on 05/08/2022 (Maximum No. of cases were reported on 06/08/2022), after that there was a fall in the number of cases gradually.

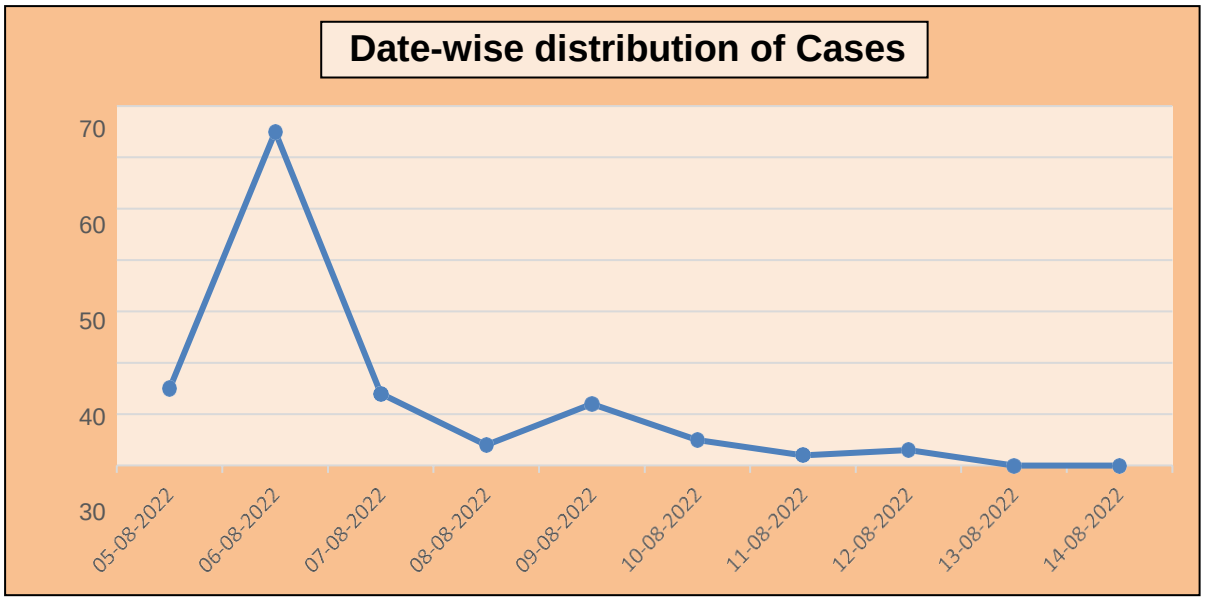


Figure 5: Date wise breakup of the cases

D) Place Wise Analysis:

It was observed that most of the residents in area were labourers/Daily wagers. Very few residents have legal sewerage and water connections

Figure 6: Spot Map of New Mahindra Colony, Patiala (Outbreak Site)

CONTROL MEASURES TAKEN:

1. Survey: House to house active survey was started and line listing of all the cases was prepared and free treatment was provided to all the patients who were suffering with the mild symptoms of diarrhea.
2. Medical Camp: Established in area for managing diarrhea cases and free medicines and ORS packets was given to the affected patients. Ambulance was stationed 24 hours in area for timely referral of moderate cases.
3. Alternate Water: Supplied through water tankers to the affected locality by Municipal Corporation, Patiala.
4. Rapid Water testing kit: Used for testing of drinking water contamination and water was found non potable. On the spot test for residual chlorine in water was also performed by Water Supply Department team and found very low dose at source was being added.
5. Cleaning of sewerage pipelines by suction machines in area was done by MCP.
6. To prevent from vector borne diseases, larvicidal spray was done on stagnant water in the area.
7. Chlorine pellets were distributed by the health workers in the affected locality.
8. IEC activities: Done for sanitation and hygiene through small group meetings.
9. Nearby private hospitals/practitioners were sensitized about the disease outbreak and instruct them to report cases to health department teams.
10. We were regularly updating situation to Respected Deputy Commissioner, Patiala and Commissioner Municipal Corporation, Patiala about the diarrhea cases in the affected area.

Figure 7: Water collection and testing done by the team

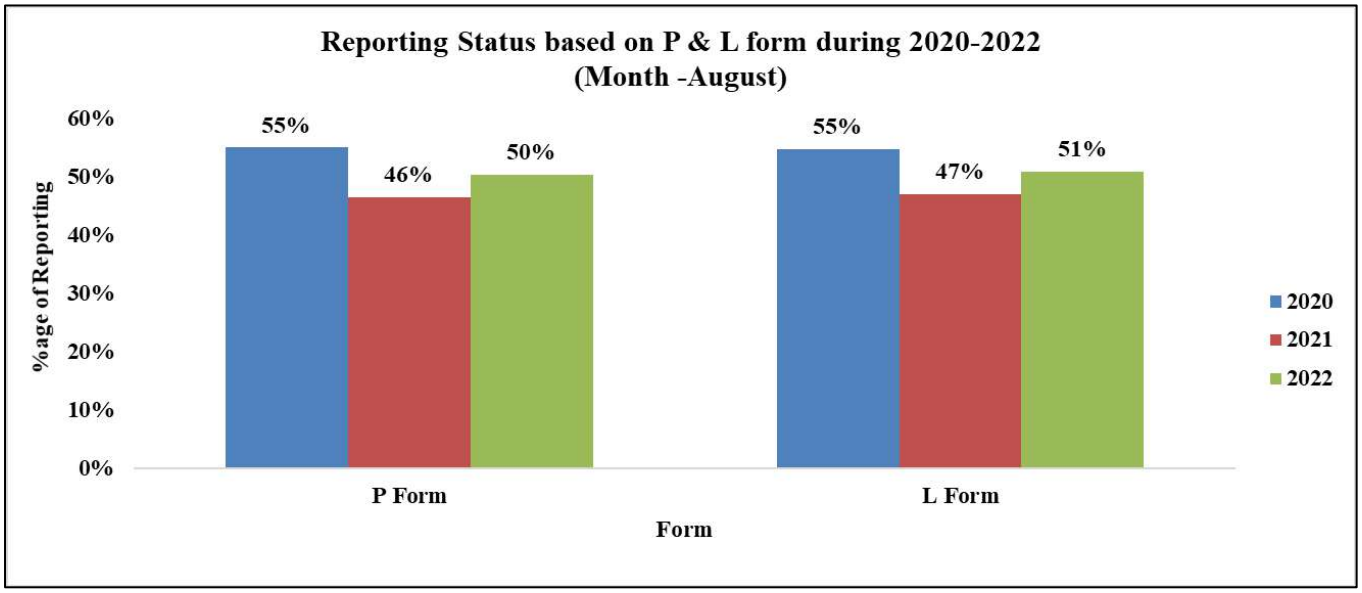
CONCLUSION: The main cause behind the disease outbreak was mixing of Drain water with the drinking water. It was due to unauthorized water and sewerage connections. Second cause was lack of chlorination due to improper working of Chlorinator/Doser at source of water supply to area.

RECOMMENDATIONS:

1. Usage of oral rehydration therapy (ORT) - ORT is as effective as intravenous therapy in rehydrating and replacing electrolytes in children with some dehydration and should be the therapy of choice.
2. Intake of appropriate fluids to prevent or treat dehydration, a nutritious diet that does not cause diarrhea to worsen, supplementary vitamins and minerals, including zinc for 10-14 days and antimicrobial to treat diagnosed infections.
3. All severely malnourished children should receive broad spectrum antibiotics for infections.
4. Drinking water should be clean and stored in clean containers. Boiling water is preferred for drinking.
5. All family members should wash their hands thoroughly after defecation, after cleaning a child who has defecated, after disposing of a child's stool, before preparing food and before eating. Good hand washing requires use of soap or local substitute such as ashes or soil.
6. Raw food should not be eaten except fruits and vegetables that are peeled and eaten immediately. Eat food while it is still hot or reheat it thoroughly before eating and food should be protected from flies by means of fly screens.
7. Proper disposal of feces in a designated area helps prevent spread of diarrheal agents.
8. All infants should be immunized against measles at recommended age.
9. Health education must stress the importance of eating cooked, hot food and of proper safe and hygienic individual food handling techniques.
10. Programs to treat water at the household or community level with chlorine or other effective systems, hand washing with soap, and safe disposal of fecal waste should be developed and/or expanded.
11. Safe drinking water supplies should continue to be delivered and fecal waste should be collected and safely disposed of in areas of high population density.

Surveillance data of Enteric Fever, Acute Diarrhoeal Disease, Viral Hepatitis A & E, Cholera, Dengue, Chikungunya, Leptospirosis and Seasonal Influenza A (H1N1) During August 2020 - 2022*

Fig. 8: RU-wise reporting based on P & L forms during August 2022



As shown in Fig. 8, in August 2020, 2021 and 2022, the 'P' form reporting percentage (i.e. % RU reporting out of total in P form) was 55%, 46% and 50% respectively across India, for all disease conditions reported under IDSP in P form. Similarly, L form reporting percentage was 55%, 47% and 51% 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 slightly increased in August 2022 compared to the same month in previous years for both P and L forms, thereby increasing the quality of surveillance data.

Fig. 9: State/UT wise P form completeness % for August 2022

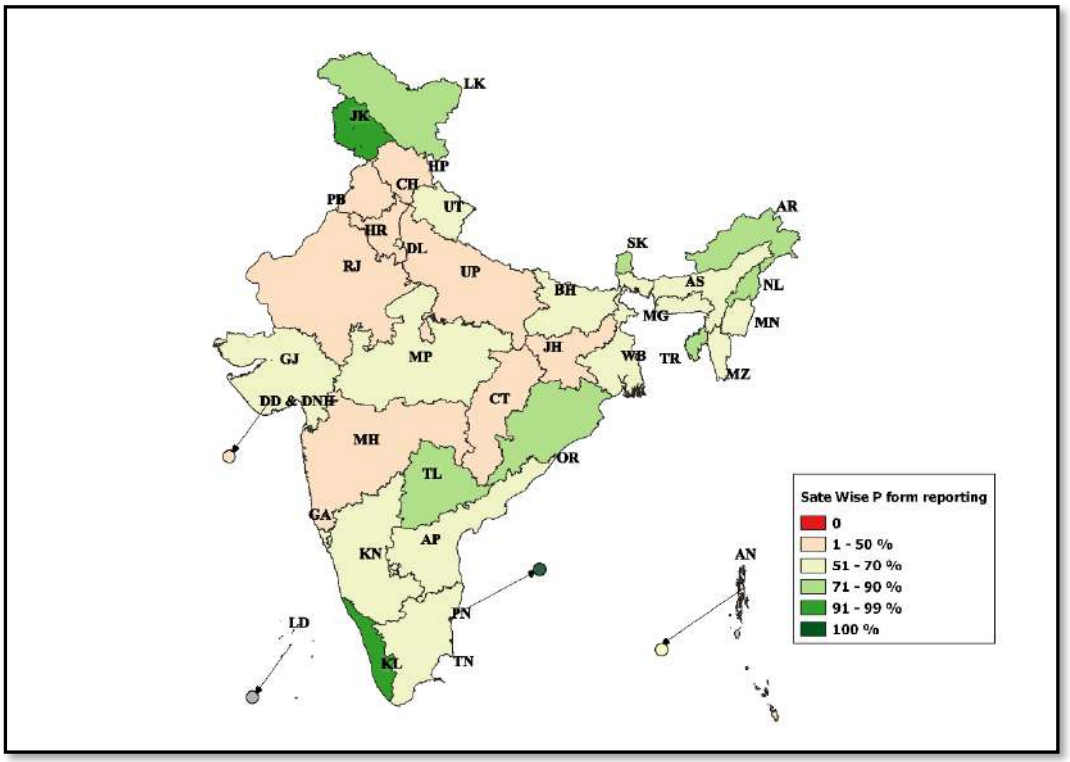


Fig. 10: State/UT wise L form completeness % for August 2022

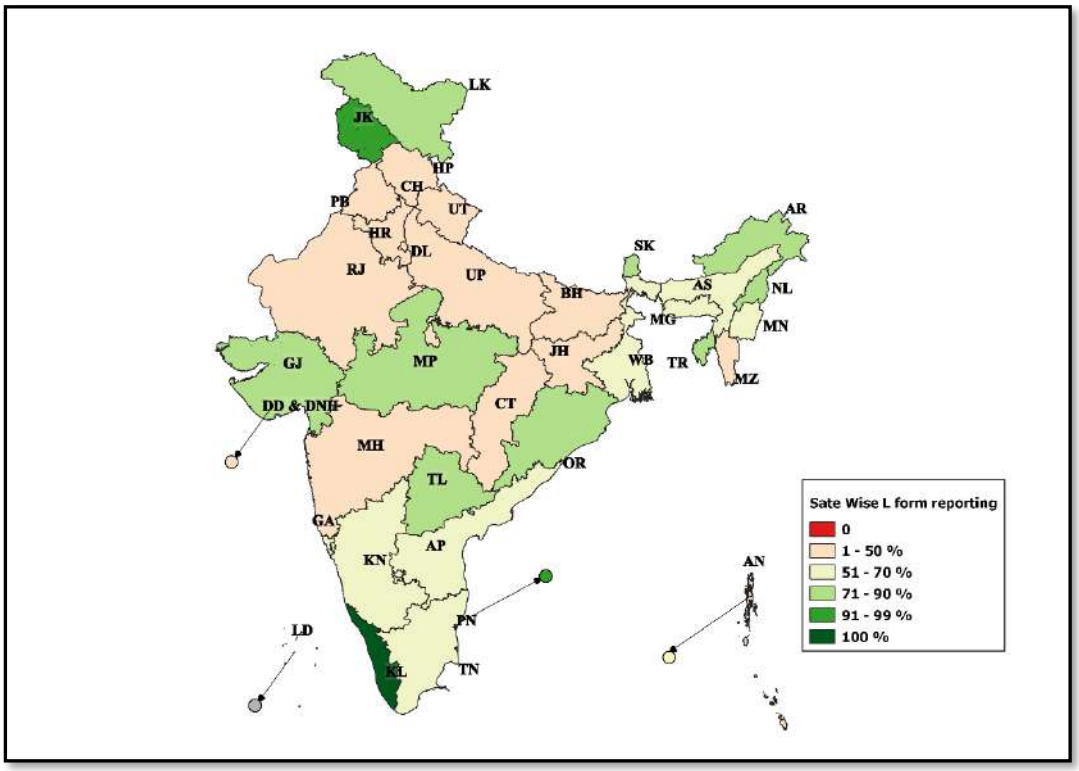
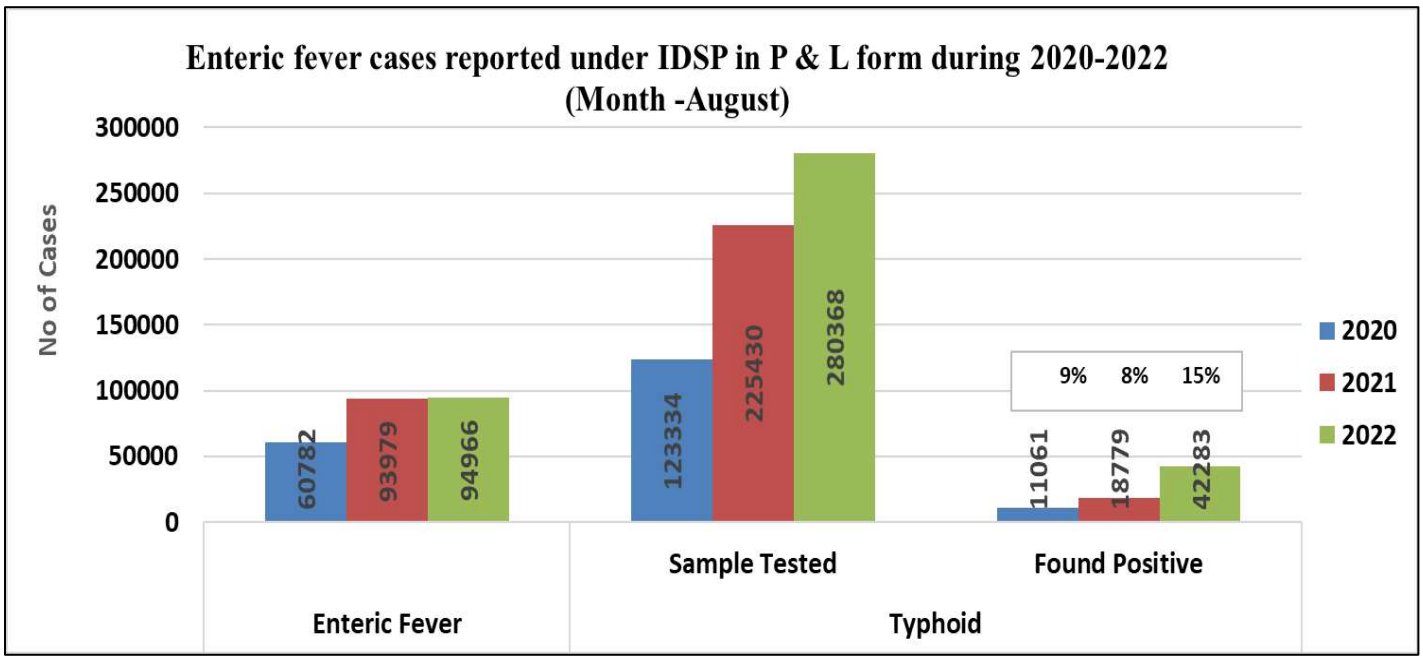


Fig. 11: No. of Enteric Fever Cases reported under P & L form during August 2020 - 2022



As shown in Fig. 11, number of presumptive enteric fever cases, as reported by States/UTs in 'P' form was 2020; 93979 in *August* 2021 and 94966 in August 2022. These presumptive cases are diagnosed on the basis of standard case definitions provided under IDSP.

As reported in L form, in *August* 2020; 123334 samples were tested for Typhoid, out of which 11061 were found positive. In *August* 2021; out of 225430 samples, 18779 were found to be positive and in *August* 2022, out of 280368 samples, 42283 were found to be positive.

Sample positivity has been 8.97%, 8.33% and 15.08% in August month of 2020, 2021 & 2022 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.

Fig. 12: State/UT wise Presumptive Enteric fever cases & outbreaks for August 2022

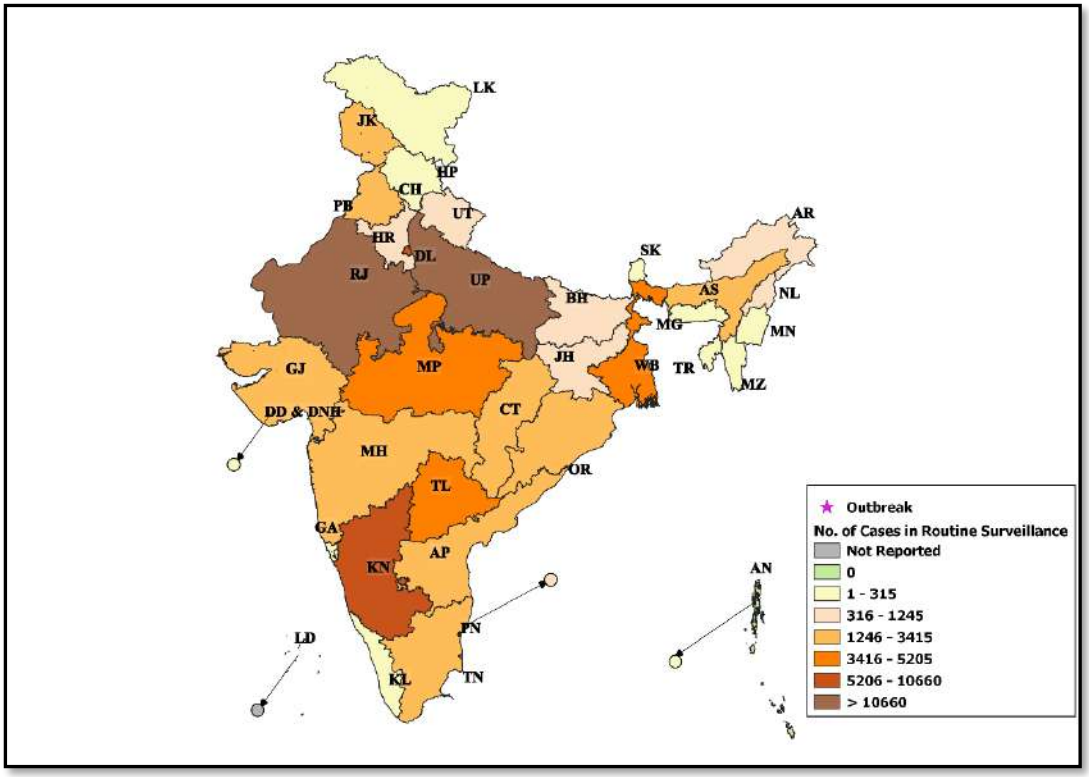


Fig.13: State/UT wise Lab Confirmed Typhoid cases and outbreaks for August 2022

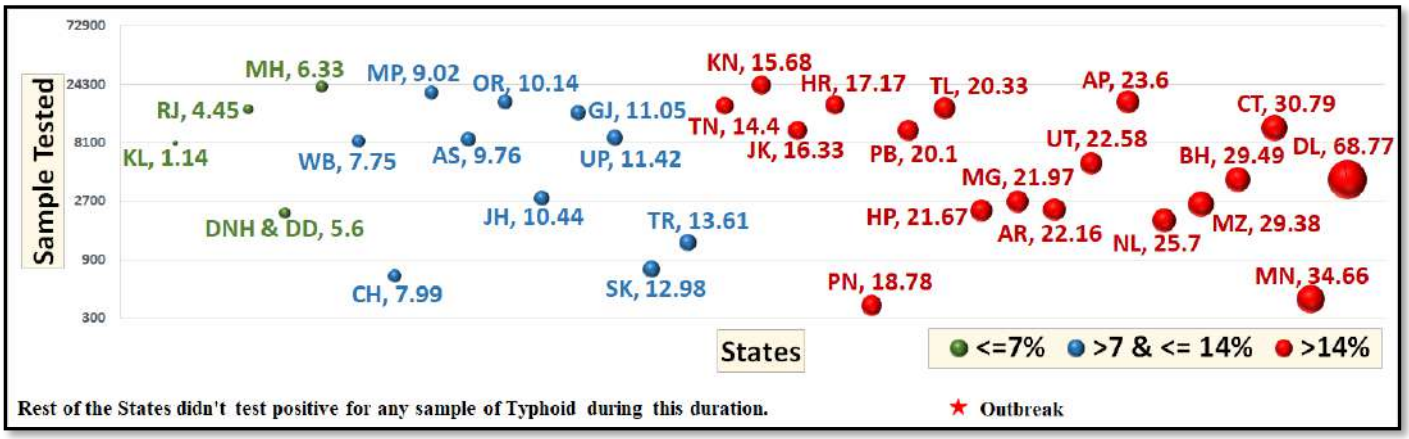
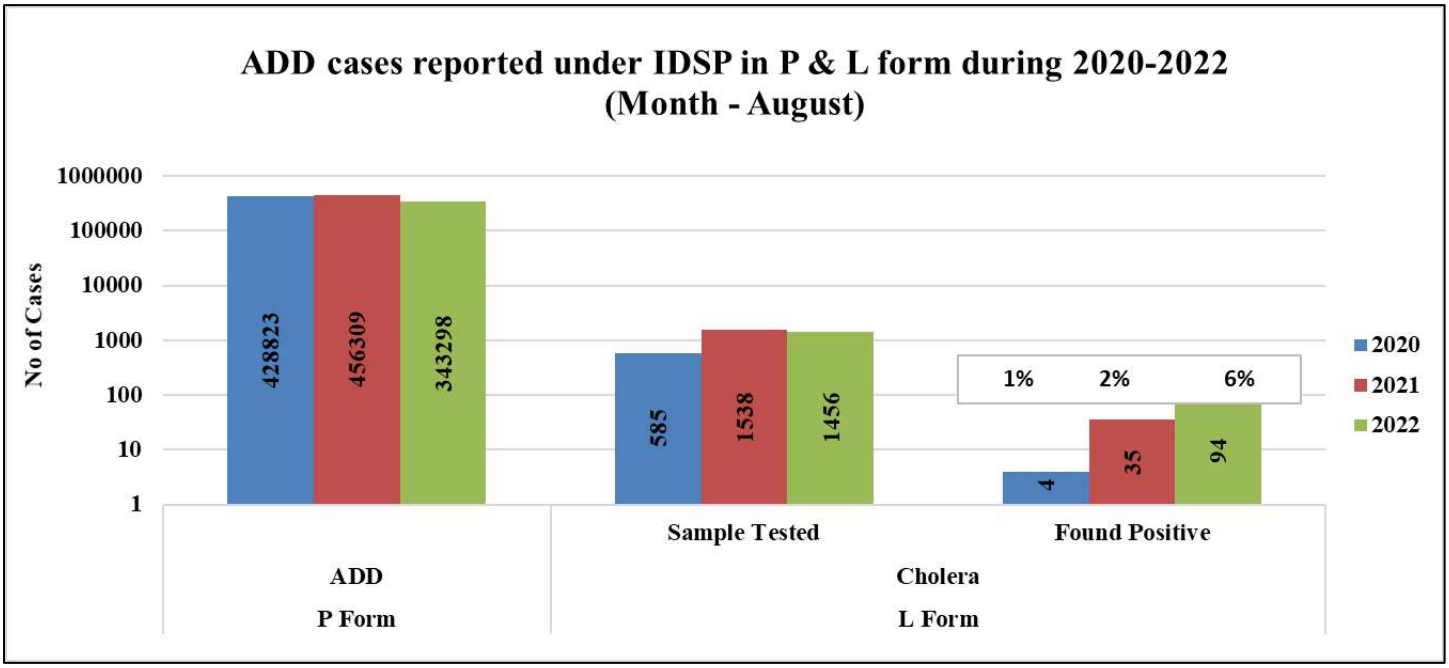


Fig. 14: No. of ADD Cases reported under IDSP in P Form & Lab confirmed Cholera cases in L form during August 2020 - 2022



As shown in Fig. 14, number of Acute Diarrhoeal Disease cases, as reported by States/UTs in 'P' form was was 428823 in *August* 2020, 456309 in *August* 2021 and 343298 in *August* 2022. These presumptive cases are diagnosed on the basis of standard case definitions provided under IDSP.

As reported in L form, in *August* 2020, 585 samples were tested for Cholera out of which 4 tested positive; in *August* 2021, out of 1538 samples, 35 tested positive for Cholera and in *August* 2022, out of 1456 samples, 94 tested positive.

Sample positivity of samples tested for Cholera has been 1%, 2% and 6% in August month of 2020, 2021 & 2022 respectively.

Fig. 15: State/UT wise Presumptive ADD cases and outbreaks for August 2022

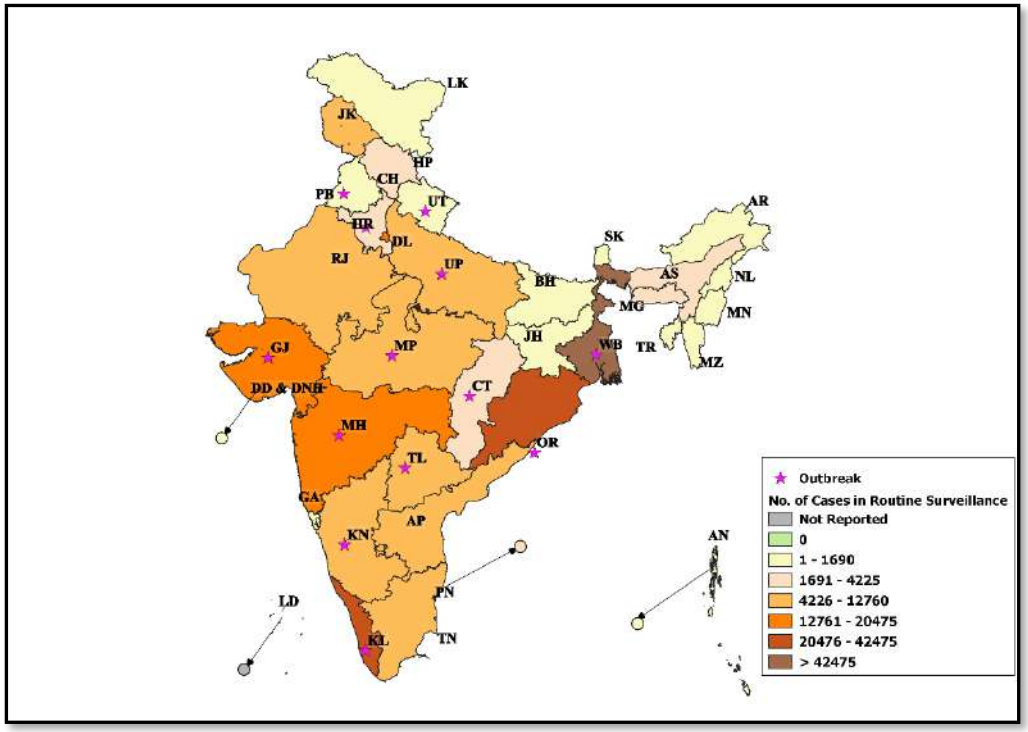


Fig. 16: State/UT wise Lab Confirmed Cholera cases and outbreaks for August 2022

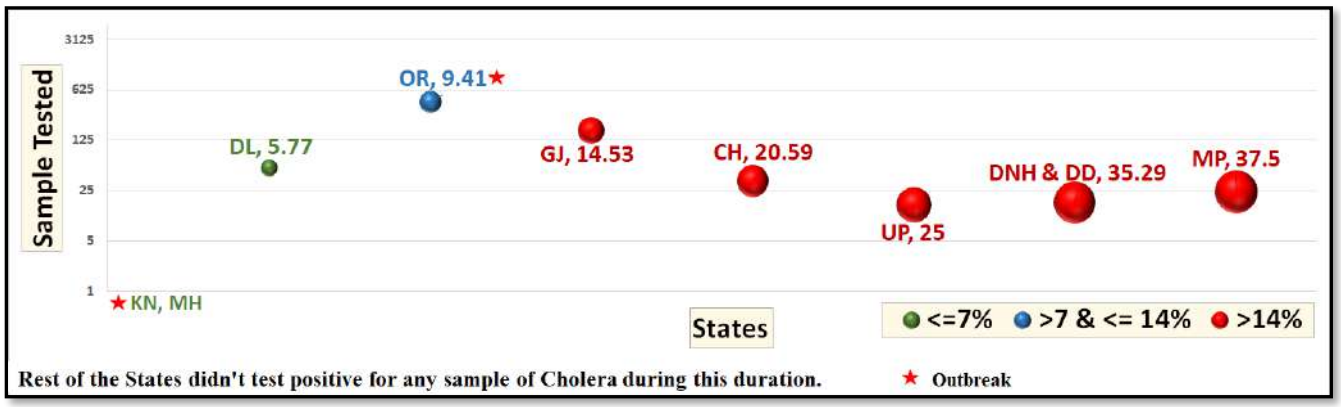
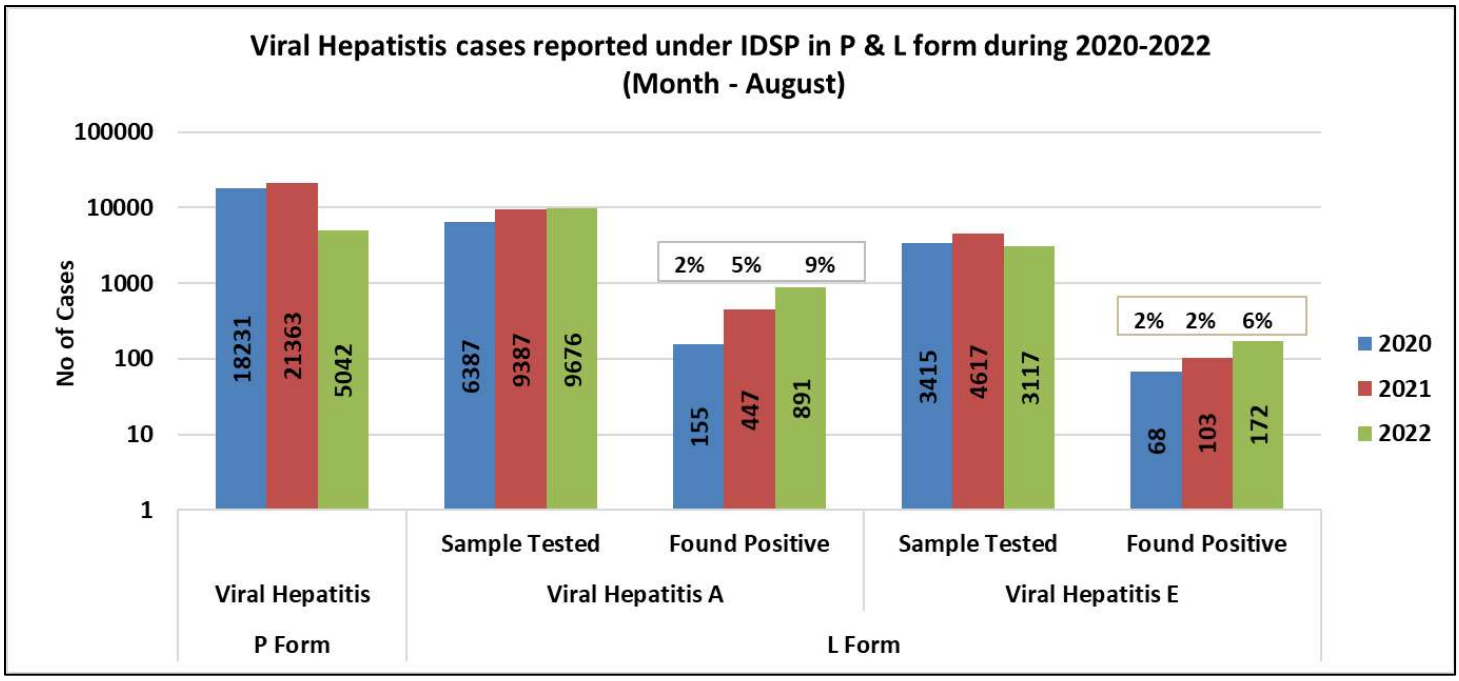


Fig. 17: No. of Viral Hepatitis Cases reported under IDSP in P form & Viral Hepatitis A & E cases reported under L form during August 2020 - 2022



As shown in Fig. 17, the number of presumptive Viral Hepatitis cases was 18231 in *August* 2020, 21363 in *August* 2021 and 5042 in *August* 2022. These presumptive cases were diagnosed on the basis of case definitions provided under IDSP.

As reported in L form for Viral Hepatitis A, in *August* 2020; 6387 samples were tested out of which 155 were found positive. In *August* 2021 out of 9387 samples, 447 were found to be positive and in *August* 2022, out of 9676 samples, 891 were found to be positive.

Sample positivity of samples tested for Hepatitis A has been 2.43%, 4.76% and 9.21% in *August* month of 2020, 2021 & 2022 respectively.

As reported in L form for Viral Hepatitis E, in *August* 2020; 3415 samples were tested out of which 68 were found positive. In *August* 2021; out of 4617 samples, 103 were found to be positive and in *August* 2022, out of 3117 samples, 172 were found to be positive.

Sample positivity of samples tested for Hepatitis E has been 1.99%, 2.23% and 5.52% in August month of 2020, 2021 & 2022 respectively.

Fig. 18: State/UT wise Presumptive Viral Hepatitis cases and outbreaks for August 2022

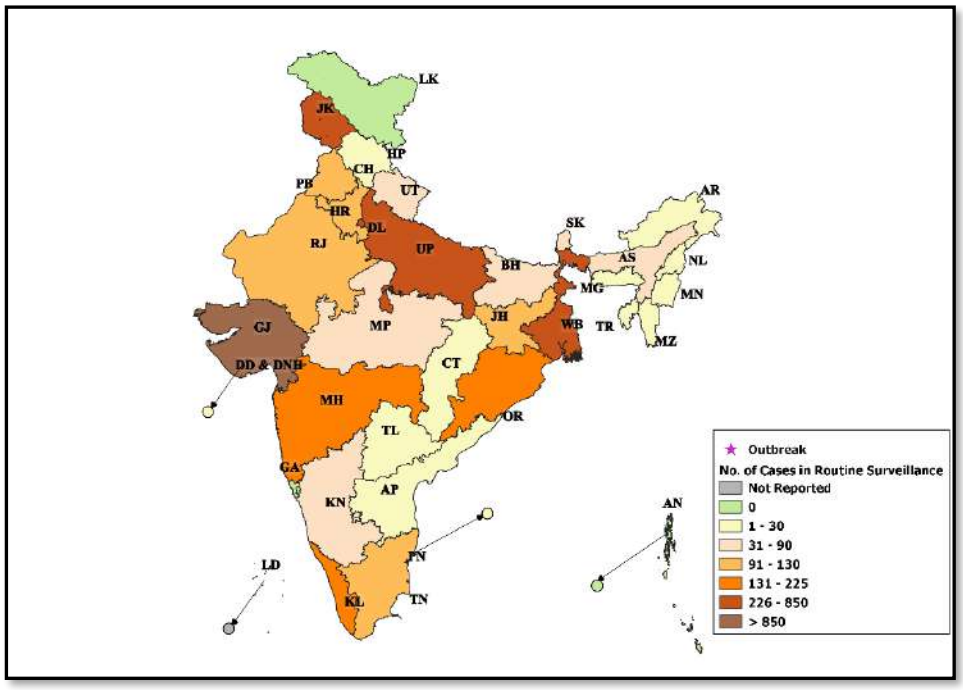


Fig. 19: State/UT wise Lab Confirmed Viral Hepatitis A cases and outbreaks for August 2022

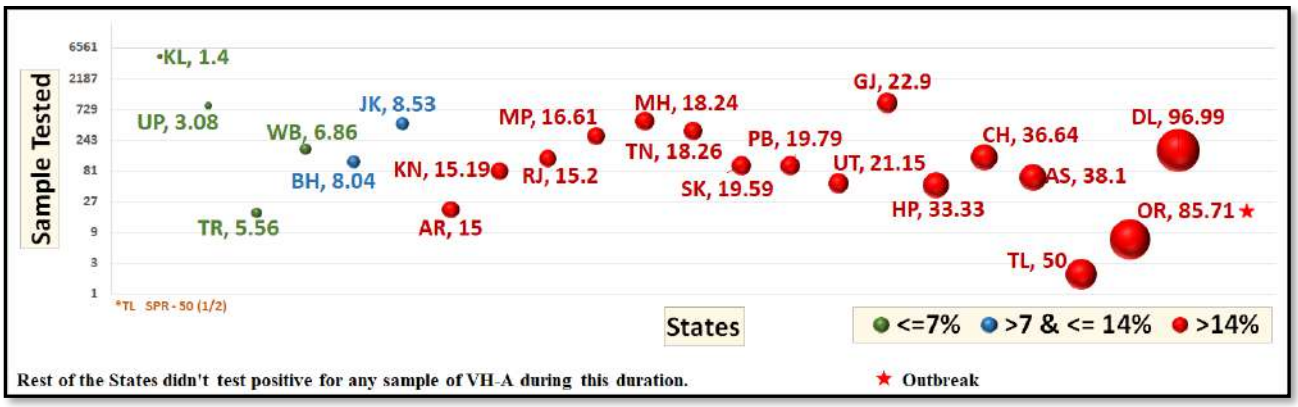


Fig. 20: State/UT wise Lab Confirmed Viral Hepatitis E cases and outbreaks for August 2022

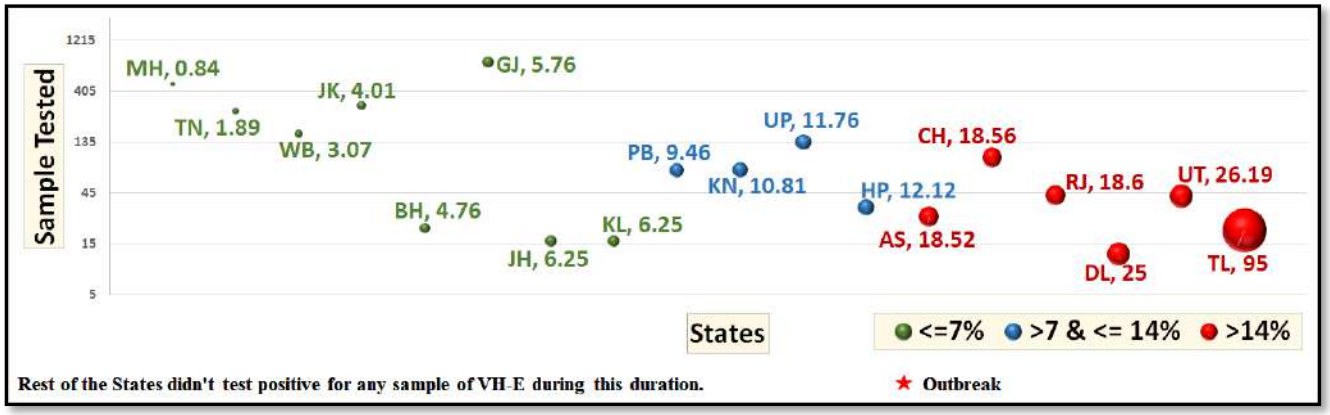
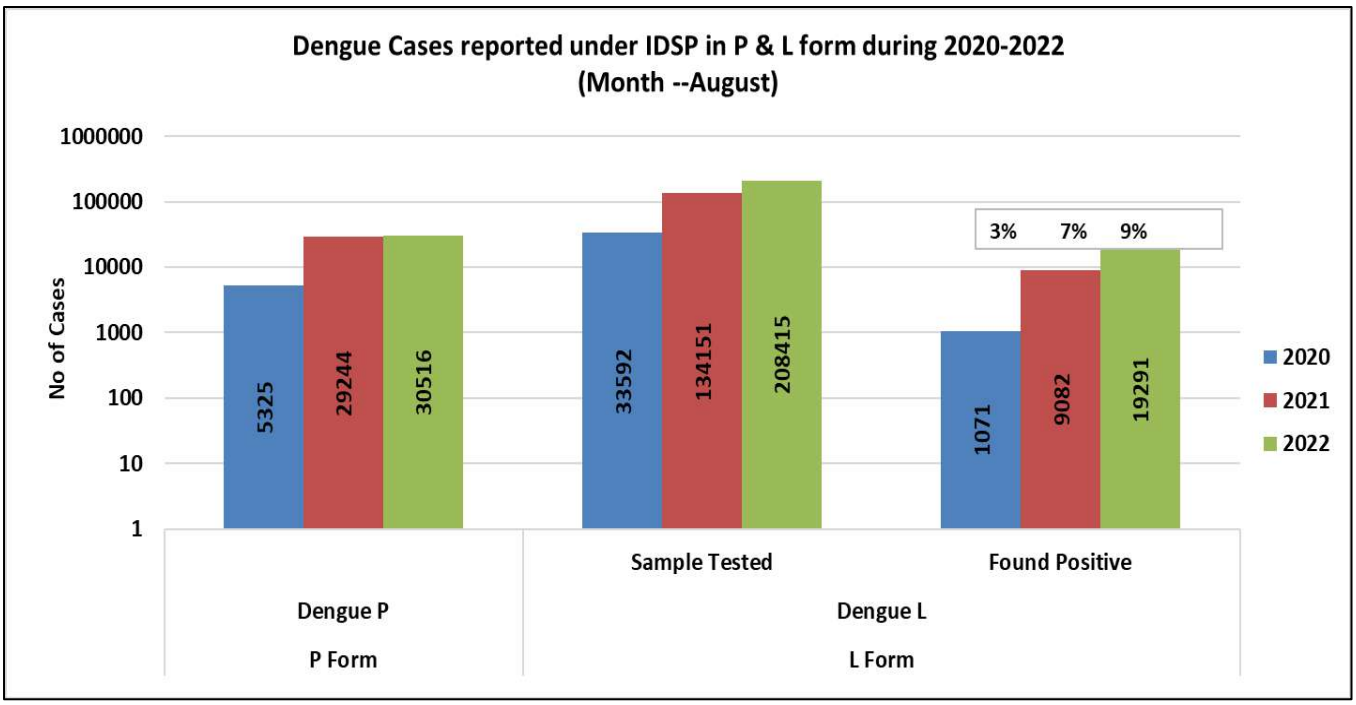


Fig. 21: No. of Dengue cases reported under IDSP in P & L form during August 2022



As shown in Fig. 21, number of presumptive Dengue cases, as reported by States/UTs in 'P' form was 5325 in *August* 2020; 29244 in *August* 2021 and 30516 in *August* 2022. These presumptive cases are diagnosed on the basis of standard case definitions provided under IDSP.

As reported in L form, in *August* 2020; 33592 samples were tested for Dengue, out of which 1071 were found positive. In *August* 2021; out of 134151 samples, 9082 were found to be positive and in *August* 2022, out of 208415 samples, 19291 were found to be positive.

Sample positivity of samples tested for Dengue has been 3.19%, 6.77% and 9.26% in August month of 2020, 2021 & 2022 respectively.

Fig. 22: State/UT wise Presumptive Dengue cases and outbreaks for August 2022

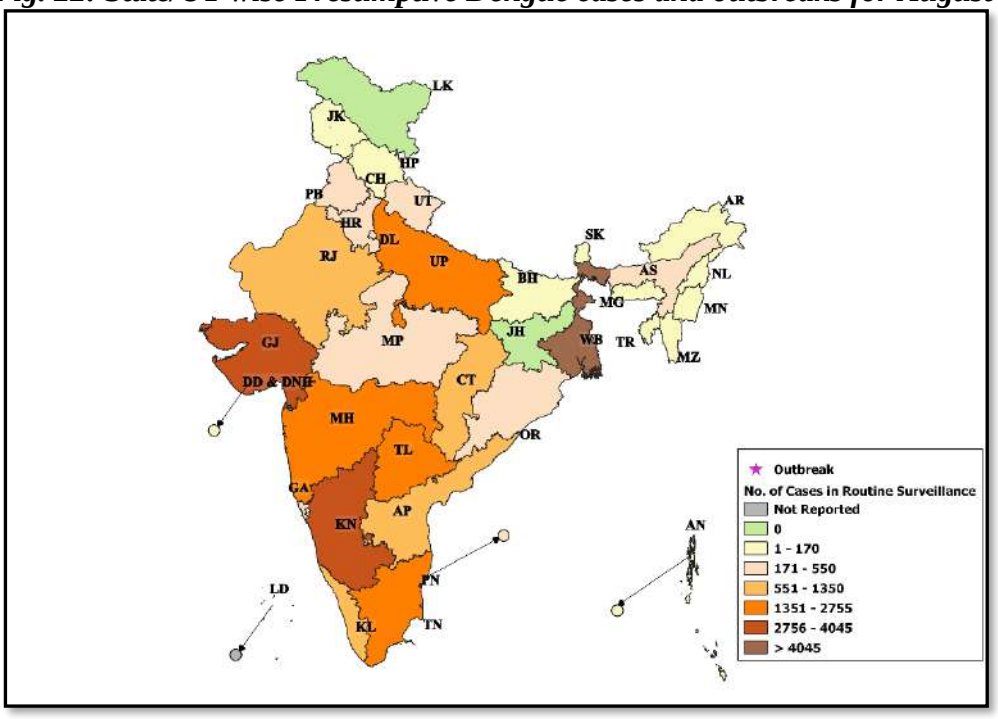


Fig. 23: State/UT wise Lab Confirmed Dengue cases and outbreaks for August 2022

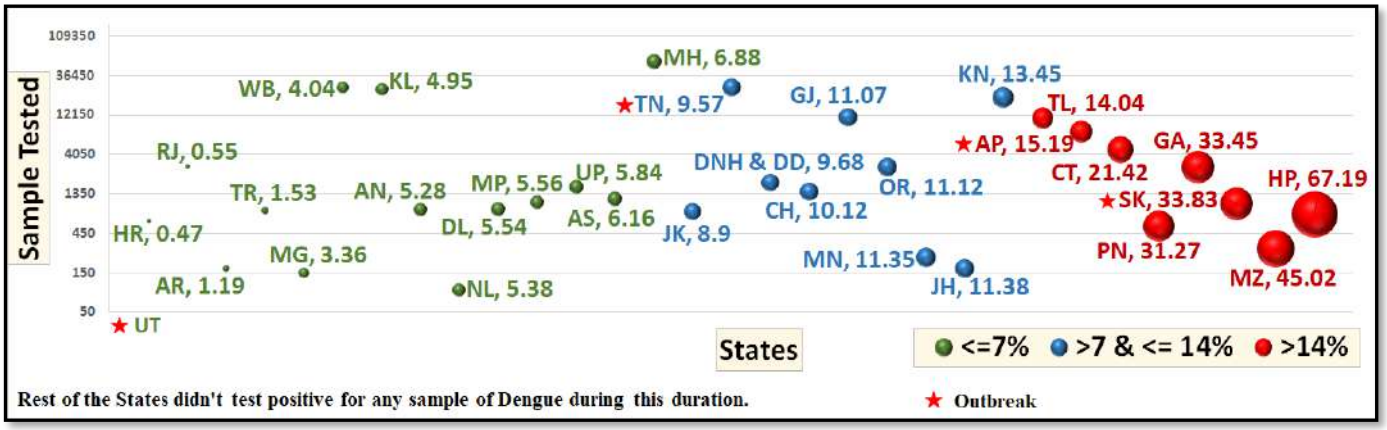
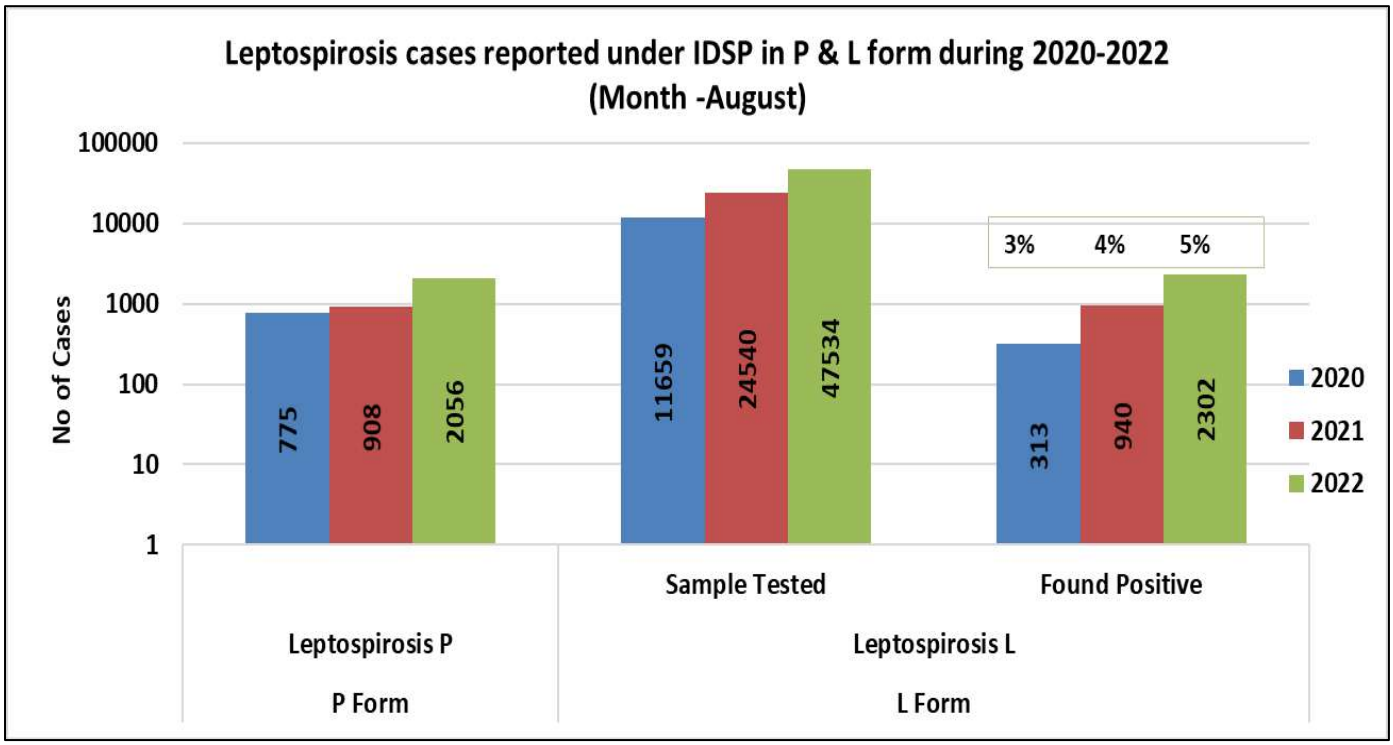


Fig. 24: No. of Leptospirosis Cases reported under IDSP in P & L form during August 2020 - 2022



As shown in Fig. 24, number of presumptive Leptospirosis cases, as reported by States/UTs in 'P' form was 775 in *August* 2020; 908 in *August* 2021 and 2056 in *August* 2022. These presumptive cases are diagnosed on the basis of standard case definitions provided under IDSP.

As reported in L form, in *August* 2020; 11659 samples were tested for Leptospirosis, out of which 313 were found positive. In *August* 2021; out of 24540 samples, 940 were found to be positive and in *August* 2022, out of 47534 samples, 2302 were found to be positive.

Sample positivity of samples tested for Leptospirosis has been 2.68%, 3.83% and 4.84% in August month of 2020, 2021 & 2022 respectively.

Fig. 25: State/UT wise Presumptive Leptospirosis cases and outbreaks for August

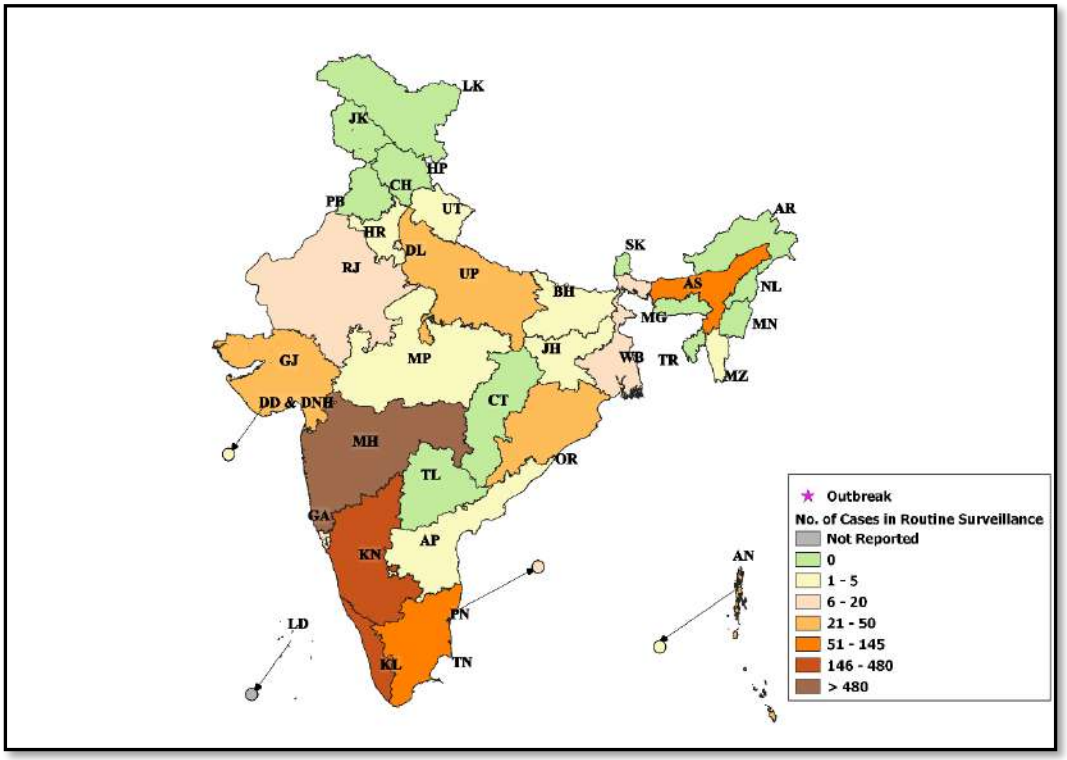


Fig. 26: State/UT wise Lab Confirmed Leptospirosis cases and outbreaks for August 2022

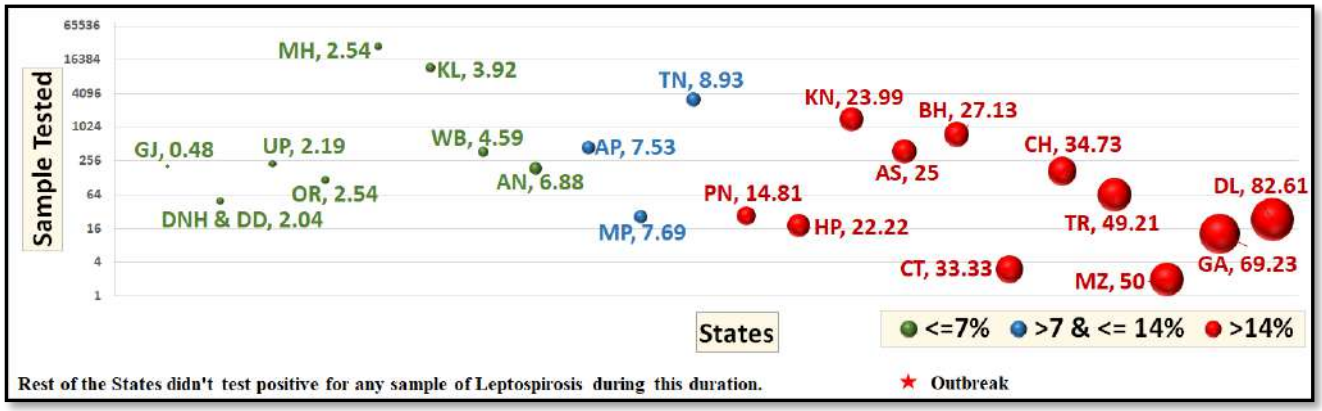
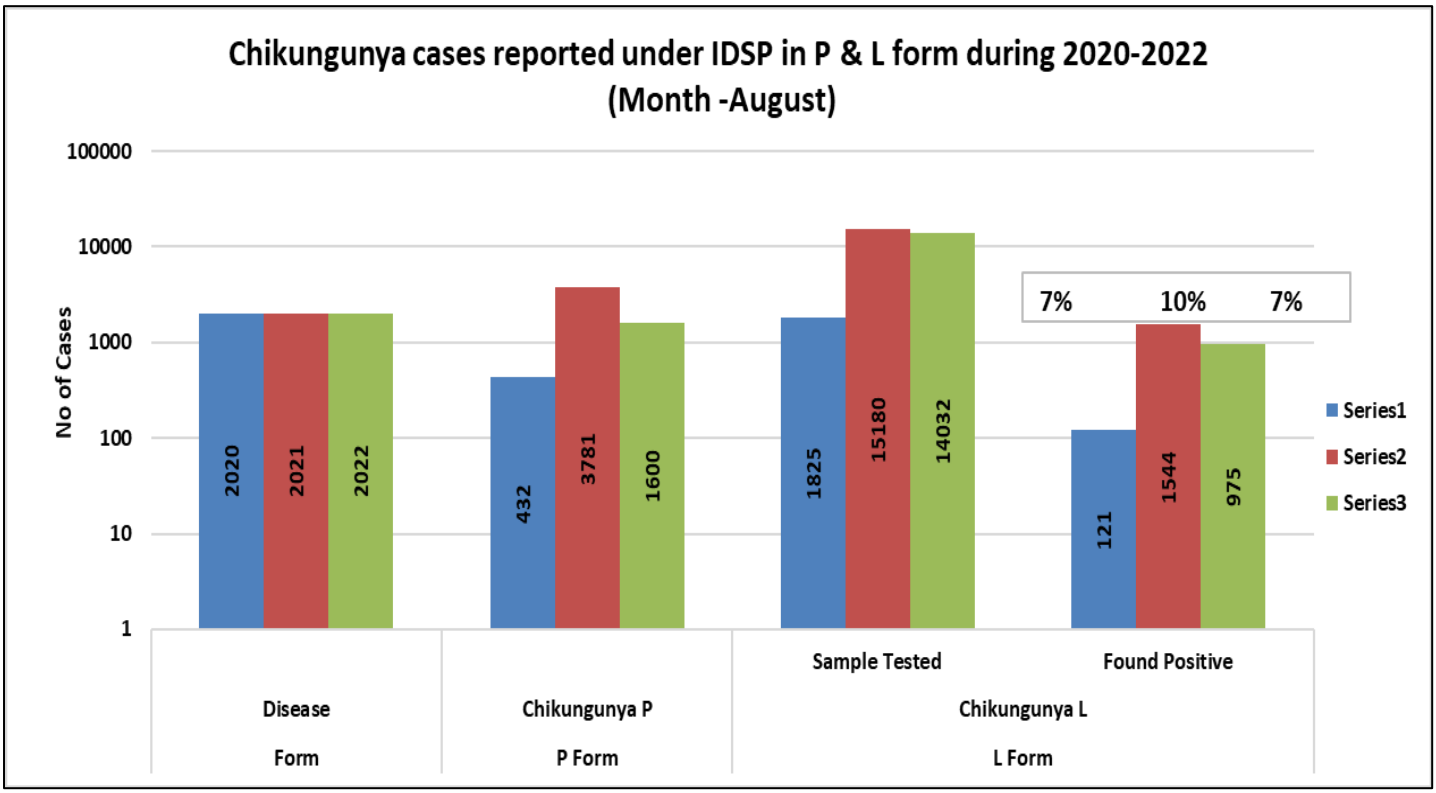


Fig. 27: No. of Chikungunya Cases reported under IDSP in P & L form during August 2020 - 2022



As shown in Fig. 27, number of presumptive Chikungunya cases, as reported by States/UTs in 'P' form was 432 in *August* 2020; 3781 in *August* 2021 and 1600 in *August* 2022. These presumptive cases are diagnosed on the basis of standard case definitions provided under IDSP.

As reported in L form, in *August* 2020; 1825 samples were tested for Chikungunya, out of which 121 were found positive. In *August* 2021; out of 15180 samples, 1544 were found to be positive and in *August* 2022, out of 14032 samples, 975 were found to be positive.

Sample positivity of samples tested for Chikungunya has been 6.63%, 10.17% and 6.95% in August month of 2020, 2021 & 2022 respectively.

Fig. 28: State/UT wise Presumptive Chikungunya cases and outbreaks for August 2022

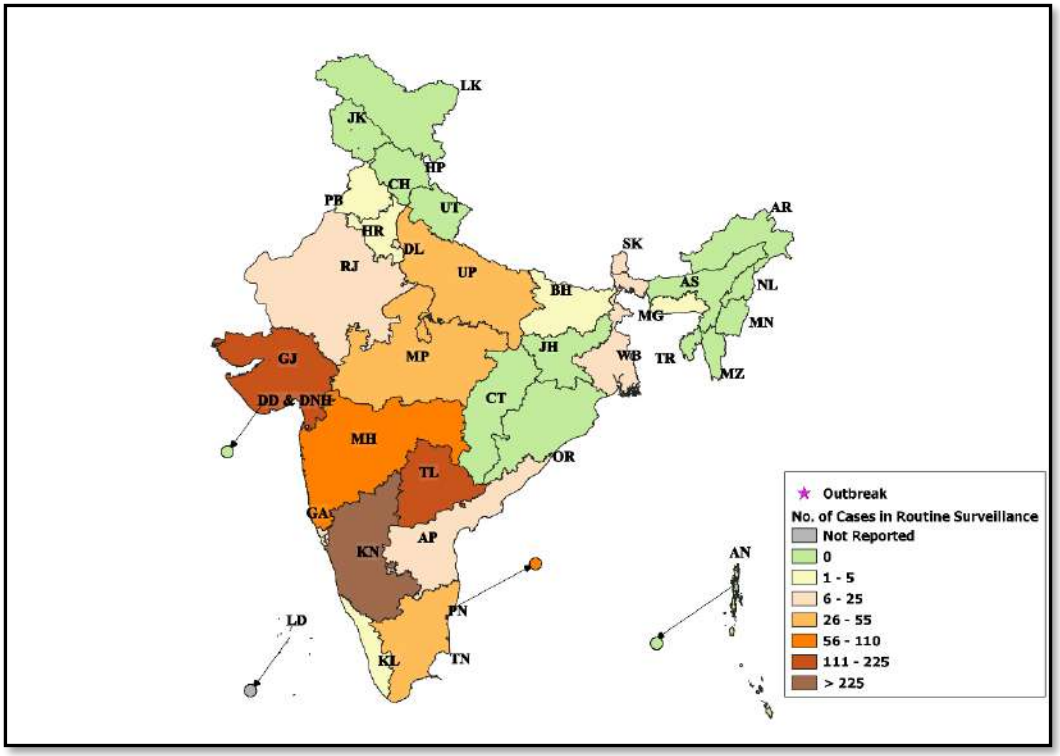


Fig. 29: State/UT wise Lab Confirmed Chikungunya cases and outbreaks for August 2022

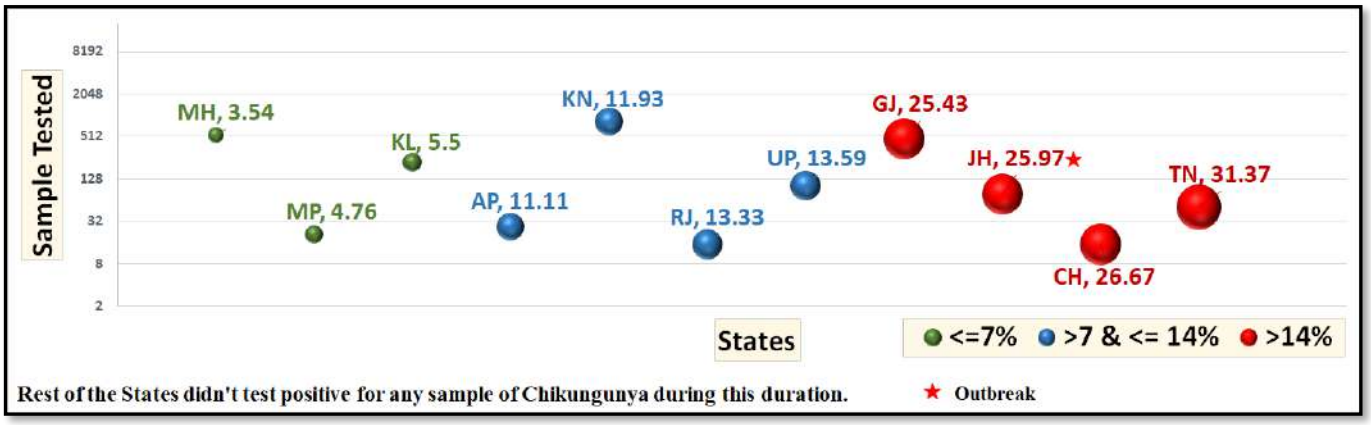
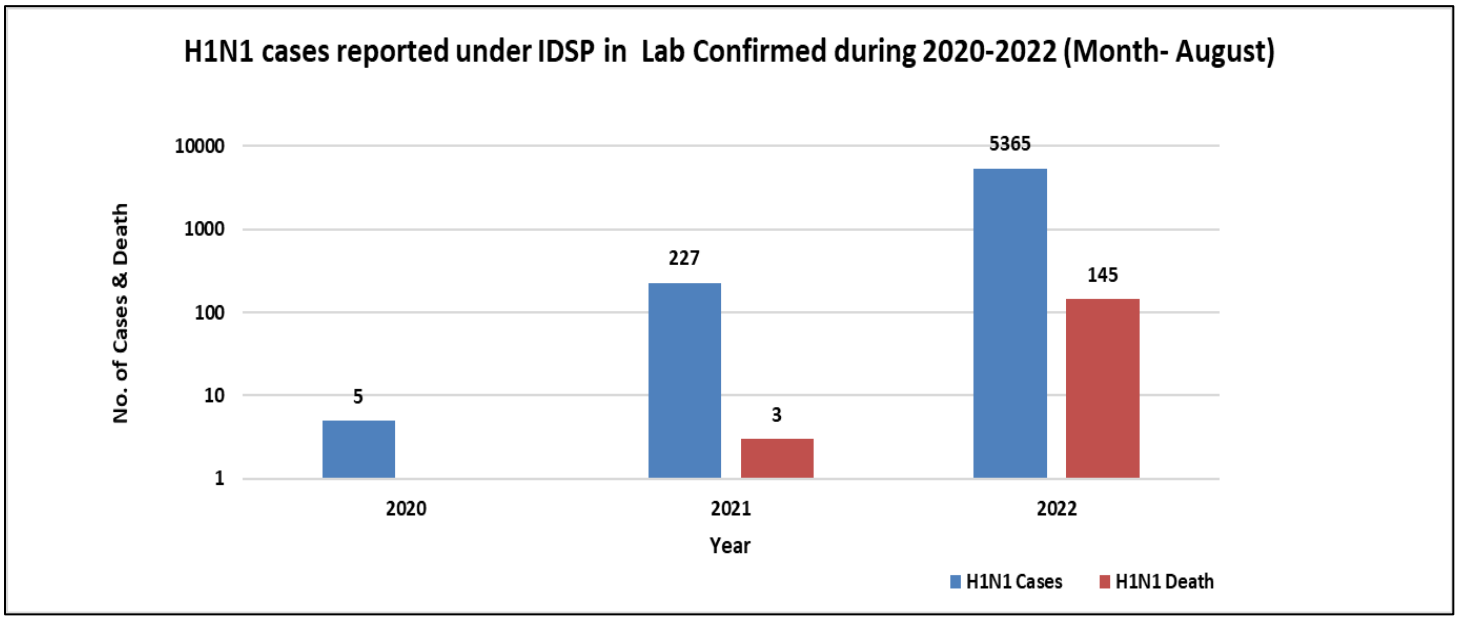


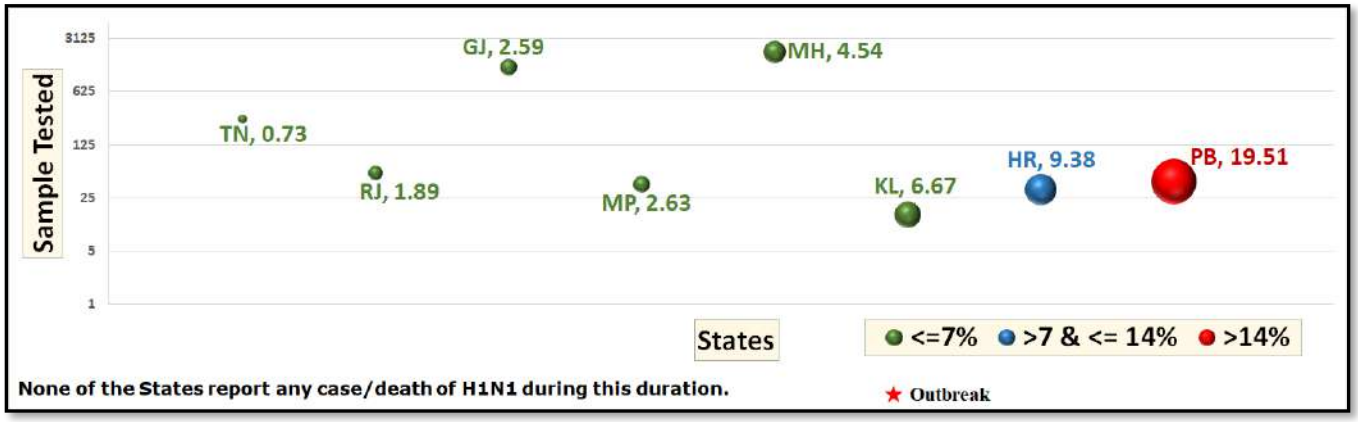
Fig. 30: H1N1 cases & deaths reported under IDSP in L Form during 2020-2022 in August



As shown in Fig. 30, as reported in L form, in August 2020, there were 5 cases and 0 deaths. In *August* 2021, there were 227 cases and 3 deaths; and in *August* 2022, there were 5365 cases and 145 deaths.

Case fatality rate for H1N1 were 0.00 %, 1.32 % and 2.70 % in August month of 2020, 2021 & 2022respectively.

Fig. 31: State/UT wise H1N1 cases and outbreaks for August 2022



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.

ACKNOWLEDGEMENT

This Disease Alert from IDSP acknowledges the contribution of **Dr. Sujeet K Singh** (NPO, IDSP & Director NCDC), **Dr. Himanshu Chauhan** (Joint Director & Officer In-Charge, IDSP), **Dr. Pranay Verma** (Joint Director, IDSP), **Dr. Niraj Kumar** (Consultant Epidemiologist, IDSP), **Ms. Sujata Malhotra** (Data Manager, IDSP) and **Ms. Ritu Malik (Consultant GIS, IDSP)**

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