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# Disease Alert

## प्रकोप चेतावनी

**Monthly Surveillance Report**  
**From**  
**Integrated Disease Surveillance Programme**  
**National Health Mission**

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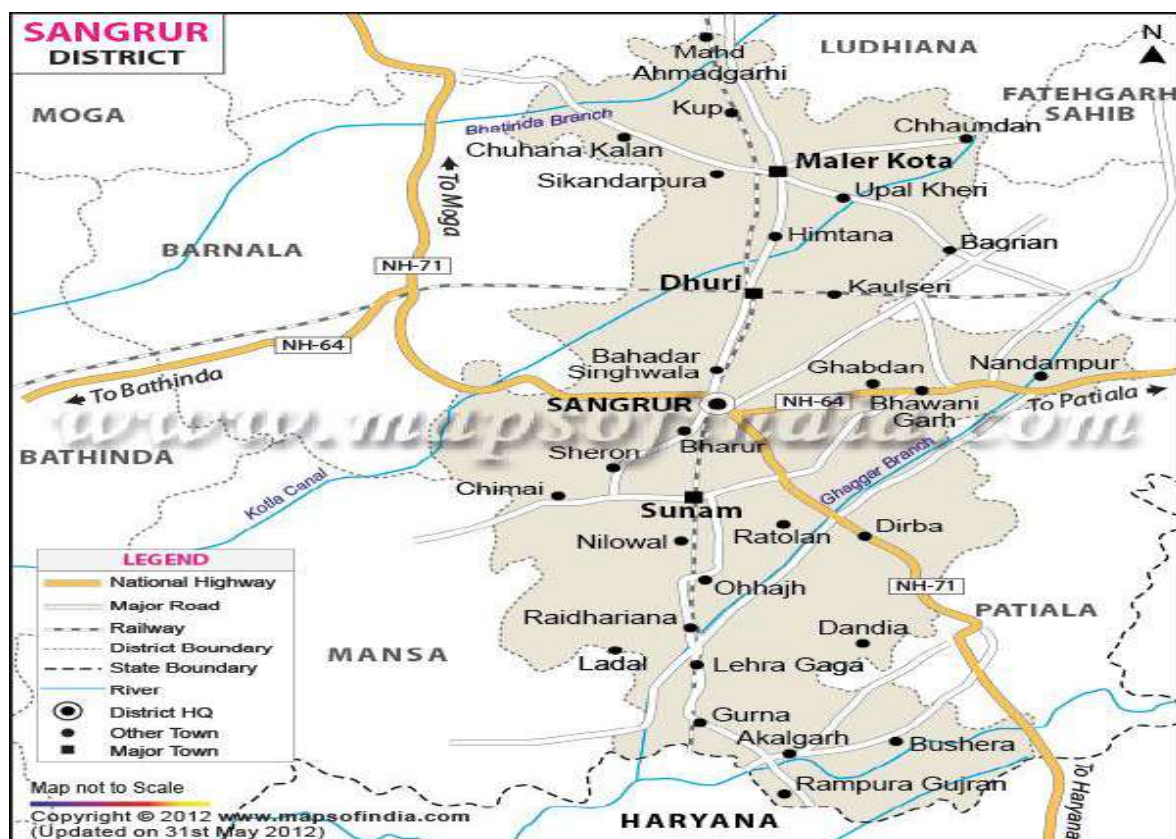
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**ACUTE DIARRHEAL DISEASE OUTBREAK INVESTIGATION**  
**VILLAGE MEEMSA, P.H.C. SHERPUR, DISTT. SANGRUR, PUNJAB**

## BACKGROUND

Meemsa is a Village in Dhuri Tehsil in Sangrur District of Punjab State, India. It is located 23 km towards North from District headquarters Sangrur, 9 km from Dhuri and 101 km from State capital Chandigarh. The Meemsa village has population of 3776 of which 2008 are males while 1768 are females as per Population Census 2011. Meemsa village has lower literacy rate compared to Punjab. In 2011, literacy rate of Meemsa village was 69.08 % compared to 75.84 % of Punjab. In Meemsa Male literacy stands at 74.93 % while female literacy rate was 62.43 %.



*Fig.1 Map of district Sangrur*

**Diarrhea definition:** Diarrhea is usually defined in epidemiological studies 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.

**Frequency:** It is normal for young infants to have up to 3 to 10 stools per day, although this varies depending upon the child's diet (breast milk versus formula; breastfed children usually have more frequent stools). Older infants, toddlers, and children normally have one to two bowel movements per day.

**Consistency:** The consistency and color of a child's stool normally changes with age. Young infant stools may be yellow, green, or brown, and may be soft and/or appear to contain seeds or small curds. All children's stools can vary as a result of their diet. Development of stools that are runny, watery, or contain mucus is a significant change that should be monitored. The presence of visible blood in stool is never normal and always requires medical attention.

A prolonged history of diarrhea (one week or longer) is evaluated and treated differently than an acute case of diarrhea (lasting less than one week).

### **CAUSES OF DIARRHEA**

**Viral infection:** Viral infection is the leading cause of diarrhea in children and is seen most commonly in the winter months in temperate climate. No specific treatment is available for viral causes of diarrhea. Children with diarrhea from viral infections are best treated with supportive measures (oral rehydration solution, limited diet, rest).

**Bacterial infection:** Bacterial infection is sometimes hard to distinguish from viral infection. Persistent high fever (higher than 40°C or 104°F) and diarrhea that is bloody or contains mucus are somewhat more common with bacterial infection

**Parasitic infection:** It can be seen in children who have recently ingested contaminated water or who have traveled to or lived in developing countries. Diarrhea from parasitic infections may last longer than two weeks.

**Antibiotic-associated Diarrhea:** A number of antibiotics can cause diarrhea in both children and adults. The diarrhea is usually mild and typically does not cause dehydration or weight loss.

**CASE DEFINITION:**

The definition used by RRT was: “Any person between the ages of 1 year to 85 years suffering from acute onset of watery diarrhea (passage of 3 or more loose/watery stools in past 24 hours) with or without dehydration, lasts for more than 7 or more days, ‘onset of symptoms’ after 24-09-2021 belonging to village Meemsa”.

**Trigger:** More than 10 houses with diarrhea in a village or urban ward or a single case of severe dehydration or death in a patient less than 5 years with diarrhea.

**DETAILS OF INVESTIGATION**

Under the supervision of Civil Surgeon Sangrur, Block Rapid response team deputed for immediate action in the affected area.

**Action Taken by block health Team**

- House to house survey activity done in affected area by field staff.
- No. of Teams were 05.
- During survey, 38 active Cases were found who complained of loose stools, pain in abdomen and vomiting.
- Anti- diarrheal drugs and paracetamol distributed to symptomatic patients.
- ORS sachets and Chlorine pallets were distributed to all population, health education given to population regarding hygiene and boiled drinking water, home care and prevention.
- A medical camp organized in the Gurudwara Sahib village Meemsa under the supervision of Senior Medical Officer PHC Sherpur. Total of 38 symptomatic patients examined
- Water sources in the area were examined including water pipe lines and sewerage system of the area.
- Health Education & IEC done regarding the personnel hygiene, sanitation, and use of potable water and to boil water before consumption.
- Repair of water supply was being undertaken by public health department.
- After disease was notified, information gathered from the patient, food histories were reviewed to identify the common exposure.
- ANM, Health workers and ASHA workers were instructed to closely monitor the situation

## **METHODOLOGY OF INVESTIGATION**

- Six rounds of House to house survey conducted for persons who were suffering from Diarrhea.
- **Laboratory Methods:** 12 blood samples collected and 05 stool samples collected, 10 water samples collected for biological /contamination purpose.
- **Environmental investigations methods:** Examined the water sources in the area, Examined the water pipe lines and sewerage system of the area.
- **Chlorination** done by department.

## **CONFIRMATION OF OUTBREAK:**

The outbreak was confirmed as there is a clustering of acute diarrhea cases in the locality. 38 people were found to be affected, 21 females and 17 males.

## **LABORATORY RESULTS:**

Blood samples: 9 blood samples, all tested negative for Hepatitis 'A' and Hepatitis 'E' by ELISA.

Water samples: 6 samples sent to State Bacteriological Lab for testing. Out of them, 5 Samples found non-potable and 1 found potable.

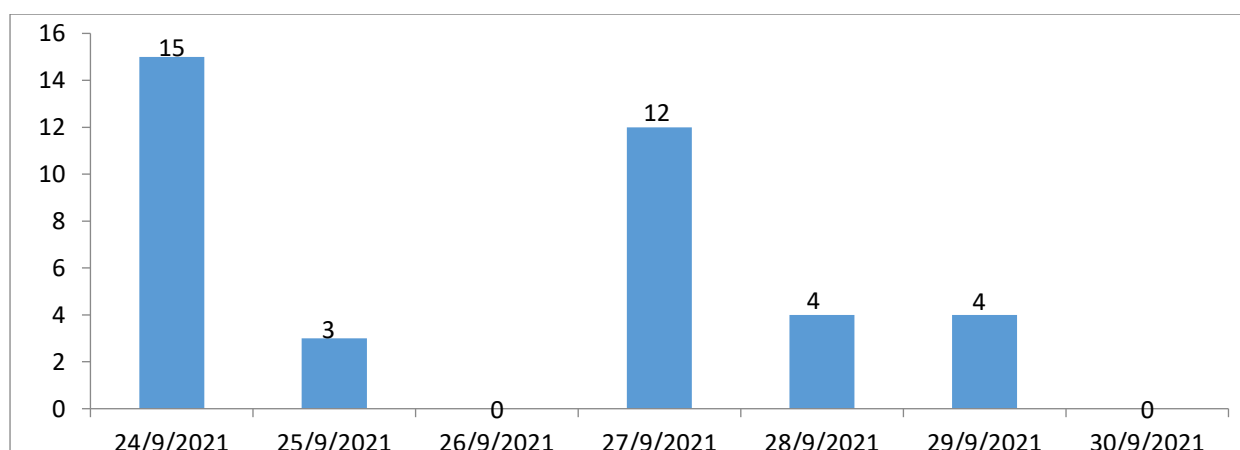
Stool samples: All 12 found negative for *Vibrio Cholerae*.

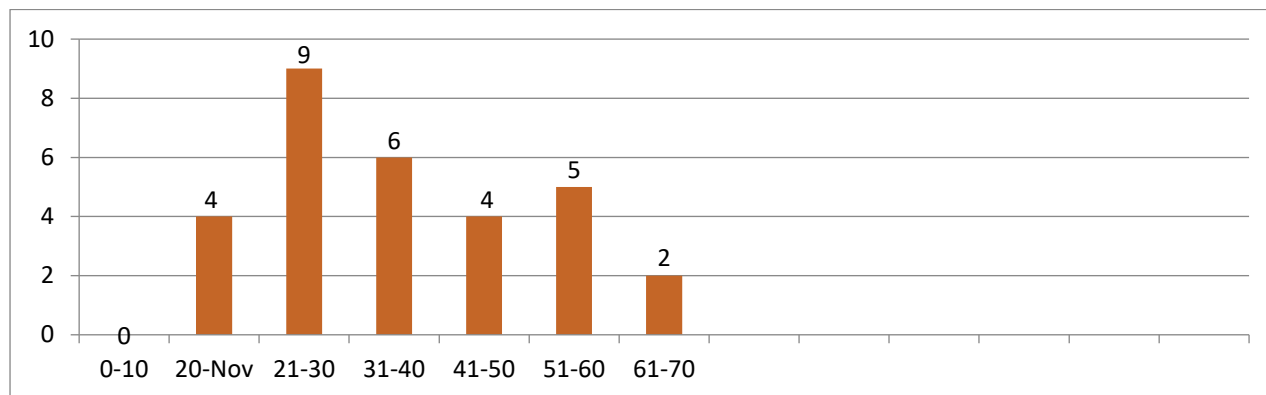
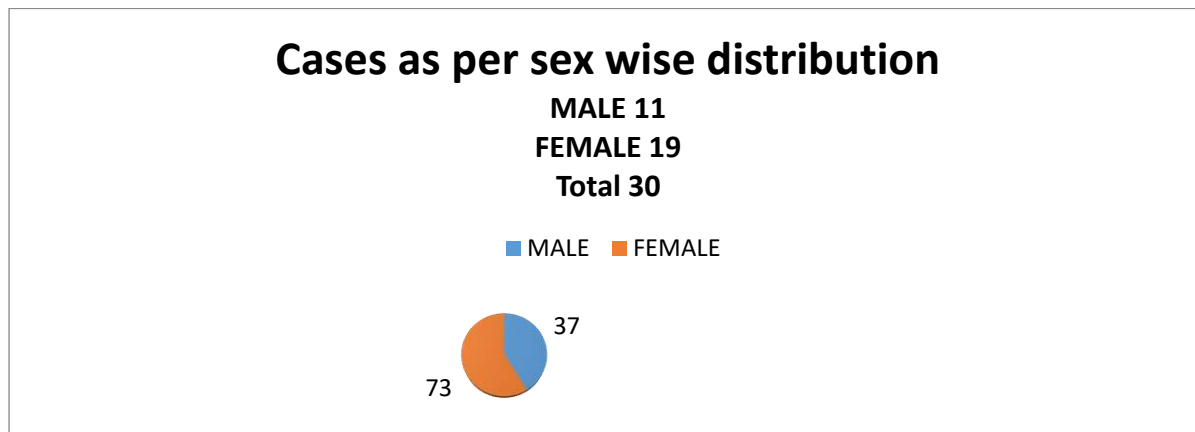
## **DESCRIPTIVE EPIDEMIOLOGY**

1. **Cases as per Time distribution:** with respect to date on which cases were found.

Descriptive epidemiology was compiled in the form of an *Epidemiological Summary*. The reports summarized case numbers, demographics, onset and exposure date frequencies, as well as clinical and laboratory. Information from this report was used to inform decision-making and determine the scope of the outbreak.

### **Time distribution of cases:**



**Cases as per Person Distribution (w.r.t age)****Cases as per sex wise distribution****FIELD INVESTIGATION NOTES:**

*Fig.2: Block Rapid Response Team information gathered from the patient, food histories were reviewed to identify the common exposure*



*Fig.3: Health education/awareness done by field staff*



*Fig.4: House to house survey conducted by health staff*

### **CONTROL MEASURES TAKEN**

1. Rapid Response Team (RRT) was immediately sent for investigations.
2. Total of Six rounds House to house surveys were conducted in the affected area.
3. Total diarrhea cases reported: 83
4. Pamphlets on water borne diseases were distributed.
5. Re-sampling will be done after a gap of 15 days.
6. Health Education (IEC) given to all the inhabitants of the area. Information was shared about the effectiveness of ORS, the benefits of early reporting for prompt treatment, hygienic food habits and eating practices, hand washing before and after eating, benefits of cooked food and safe drinking water practices by chlorination and boiling of water.
7. Health workers were instructed to daily visit the area and inform about the status of old and new patients, if any.

8. Water supply department was informed about the situation. Letter was also issued to them regarding providing alternate potable water supply to the residents of the affected area. Letter was also issued to them regarding non-potable of samples.

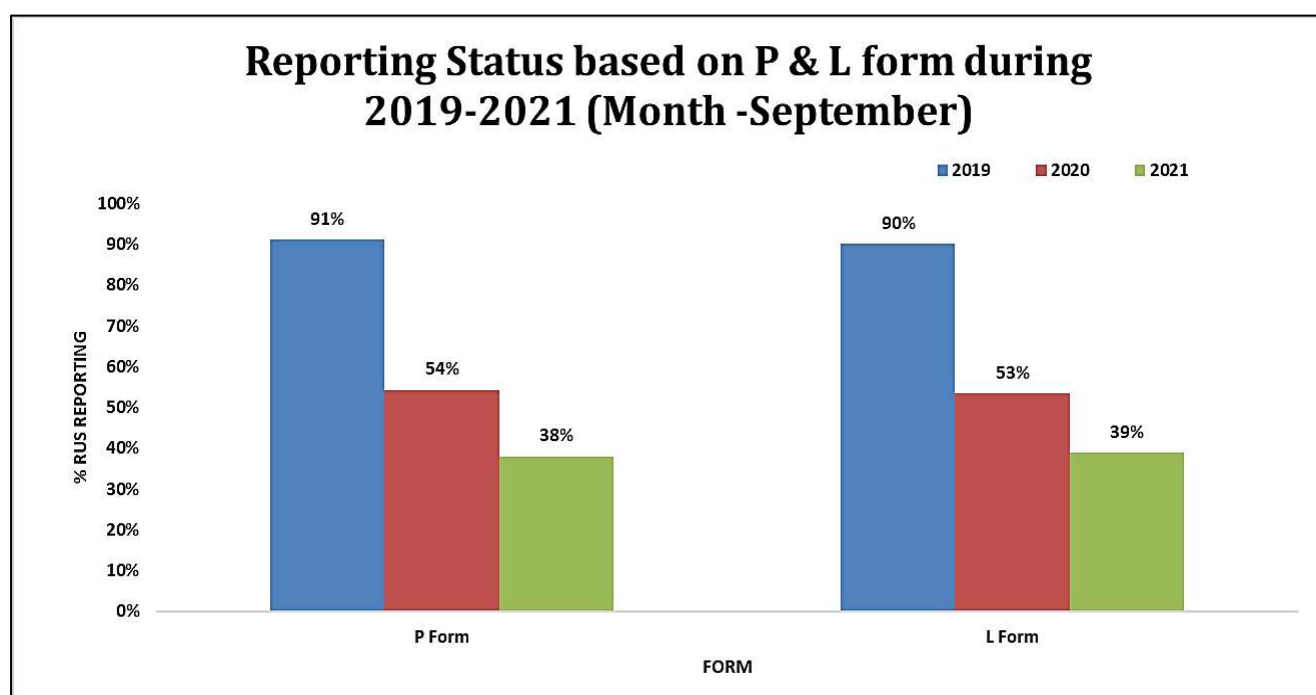
### **RECOMMENDATIONS**

1. Involvement of Public Health Department and Water Supply & Sewerage Departments is to be done in order to get the repair of all distribution points and to provide alternate potable drinking water to the residents.
2. Health Education (IEC) given to all the inhabitants of the area. Information was shared about the effectiveness of ORS, the benefits of early reporting for prompt treatment, hygienic food habits and eating practices, hand washing before and after eating, benefits of cooked food and safe drinking water practices by chlorination and boiling of water.
3. Rigorous steps to be taken to avoid open field defecation.



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

*Fig. 5: RU-wise reporting based on P & L forms during September 2021*



As shown in Fig 5, in September 2019, 2020 and 2021, the 'P' form reporting percentage (i.e. % RU reporting out of total in P form) was 91%, 54% and 38% respectively across India, for all disease conditions reported under IDSP in P form. Similarly, L form reporting percentage was 90%, 53% and 39% 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 *September* 2021 compared to the same month in previous years for both P and L forms, thereby compromising on the quality of surveillance data.

Fig. 6: State/UT wise P form completeness % for September 2021

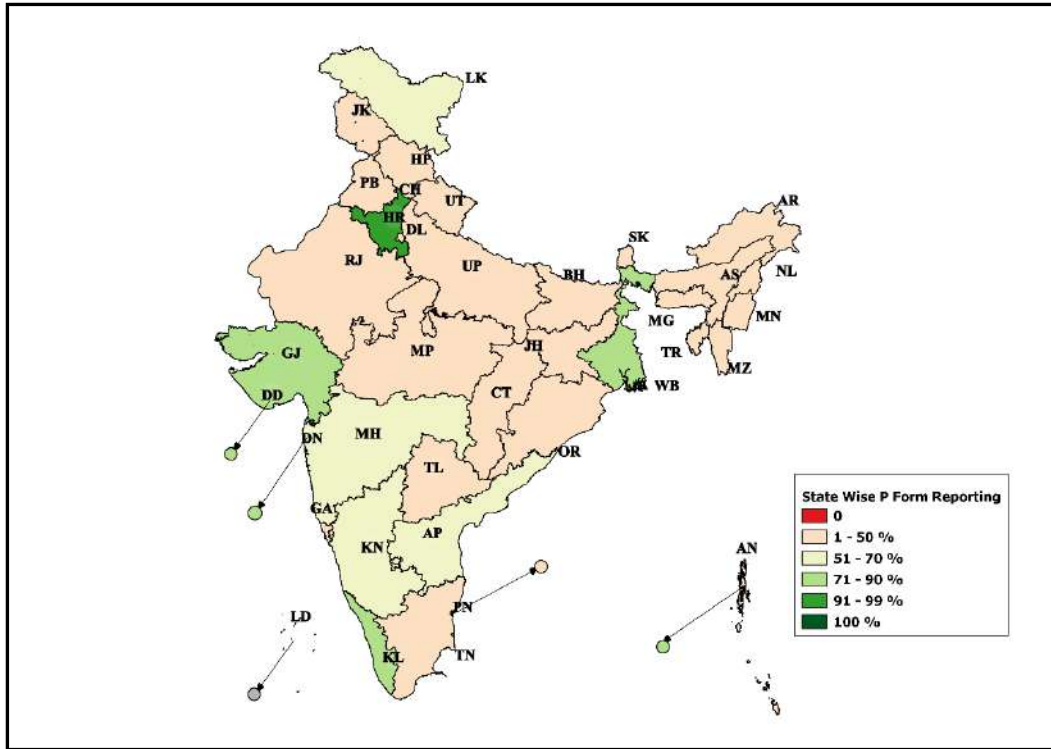
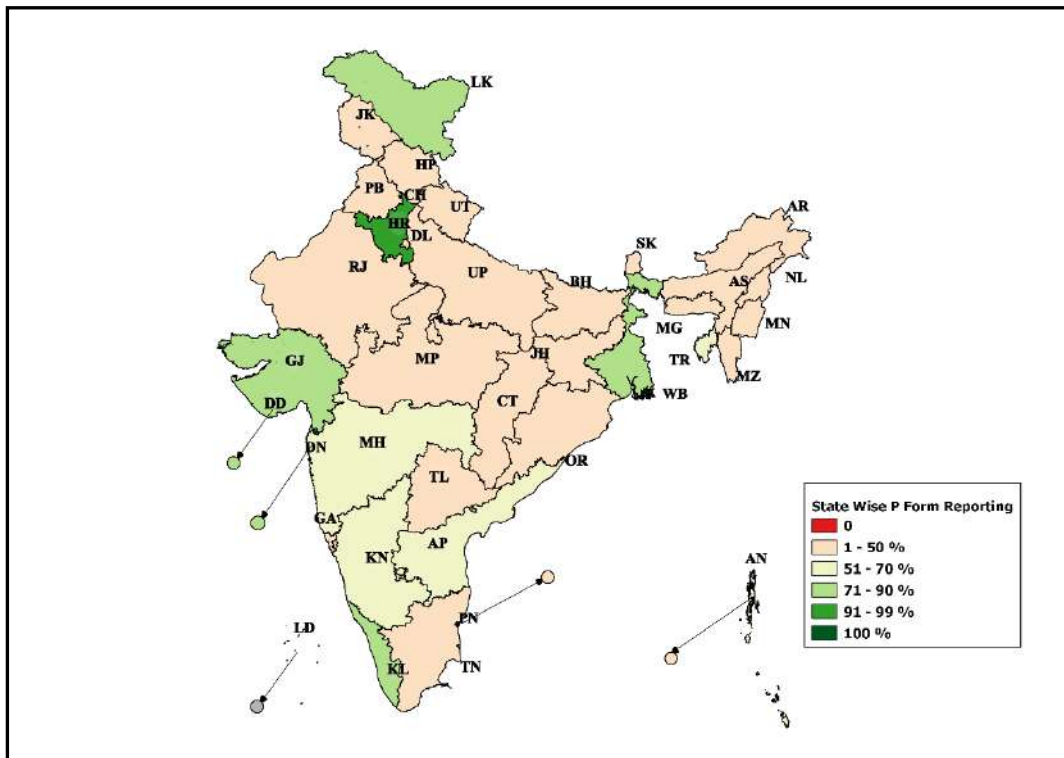
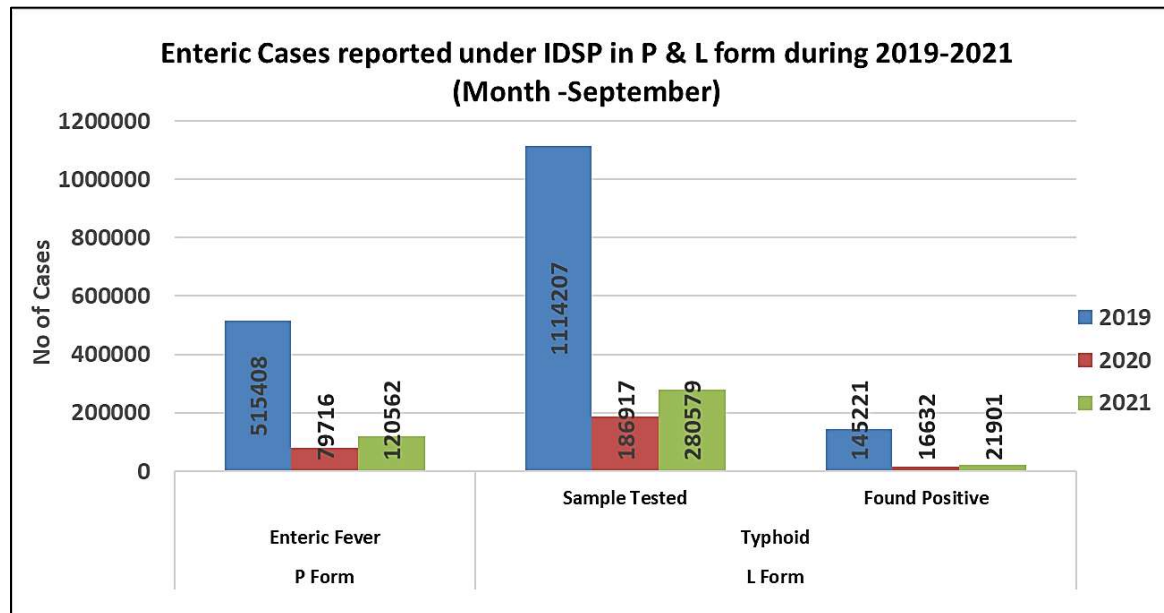


Fig. 7: State/UT wise L form completeness % for September 2021



*Fig. 8: No. of Enteric Fever Cases reported under P & L form during September 2019 - 2021*



As shown in Fig 8, number of presumptive enteric fever cases, as reported by States/UTs in 'P' was 515408 in September 2019; 79716 in September 2020 and 120562 in September 2021. These presumptive cases are diagnosed on the basis of standard case definitions provided under IDSP.

As reported in L form, in September 2019; 1114207 samples were tested for Typhoid, out of which 145221 were found positive. In September 2020; out of 186917 samples, 16632 were found to be positive and in September 2021, out of 280579 samples, 21901 were found to be positive.

Sample positivity has been 13%, 9% and 8% in September 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.

Fig. 9: State/UT wise Presumptive Enteric fever cases & outbreaks for September 2021

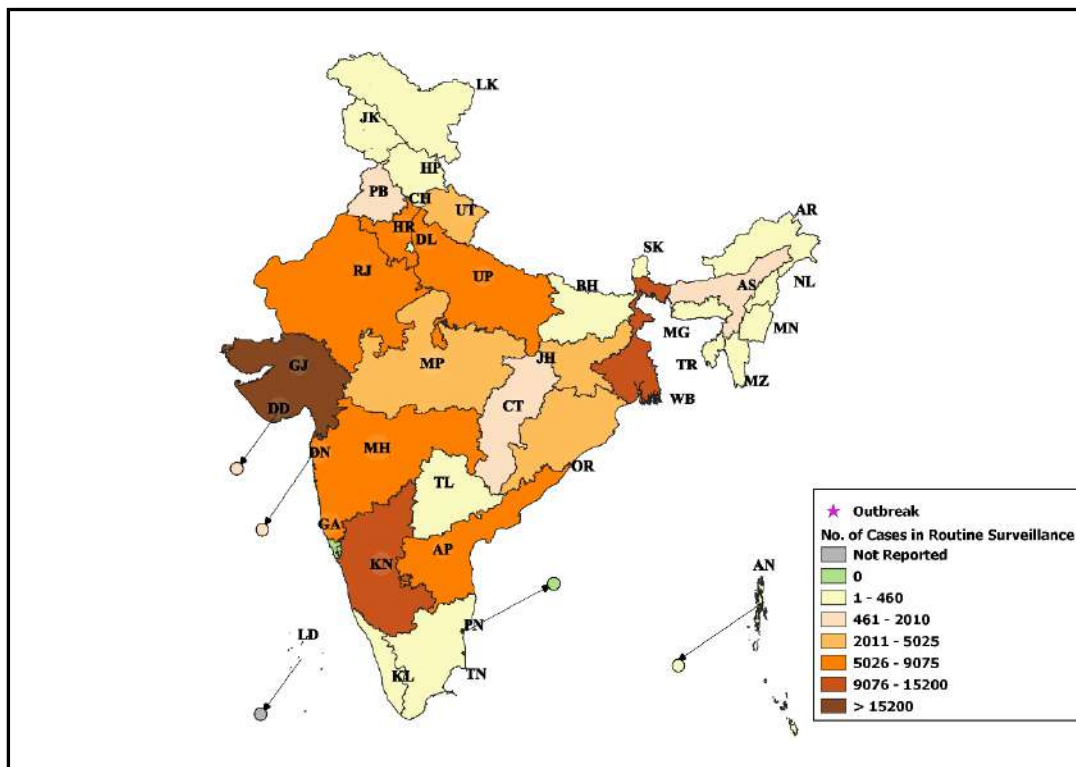
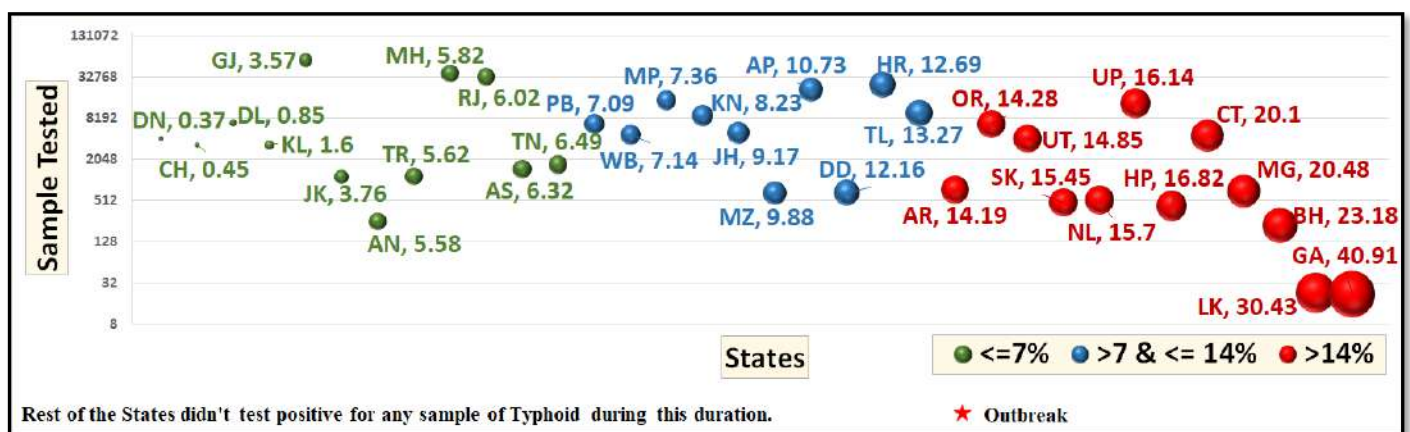
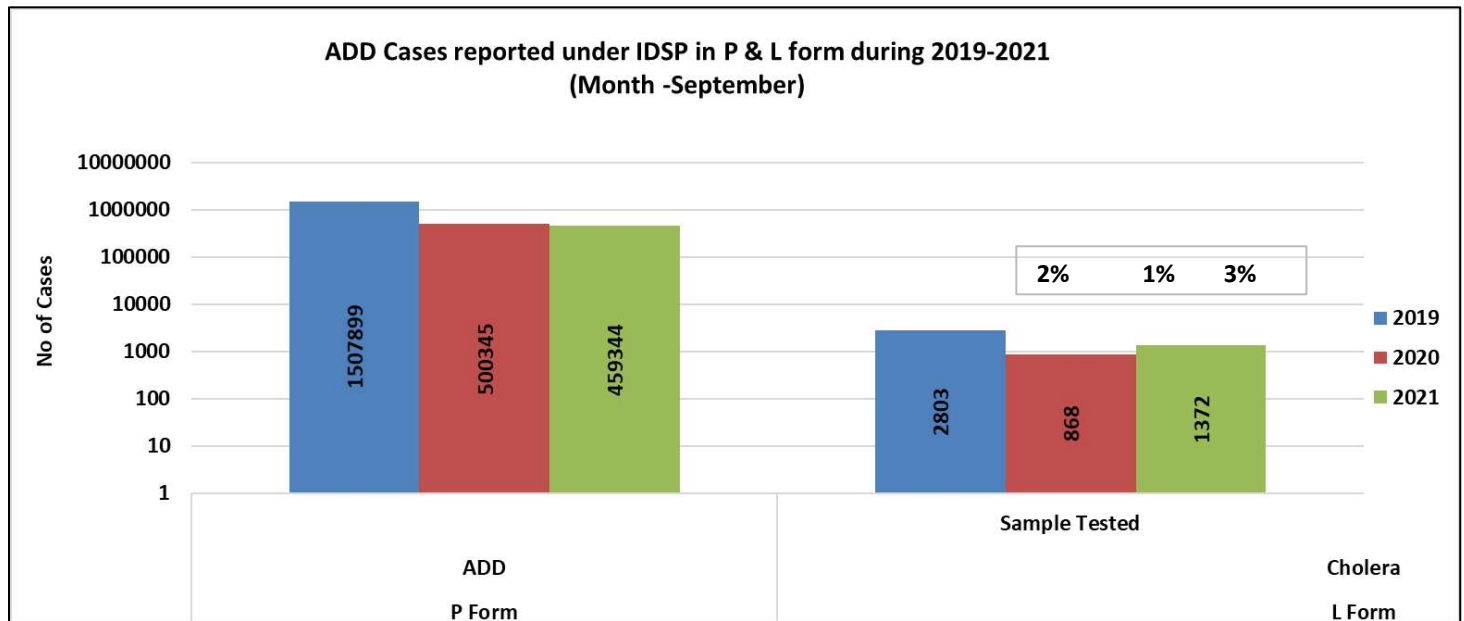


Fig. 10: State/UT wise Lab Confirmed Typhoid cases and outbreaks for September 2021



**Fig. 11: No. of ADD Cases reported under IDSP in P Form & Lab confirmed Cholera cases in L form during September 2019 - 2021**



As shown in Fig 11, number of Acute Diarrhoeal Disease cases, as reported by States/UTs in ‘P’ form was 1507899 in *September 2019*, 500345 in *September 2020* and 459344 in *September 2021*. These presumptive cases are diagnosed on the basis of standard case definitions provided under IDSP.

As reported in L form, in September 2019, 2803 samples were tested for Cholera out of which 64 tested positive; in September 2020, out of 868 samples, 8 tested positive for Cholera and in September 2021, out of 1372 samples, 48.

Sample positivity of samples tested for Cholera has been 2%, 1% and 3% in September month of 2019, 2020 & 2021 respectively.

Fig. 12: State/UT wise Presumptive ADD cases and outbreaks for September 2021

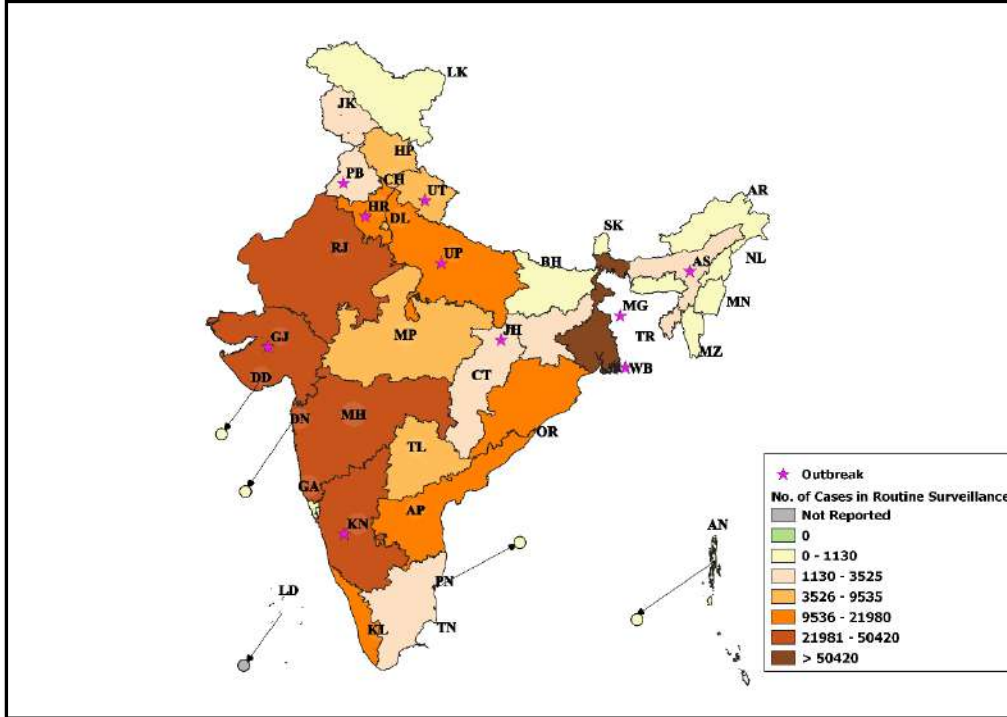
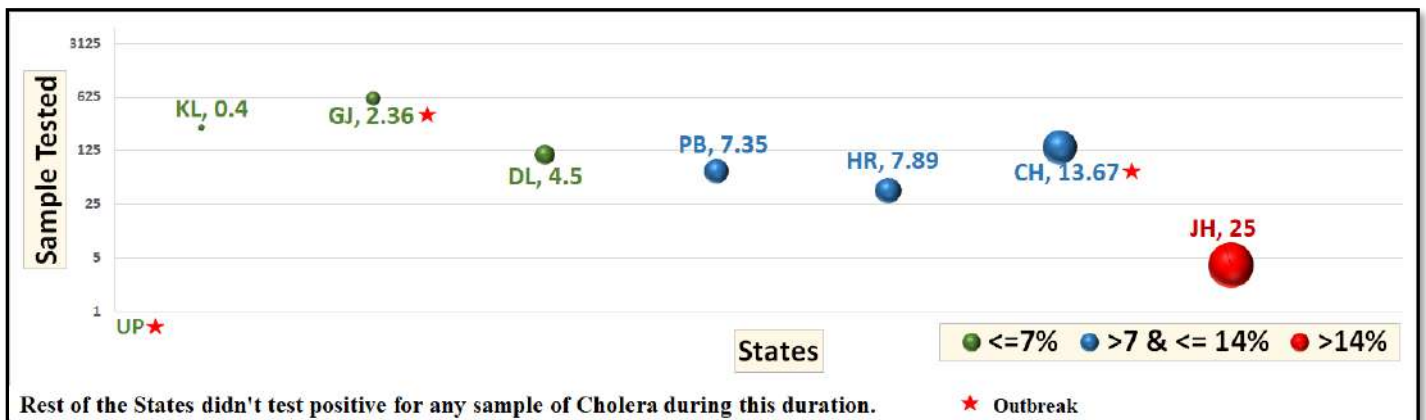
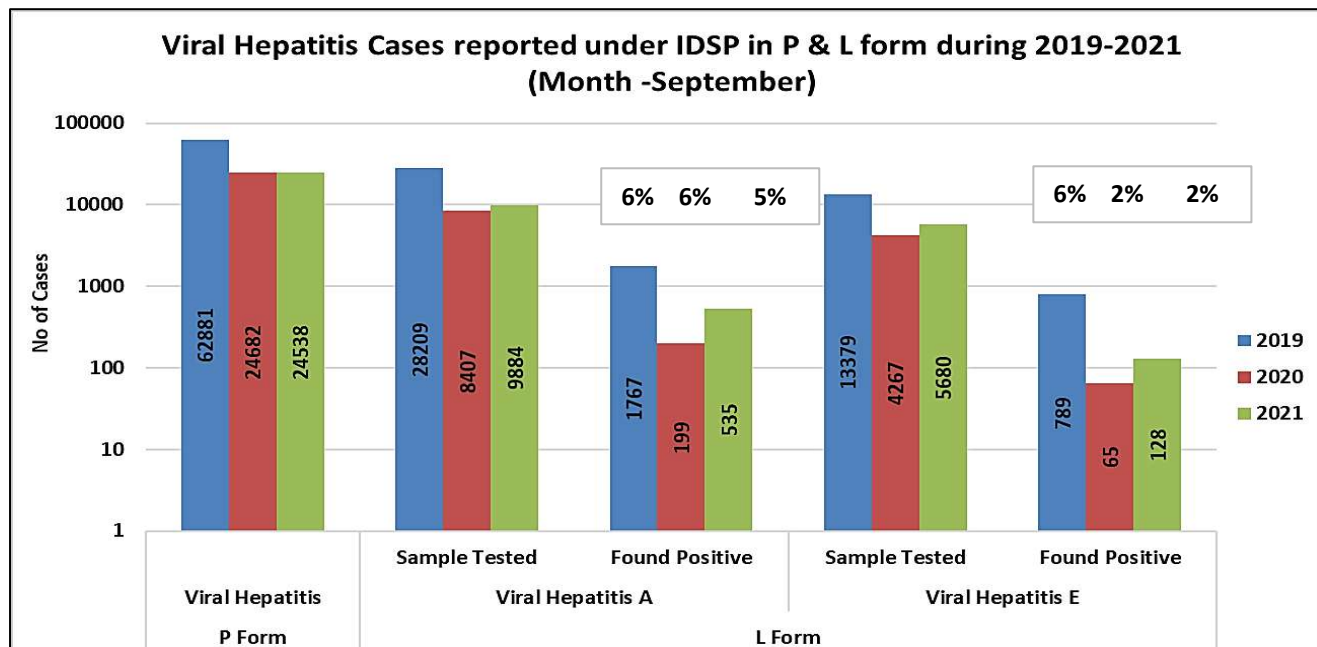


Fig. 13: State/UT wise Lab Confirmed Cholera cases and outbreaks for September 2021



**Fig. 14: No. of Viral Hepatitis Cases reported under IDSP in P form & Viral Hepatitis A & E cases reported under L form during September 2019 - 2021**



As shown in Fig 14, number of presumptive Viral Hepatitis cases was 62881 in September 2019, 24682 in September 2020 and 24538 in September 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 September 2019; 28209 samples were tested out of which 1767 were found positive. In September 2020 out of 8407 samples, 199 were found to be positive and in September 2021, out of 9884 samples, 535 were found to be positive.

Sample positivity of samples tested for Hepatitis A has been 6%, 6% and 5% in September month of 2019, 2020 & 2021 respectively.

As reported in L form for Viral Hepatitis E, in September 2019 13379 samples were tested out of which 789 were found positive. In September 2020; out of 4267 samples, 65 were found to be positive and in September 2021, out of 5680 samples, 128 were found to be positive.

Sample positivity of samples tested for Hepatitis E has been 6%, 2% and 2% in September month of 2019, 2020 & 2021 respectively.

Fig. 15: State/UT wise Presumptive Viral Hepatitis cases and outbreaks for September 2021

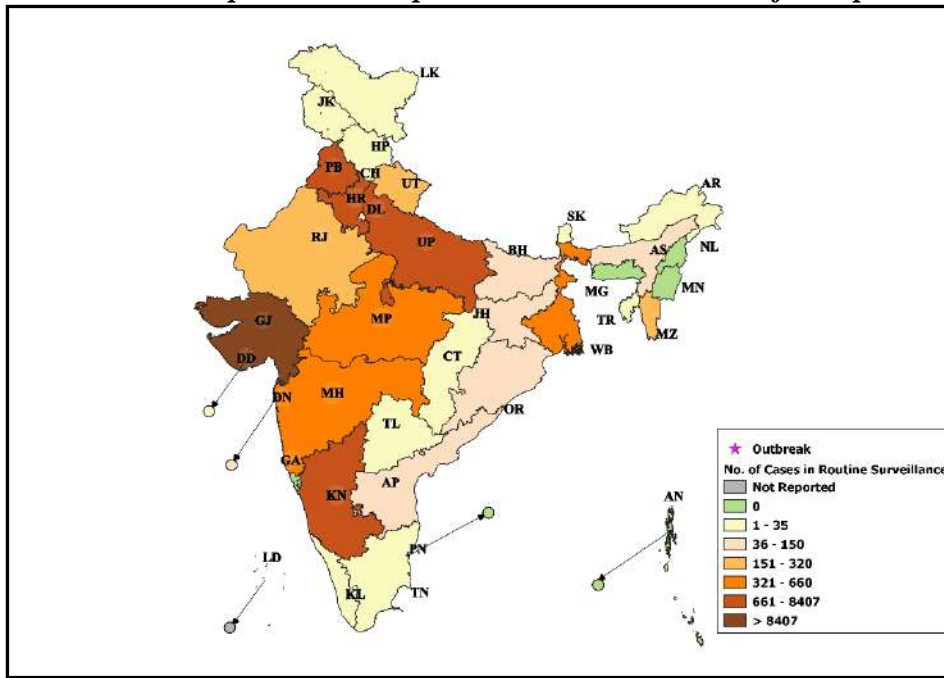


Fig. 16: State/UT wise Lab Confirmed Viral Hepatitis A cases and outbreaks for September

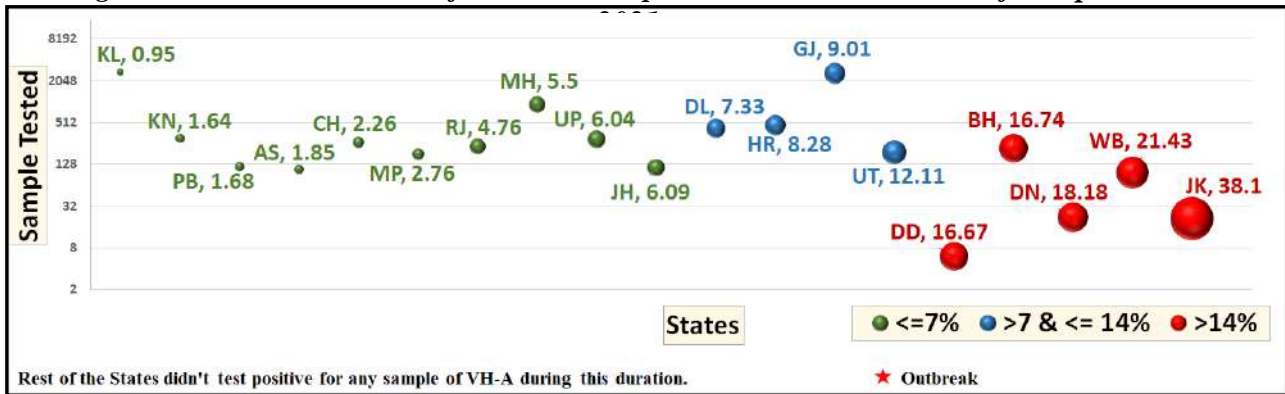
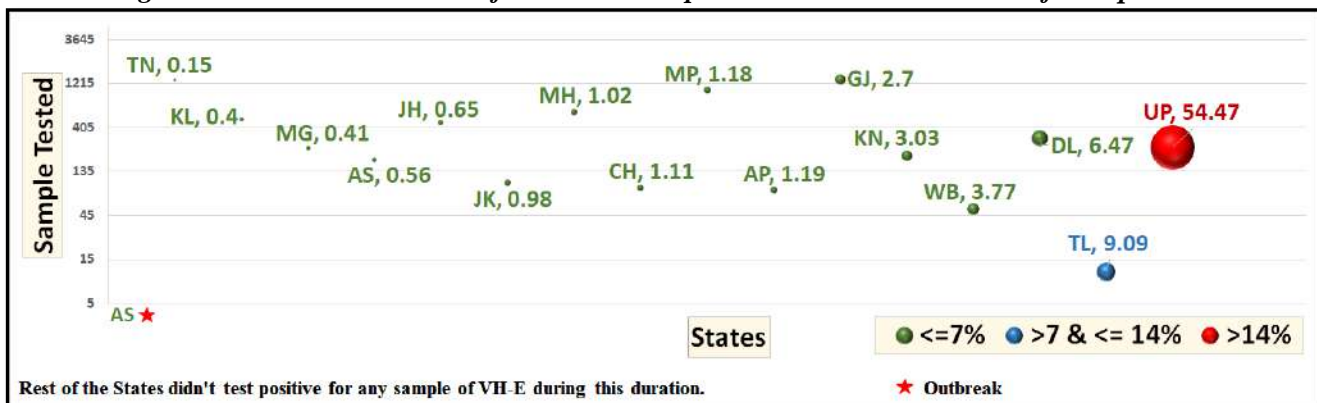
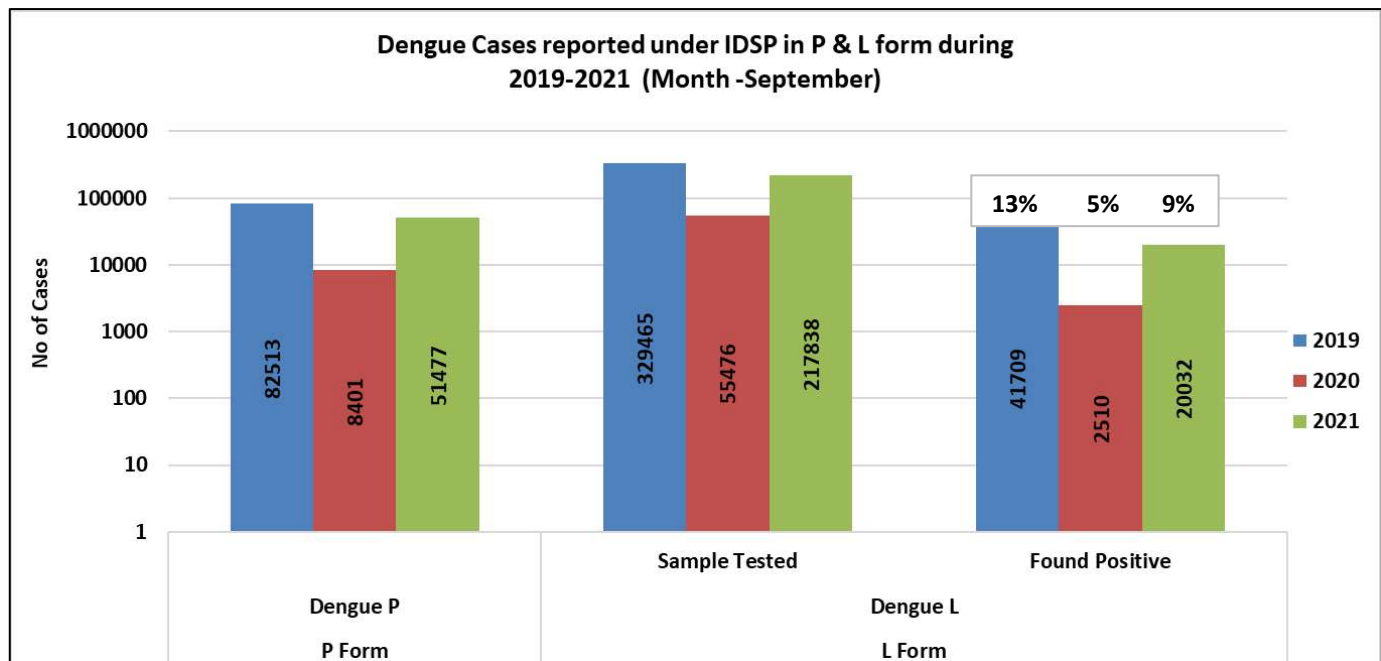


Fig. 17: State/UT wise Lab Confirmed Viral Hepatitis E cases and outbreaks for September 2021





*Fig. 18: No. of Dengue cases reported under IDSP in P & L form during September*



As shown in Fig 18, number of presumptive Dengue cases, as reported by States/UTs in ‘P’ form was 82513 in September 2019; 8401 in September 2020 and 51477 in September 2021. These presumptive cases are diagnosed on the basis of standard case definitions provided under IDSP.

As reported in L form, in September 2019; 329465 samples were tested for Dengue, out of which 41709 were found positive. In *September 2020*; out of 55476 samples, 2510 were found to be positive and in *September 2021*, out of 217838 samples, 20032 were found to be positive.

Sample positivity of samples tested for Dengue has been 13%, 5% and 9% in September month of 2019, 2020 & 2021 respectively.

Fig. 19: State/UT wise Presumptive Dengue cases and outbreaks for September 2021

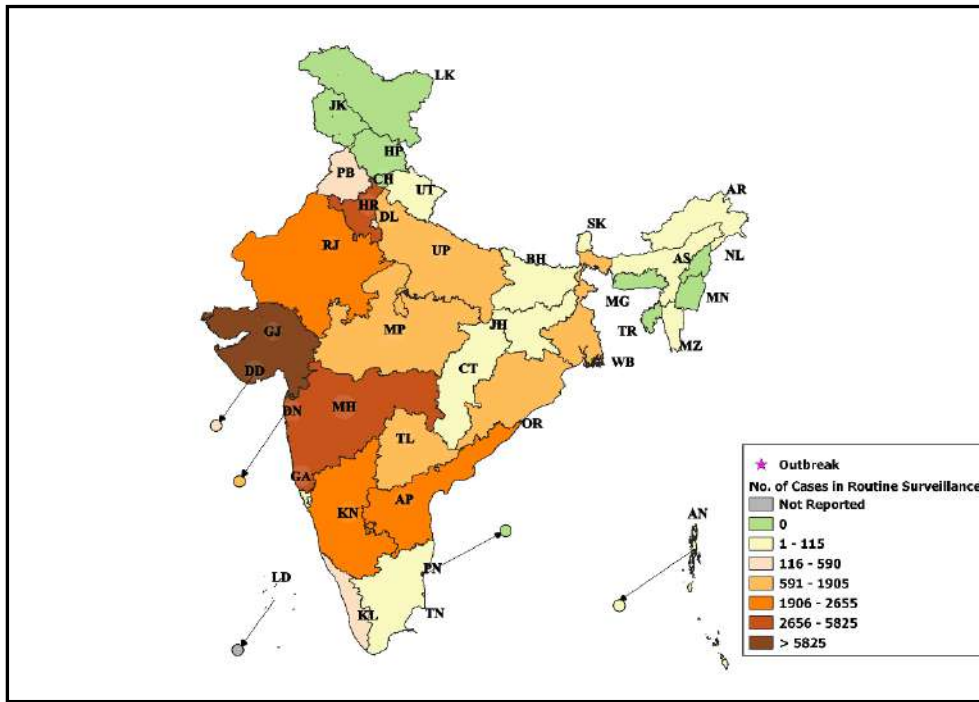
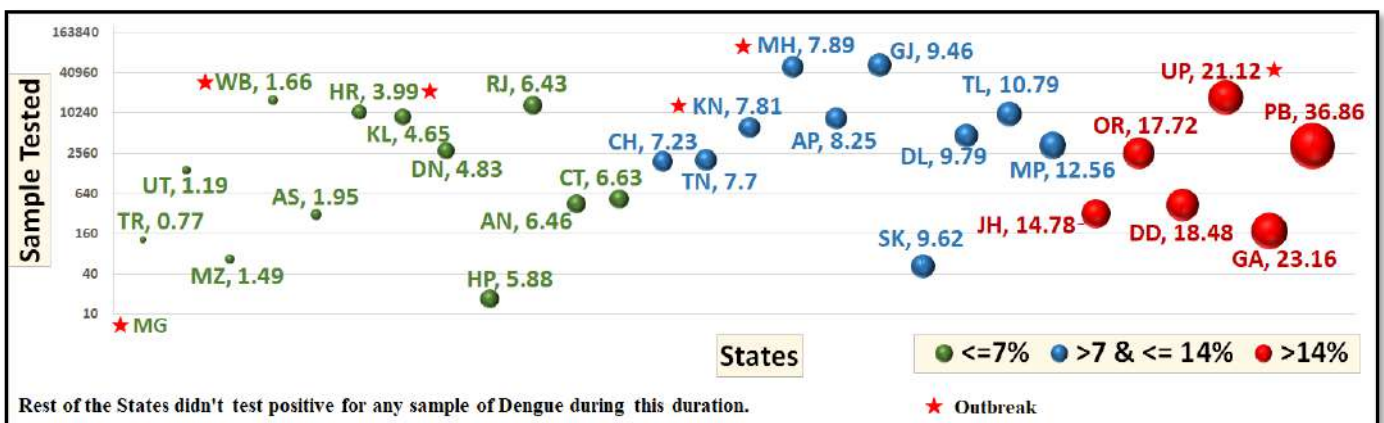
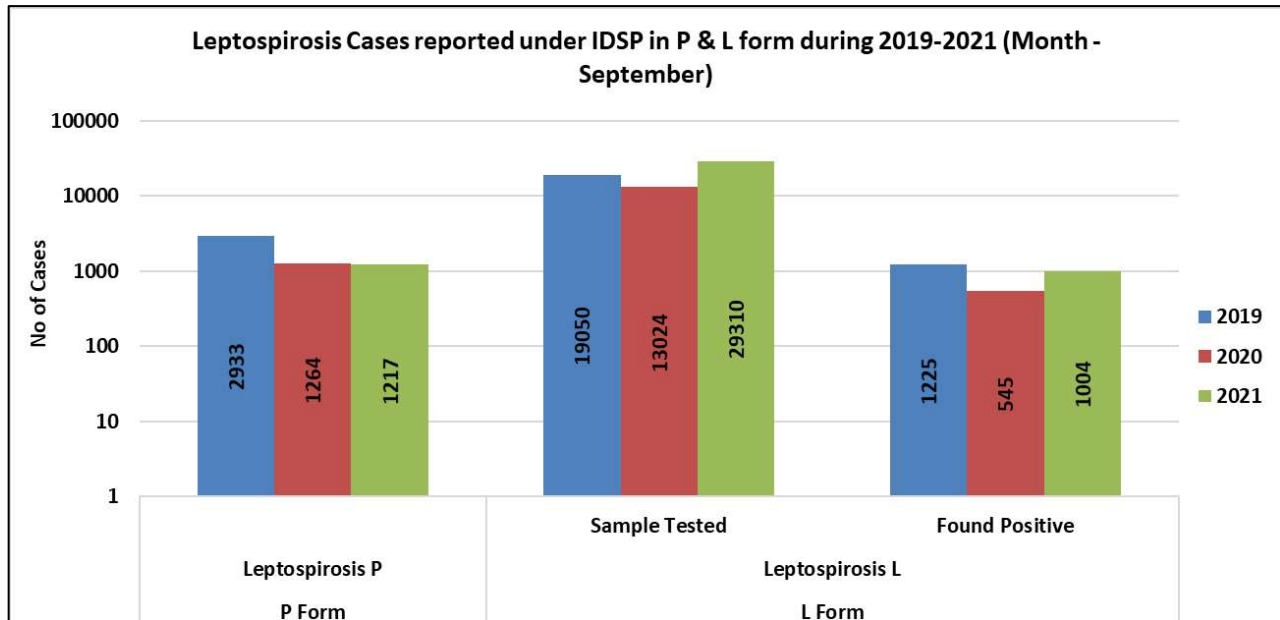


Fig. 20: State/UT wise Lab Confirmed Dengue cases and outbreaks for September 2021



**Fig. 21: No. of Leptospirosis Cases reported under IDSP in P & L form during September 2019 - 2021**



As shown in Fig 21, number of presumptive Leptospirosis cases, as reported by States/UTs in 'P' form was 2933 in *September 2019*; 1264 in *September 2020* and 1217 in *September 2021*. These presumptive cases are diagnosed on the basis of standard case definitions provided under IDSP.

As reported in L form, in *September 2019*; 19050 samples were tested for Leptospirosis, out of which 1225 were found positive. In *September 2020*; out of 13024 samples, 545 were found to be positive and in *September 2021*, out of 29310 samples, 1004 were found to be positive.

Sample positivity of samples tested for Leptospirosis has been 6%, 4% and 3% in *September* month of 2019, 2020 & 2021 respectively.

Fig. 22: State/UT wise Presumptive Leptospirosis cases and outbreaks for September 2021

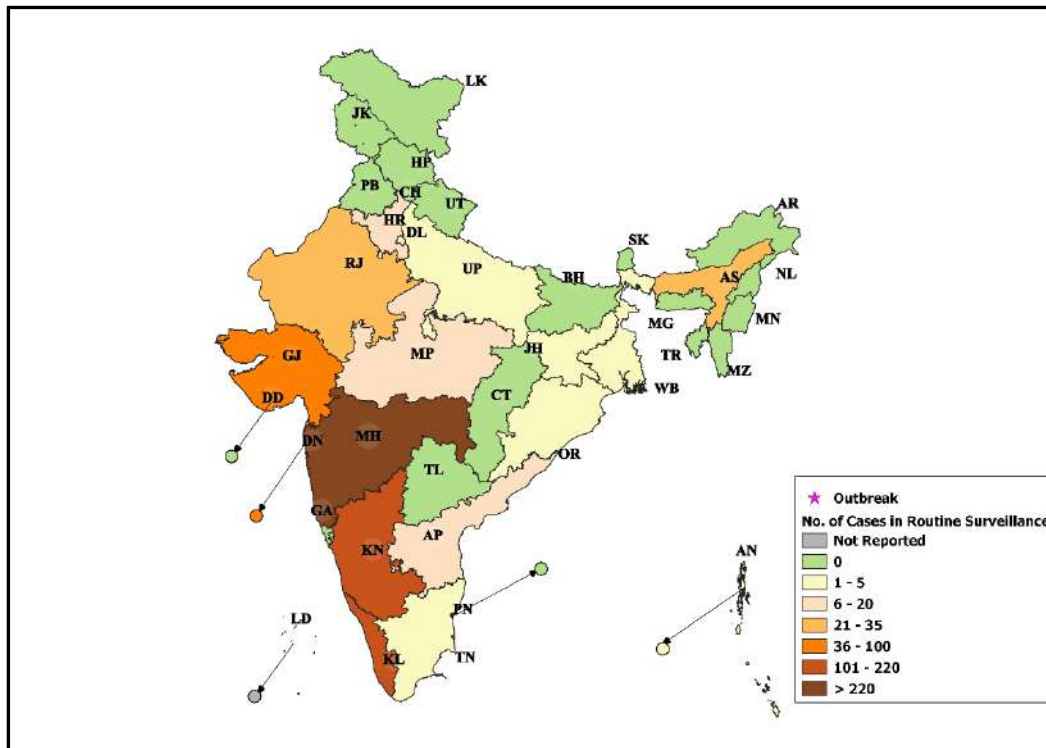
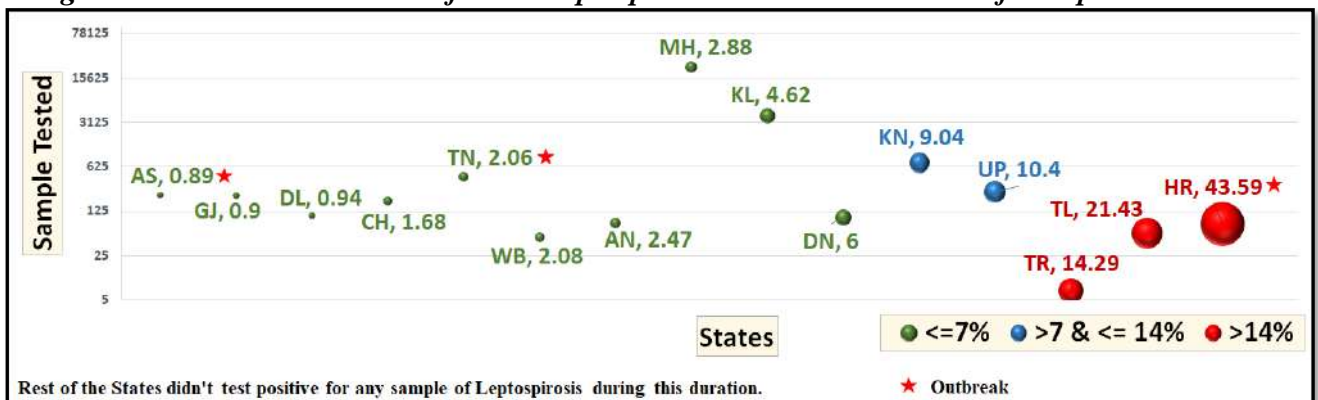
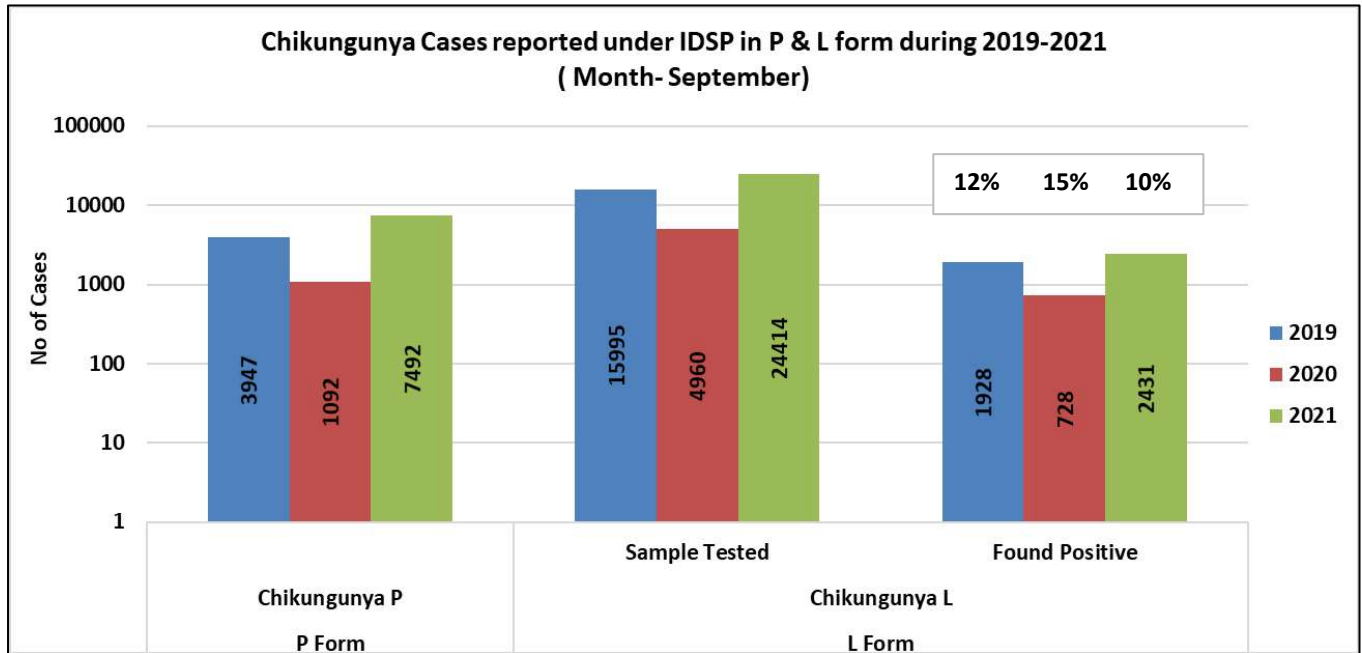


Fig. 23: State/UT wise Lab Confirmed Leptospirosis cases and outbreaks for September 2021



**Fig. 24: No. of Chikungunya Cases reported under IDSP in P & L form during September 2019 - 2021**



As shown in Fig 24, number of presumptive Chikungunya cases, as reported by States/UTs in 'P' form was 3947 in *September 2019*; 1092 in *September 2020* and 7492 in *September 2021*. These presumptive cases are diagnosed on the basis of standard case definitions provided under IDSP.

As reported in L form, in *September 2019*; 15995 samples were tested for Chikungunya, out of which 1928 were found positive. In *September 2020*; out of 4960 samples, 728 were found to be positive and in *September 2021*, out of 24414 samples, 2431 were found to be positive.

Sample positivity of samples tested for Chikungunya has been 12%, 15% and 10% in *September* month of 2019, 2020 & 2021 respectively.

Fig. 25: State/UT wise Presumptive Chikungunya cases and outbreaks for September 2021

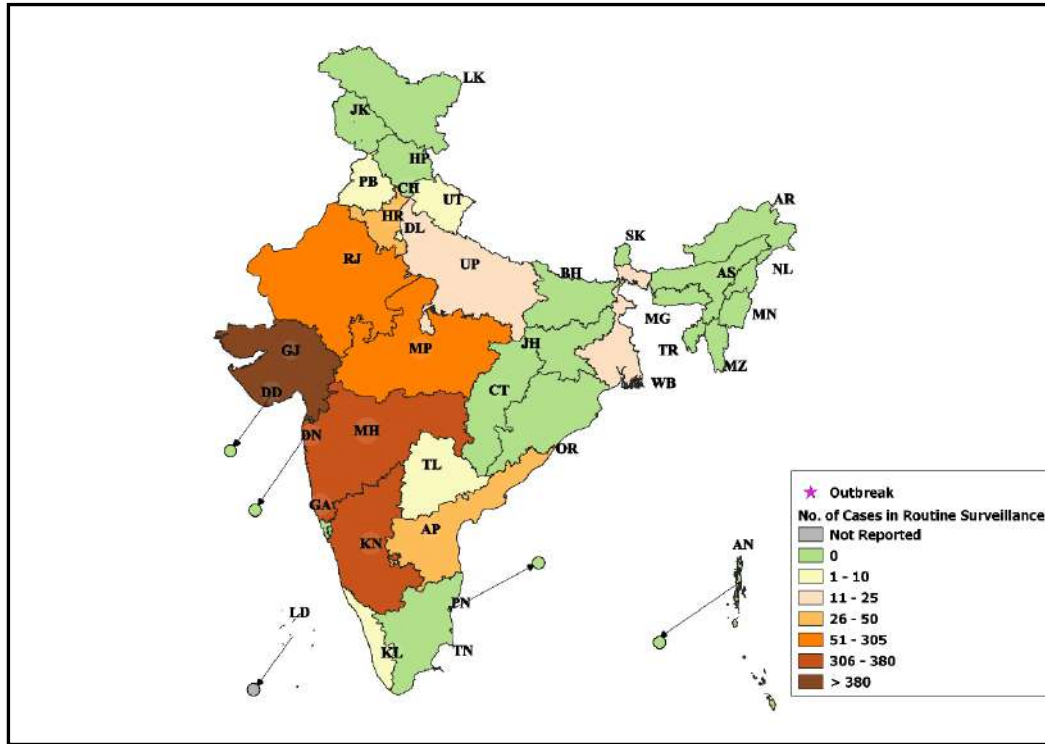
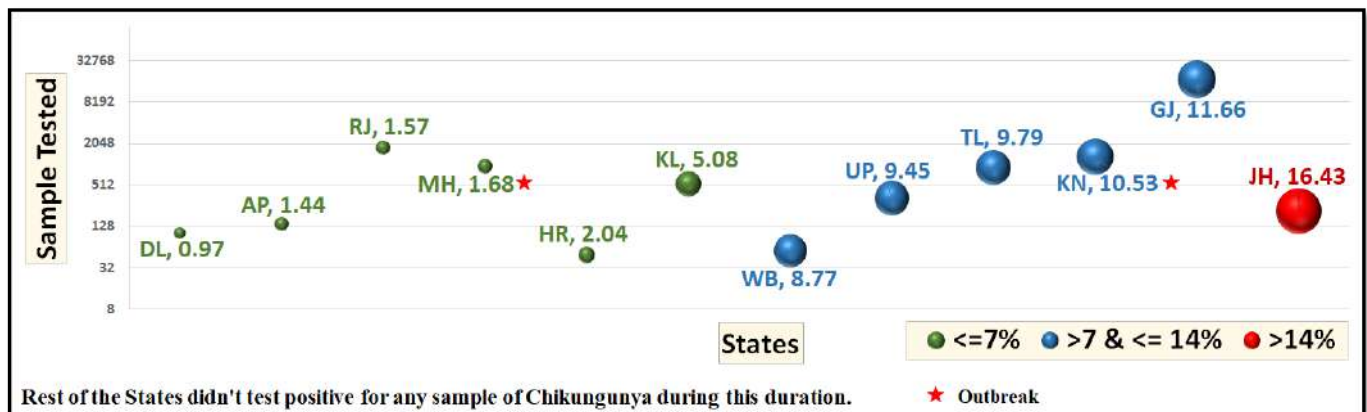
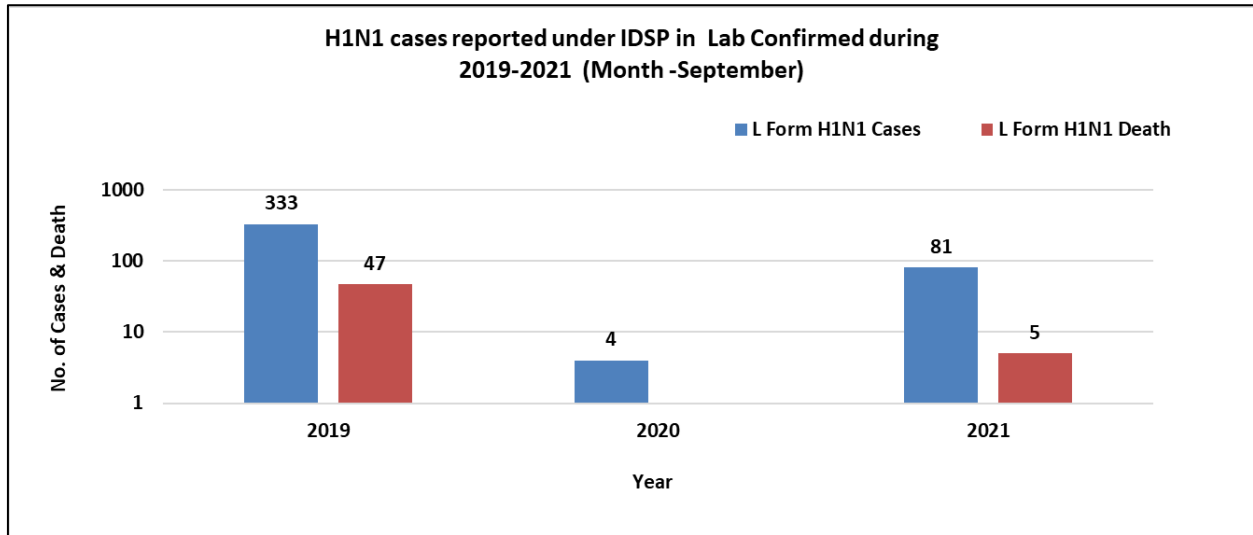


Fig. 26: State/UT wise Lab Confirmed Chikungunya cases and outbreaks for September 2021



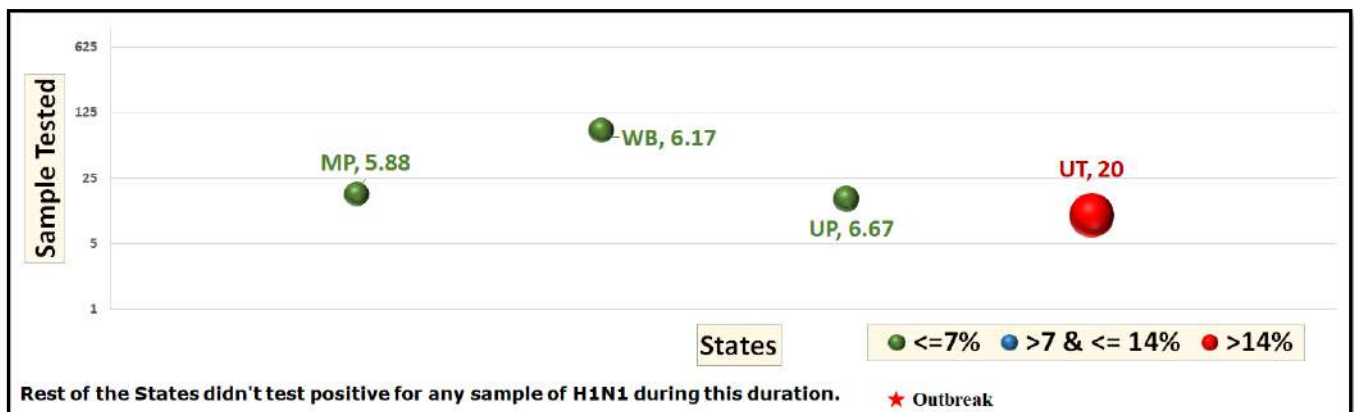
**Fig. 27: H1N1 cases reported under IDSP in L Form during 2019-2021 in September 2021**



As shown in Fig. 27, as reported in L form, in September 2019, there were 485 cases and 26 deaths. In September 2020, there were 5 cases and 0 deaths; and in September 2021, there were 227 cases and 3 deaths.

Case fatality rate for H1N1 were 5.4%, 0.00% and 1.3% in September month of 2018, 2019 & 2020 respectively.

**Fig. 28: State/UT wise H1N1 cases and outbreaks for September 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.

### ACKNOWLEDGEMENT

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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: [dinricd@nic.in](mailto:dinricd@nic.in) & [idsp-npo@nic.in](mailto:idsp-npo@nic.in)

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

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