



# Disease Alert

## प्रकोप चेतावनी

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

### In This Issue:

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**COVID-19 Outbreak, Kerala**

**02**

**Surveillance Data (Maps & Charts)**

**07**

**Action from Field**

**19**

**Glossary**

**19**

**COVID-19 Outbreak in March 2020, Kerala**

**BACKGROUND:**

Coronaviruses are large group of viruses that cause illness in humans and animals. The outbreak of Novel coronavirus disease (COVID-19) was initially noticed in a seafood market in Wuhan city in Hubei Province of China in late December 2019, which has now spread to 218 countries and territories worldwide. WHO (under International Health Regulations) declared this outbreak as a Public Health Emergency of International Concern (PHEIC) on 30<sup>th</sup> January 2020. WHO subsequently declared COVID-19 a pandemic on 11<sup>th</sup> March 2020.

**OUTBREAK OF COVID-19:**

**Background of Outbreak:** On 30th January 2020, a Kerala student who returned from Wuhan, China was tested to be positive for COVID-19 and became the first COVID-19 case in India. The student was already under hospital isolation and in stable condition.

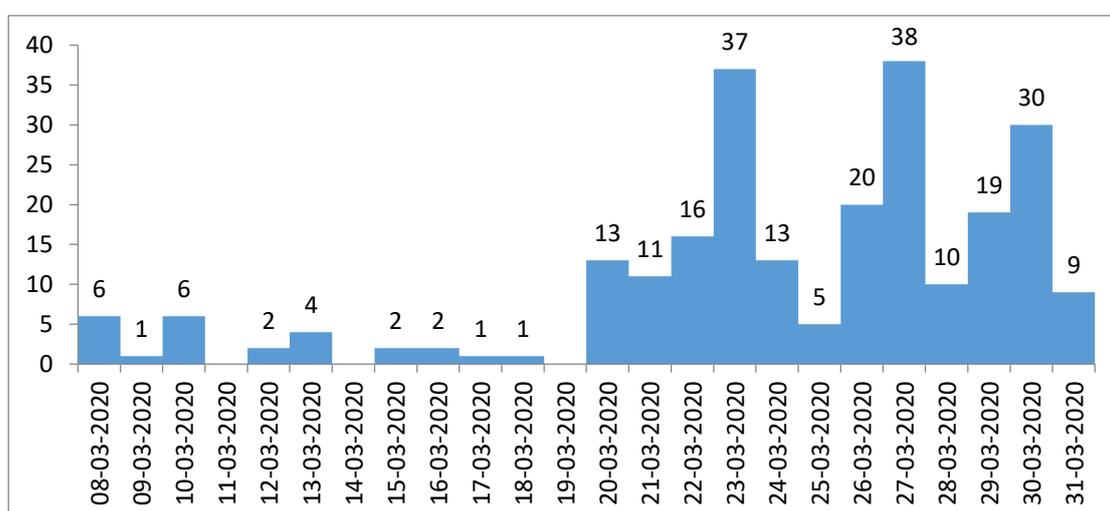
COVID cases again started reporting in March 2020. On 8<sup>th</sup> March 2020, 5 cases were reported from Pattanamthitta and one case from Ernakulam. Out of these, 3 cases from Pattanamthitta and one case from Ernakulam district were travellers and the remaining two cases from Pattanamthitta were contacts of positive cases. Soon more cases were reported from all over Kerala State.

**DESCRIPTIVE EPIDEMIOLOGY:**

**Time Distribution**

- Maximum cases (15%) were reported on 27<sup>th</sup> March 2020 as depicted in Figure-1.

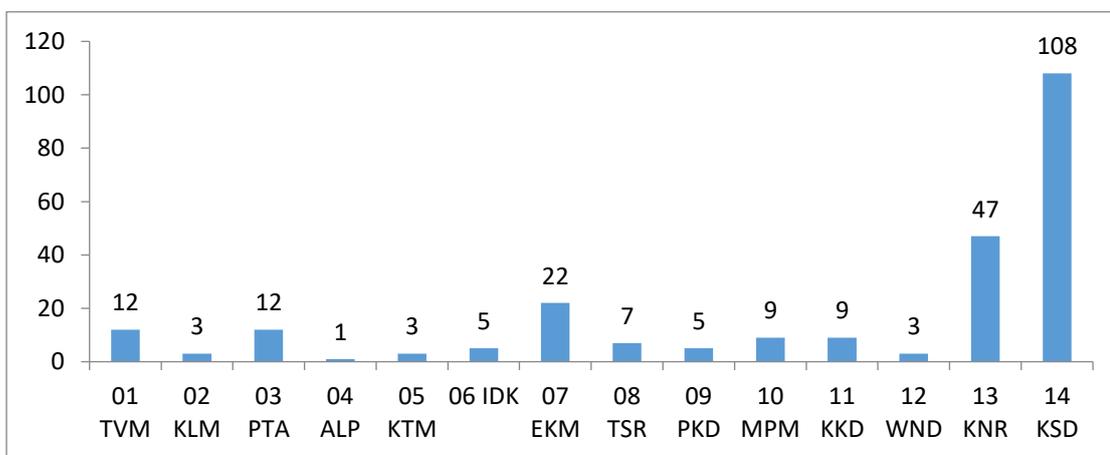
*Figure-1: Day-wise distribution of COVID cases:*



**Place Distribution:**

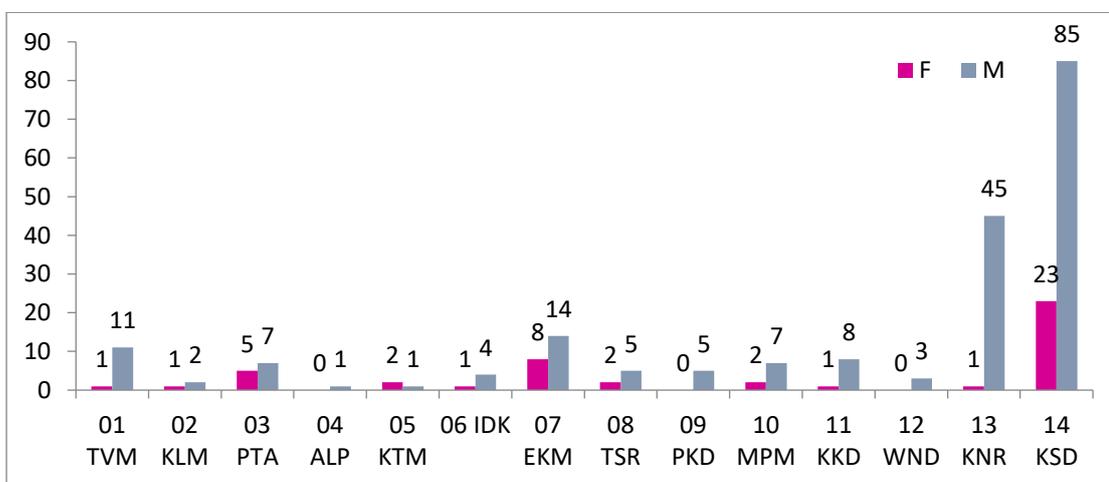
- A total 246 cases were reported in the month of March 2020. Maximum cases (44%) were in Kasaragod district and minimum from Alappuzha district as depicted in Figure-2.
- About 02 deaths were reported in this month. First death was from Ernakulam and another death from Thiruvananthapuram district. First case was a traveller (NRI) but the other case had no definite history of travel or contact. Both cases were males and aged above 65 years age.

*Figure-2: District-wise COVID-19 confirmed cases in March 2020*



- Cases kept increasingly reported throughout the month but case fatality rate was low (0.81%). Cases were reported from all the districts as depicted in Figure-3.

*Figure-3: District and Gender-wise distribution of confirmed cases in March 2020*



- About 78% cases were travellers and 22% were contacts of confirmed positive COVID cases as depicted in Figures 4 and 5.

Figure-4: Traveller vs Contacts among COVID-19 cases in March 2020

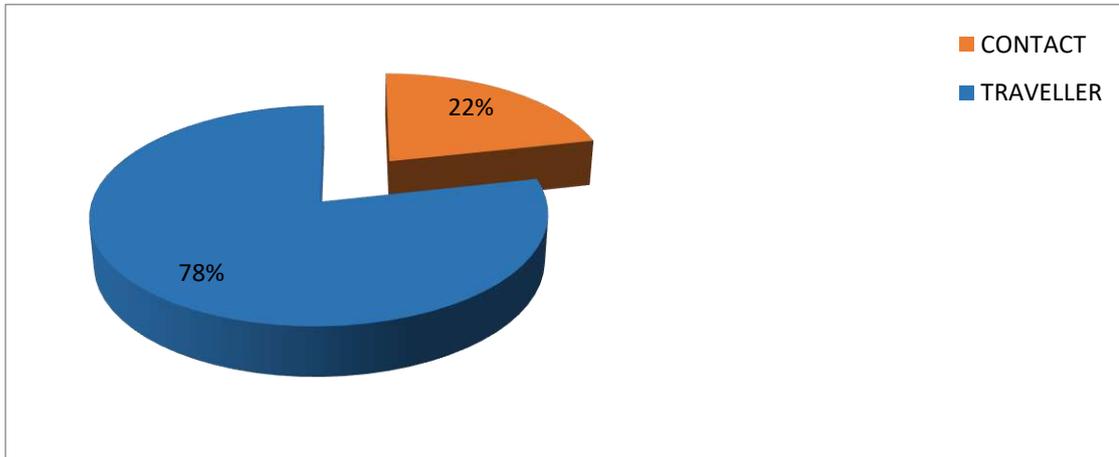
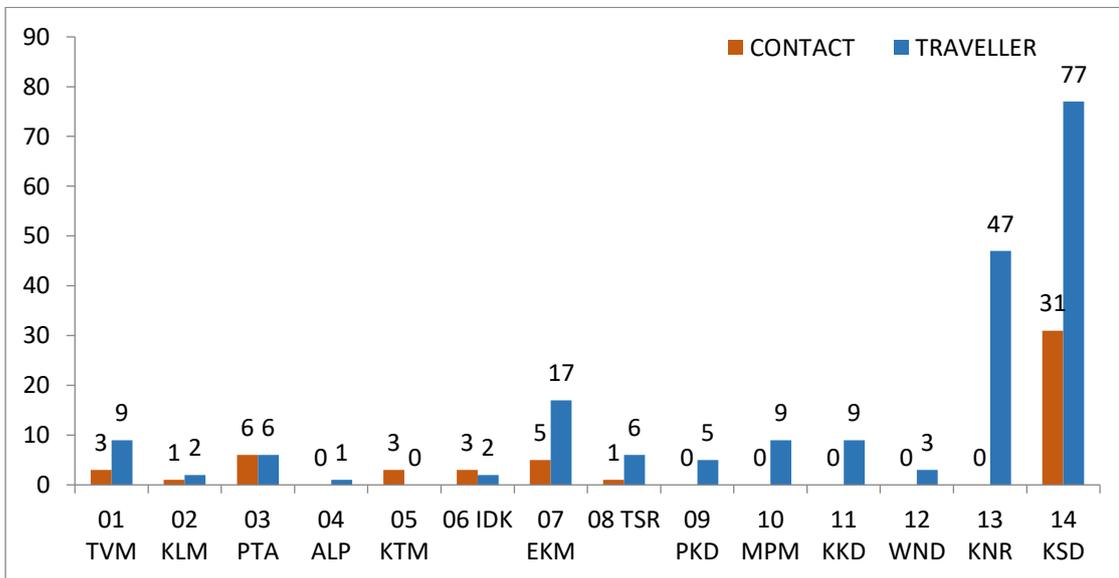


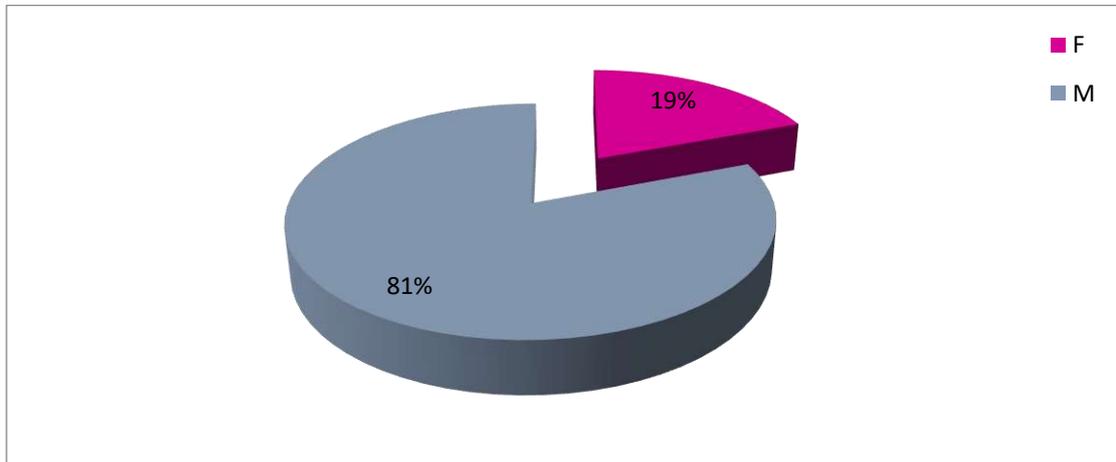
Figure-5: District-wise distribution of Travellers vs Contacts among COVID-19 cases



**Person Distribution:**

- About 81% cases were males and 19% cases were females as depicted in Figure-6.

Figure-6: Gender-wise distribution



- Majority of cases (72%) were in the age group of 16-45 years, followed by 19% in age group of 46-60 years as depicted in Figures-7 and 8.

Figure-7: Age distribution of COVID-19 confirmed cases

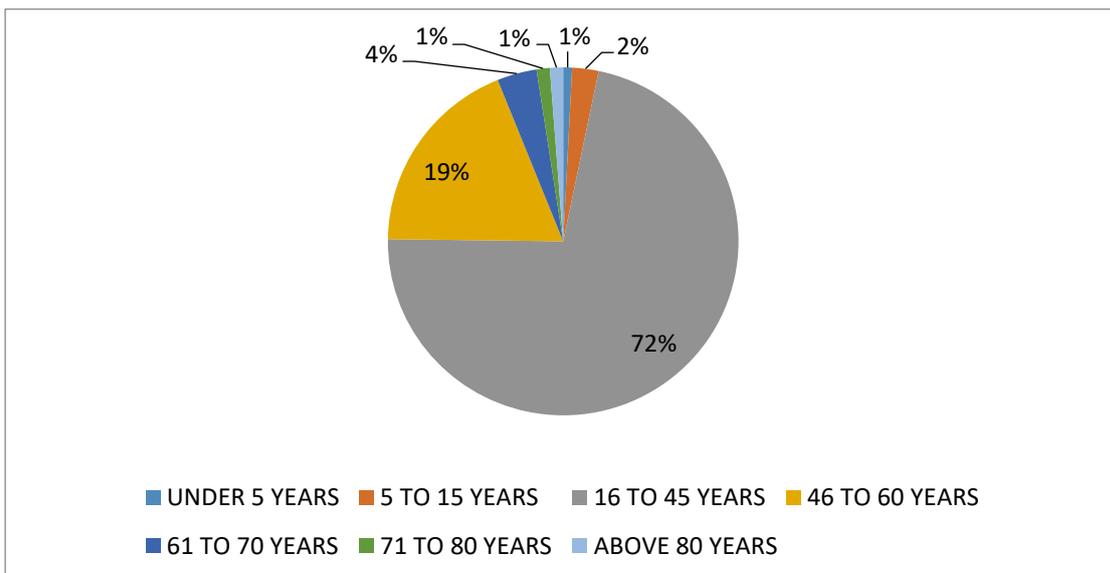
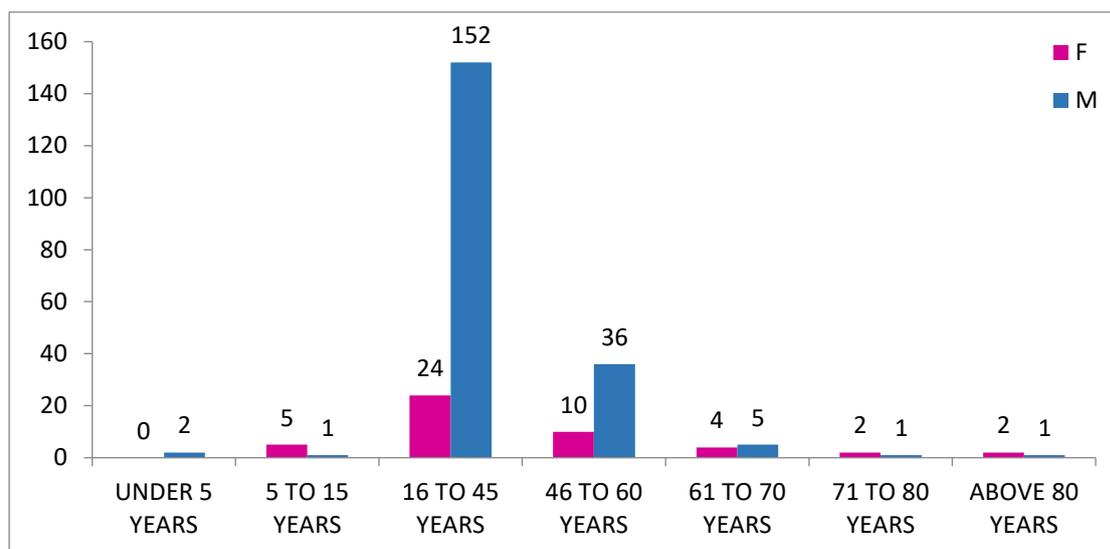


Figure-8: Age-wise gender distribution:



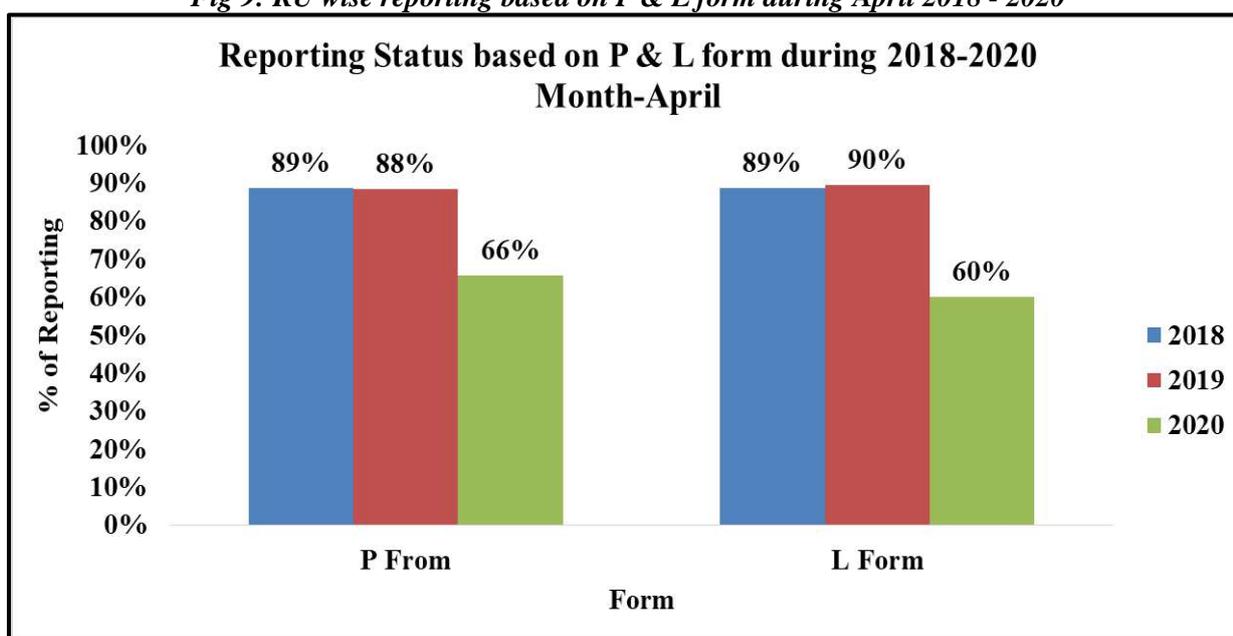
### **CONTROL MEASURES UNDERTAKEN:**

1. Revised guidelines on COVID-19 outbreak prevention and control were prepared at State level for dissemination of useful information to health staff and public.
2. Information Education Communication (IEC) activities were strengthened- Public announcements initiated at railway stations; all news channels/theatres broadcasted videos on COVID-19 prevention. Messages related to COVID-19 were also circulated on Social media handles. Legal Action was also initiated against people who tried to propagate false news related to COVID-19 on the social media.
3. Capacity building of staff was initiated-Training videos were prepared for training of Staff of Health Department and other line departments.
4. Emergency State and District Levels Rapid Response Teams (RRTs) were prepared for containment of outbreak response promptly.
5. An Interdepartmental co-ordination meeting was held in Thrissur Collectorate to plan further activities and evaluate the actions taken in Thrissur district. All primary and secondary contacts of the first positive case in Thrissur district were traced immediately for strengthening surveillance activities.
6. Arrangements were made at NIV Alappuzha Unit for testing of COVID-19 samples.
7. State/District Control rooms with Call centers were made 24\*7 functional. About 18 teams were identified to scale up the activities of the State Control room.
8. Directions to identify a greater number of isolation beds in the already designated hospitals and to equip one or two hospitals in all the districts with facilities for isolation and management of symptomatic cases.
9. Directions were given to district officials to identify private hospitals that were willing to admit symptomatic patients abiding the guidelines.
10. Directions were issued to Tours and Travel agencies to instruct the Taxi drivers hired by tourists to use Triple layered surgical masks.

**Surveillance data of Enteric Fever, Acute Diarrhoeal Disease, Viral Hepatitis A & E, Dengue Leptospirosis, Dengue, Chikungunya, Leptospirosis and Seasonal Influenza A (H1N1) During April 2018 - 2020\***

Data extracted from IDSP Portal ([www.idsp.nic.in](http://www.idsp.nic.in)) as on June 3<sup>rd</sup>, 2020.

*Fig 9: RU wise reporting based on P & L form during April 2018 - 2020*



As shown in Fig 9, in April 2018, 2019 and 2020, the 'P' form reporting percentage (i.e. % RU reporting out of total in P form) was 89%, 88% and 66% respectively across India, for all disease conditions reported under IDSP in P form. Similarly, L form reporting percentage was 89%, 90% and 60% 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 decreased in both P and L form in 2020 because of ongoing CoVID-19 pandemic.

Fig 10: State/UT wise P form completeness % for April 2020

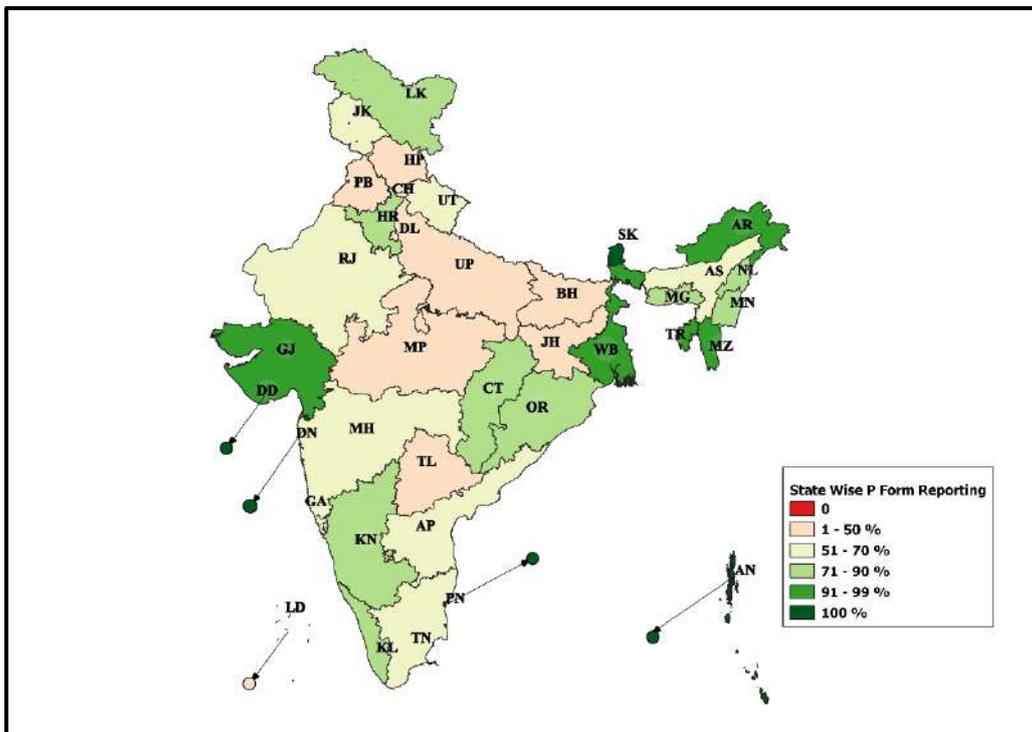
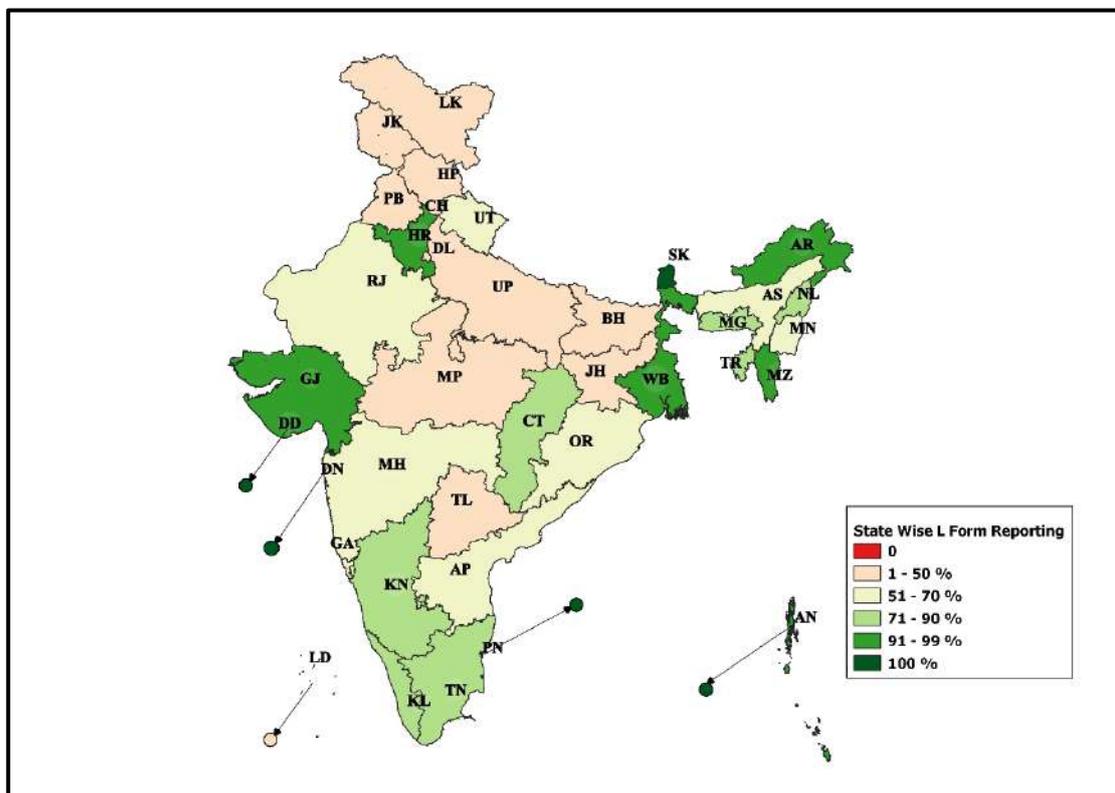
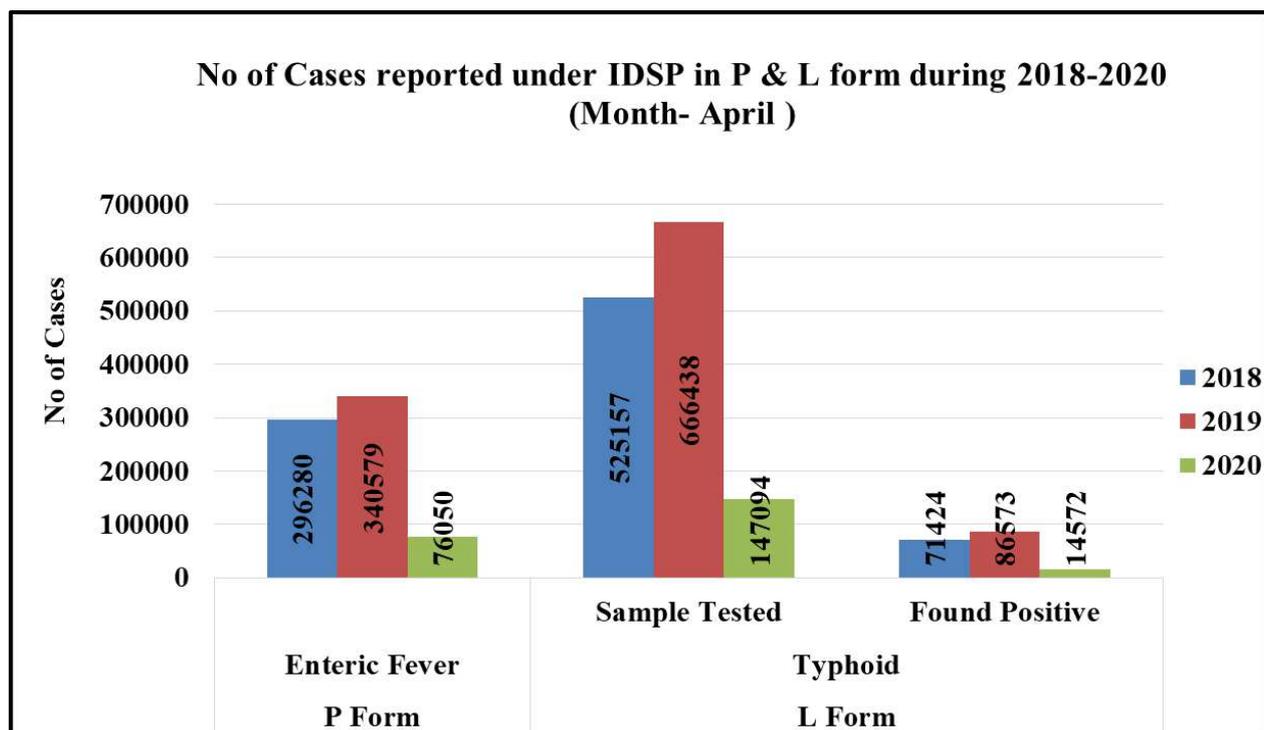


Fig 11: State/UT wise L form completeness % for April 2020





*Fig 12: No. of Enteric Fever Cases reported under P & L form during April 2018 - 2020*

As shown in Fig 12, number of presumptive enteric fever cases, as reported by States/UTs in 'P' form was 296280 in April 2018; 340579 in April 2019 and 76050 in April 2020. These presumptive cases are diagnosed on the basis of standard case definitions provided under IDSP.

As reported in L form, in April 2018; 525157 samples were tested for Typhoid, out of which 71424 were found positive. In April 2019; out of 666438 samples, 86573 were found to be positive and in April 2020, out of 147094 samples, 14572 were found to be positive.

Sample positivity has been 14%, 13% and 10% in April month of 2019, 2018 & 2020 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 13: State/UT wise Presumptive Enteric fever cases and outbreaks for April 2020

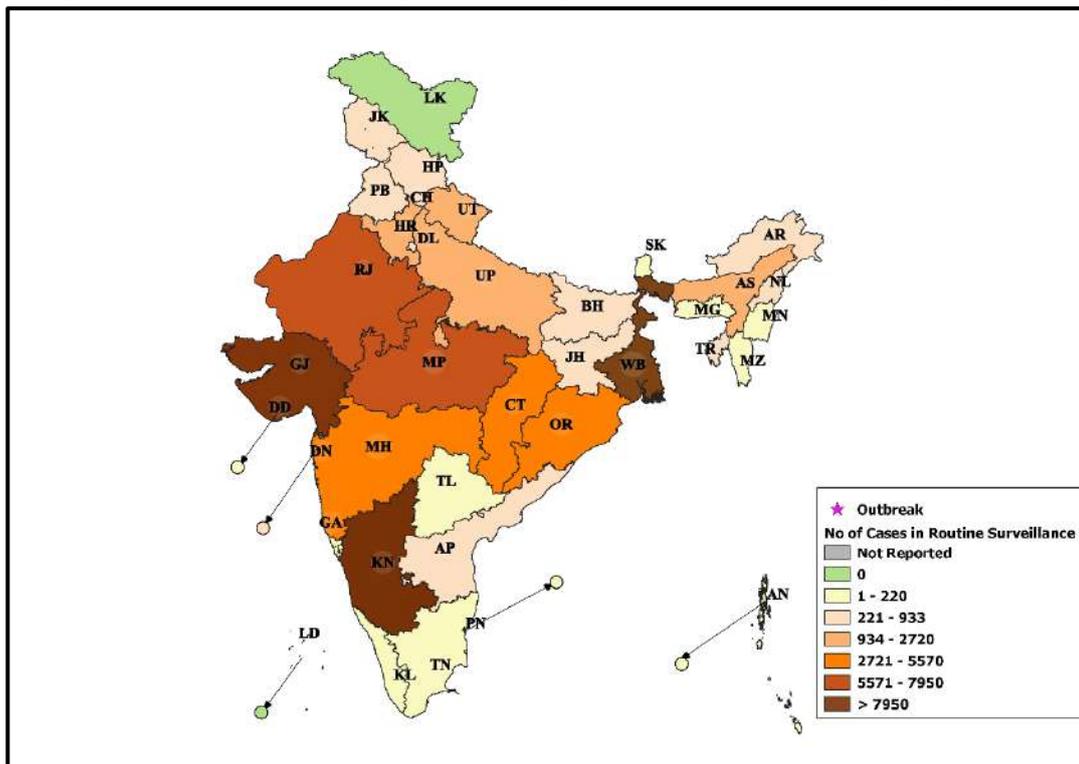


Fig 14: State/UT wise Lab Confirmed Typhoid cases and outbreaks for April 2020

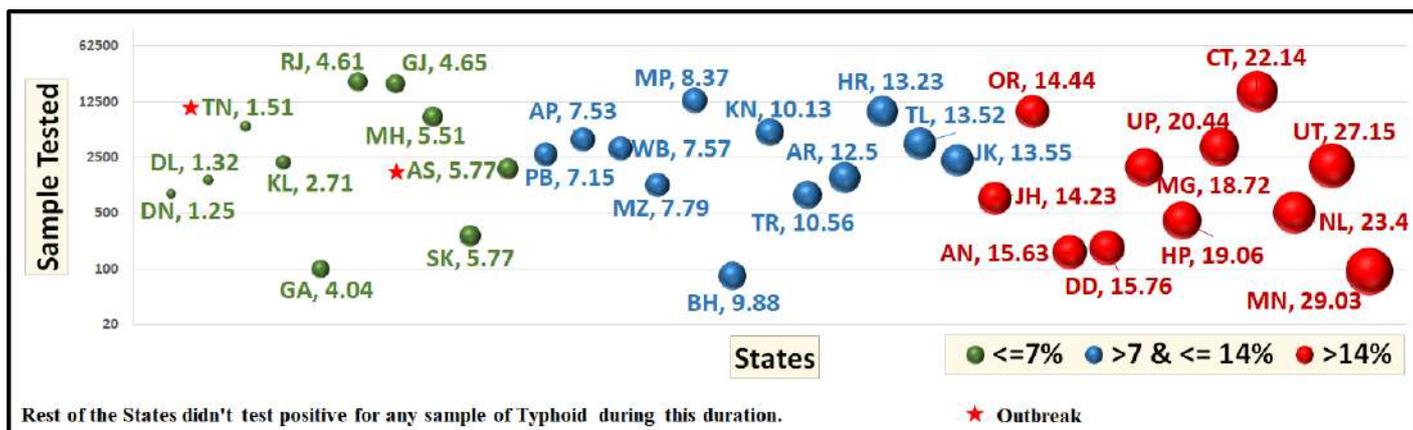
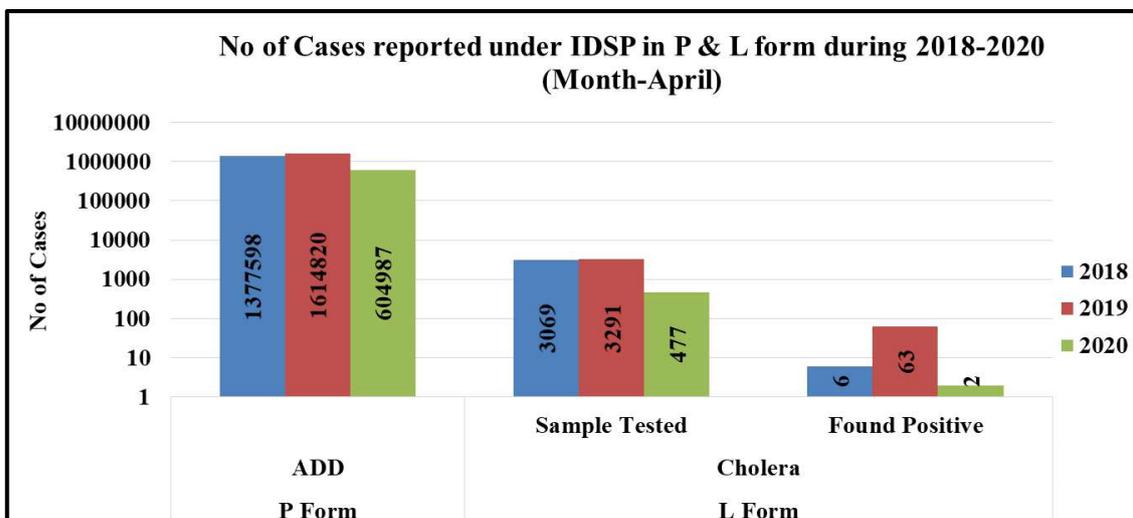


Fig.15: No. of ADD Cases reported under IDSP in P Form & Cholera Cases in L form during April 2018 - 2020



As shown in Fig 15, number of Acute Diarrhoeal Disease cases, as reported by States/UTs in ‘P’ form was 1377598 in April 2018; 1614820 in April 2019 and 604987 in April 2020. These presumptive cases are diagnosed on the basis of standard case definitions provided under IDSP.

As reported in L form, in April 2018, 3069 samples were tested for Cholera out of which 6 tested positive; in April 2019, out of 3291 samples, 63 tested positive for Cholera and in April 2020, out of 477 samples, 02 tested positive.

Sample positivity of samples tested for Cholera has been 0.58%, 0.29% and 0.19% in April month of 2018, 2019 & 2020 respectively.

Fig 16: State/UT wise Presumptive ADD cases and outbreaks for April 2020

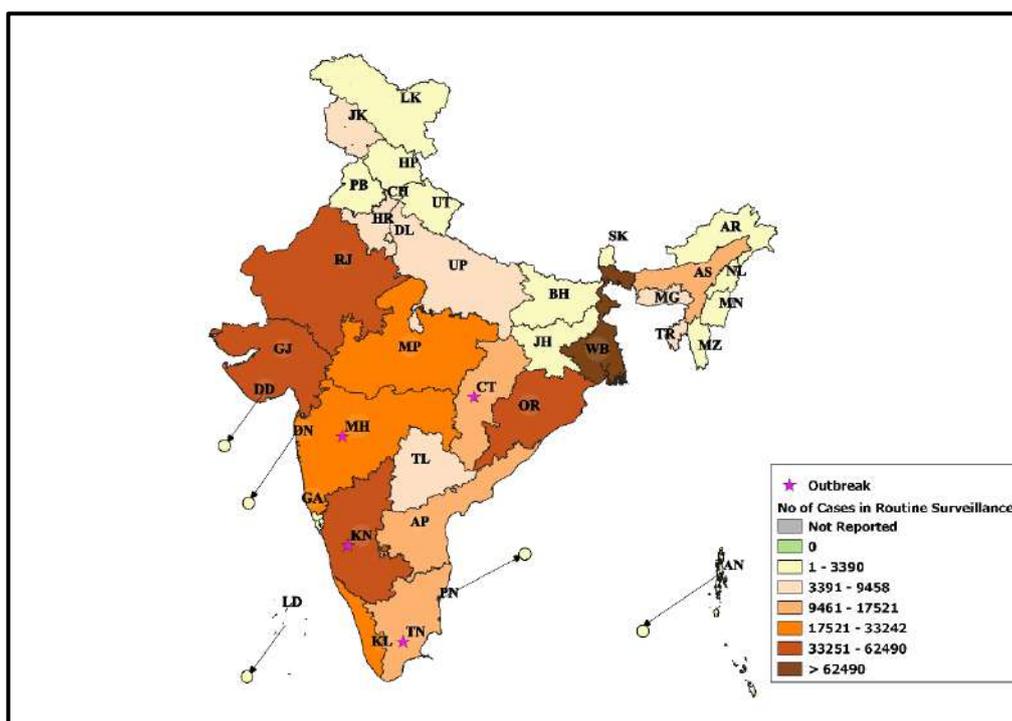


Fig 17: State/UT wise Lab Confirmed Cholera cases and outbreaks for April 2020

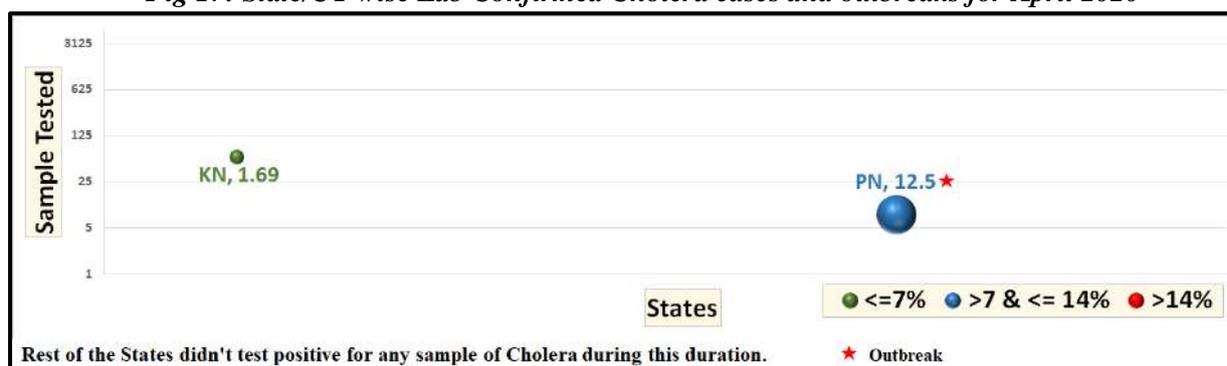
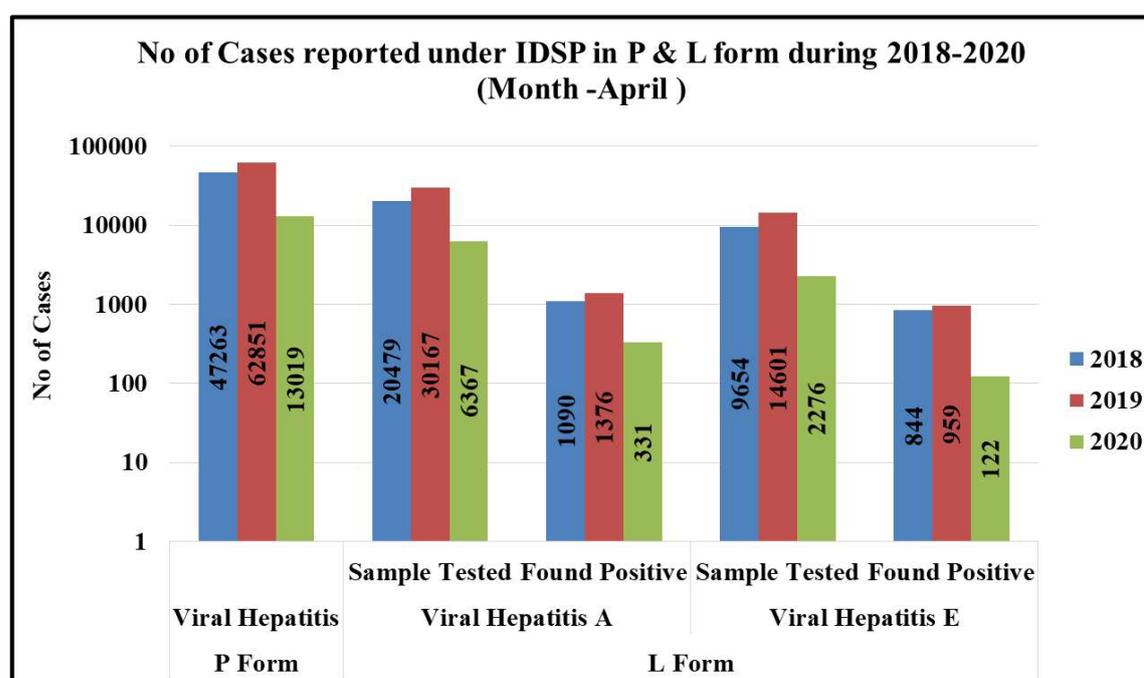


Fig 18: No of Viral Hepatitis Cases reported under IDSP in P form & Viral Hepatitis A & E cases reported under L form during April 2018 - 2020



As shown in Fig 18, the number of presumptive Viral Hepatitis cases was 47263 in April 2018, 62851 in April 2019 and 13019 in April 2020. These presumptive cases were diagnosed on the basis of case definitions provided under IDSP.

As reported in L form for Viral Hepatitis A, in April 2018; 20479 samples were tested out of which 1090 were found positive. In April 2019 out of 30167 samples, 1376 were found to be positive and in April 2020, out of 6367 samples, 331 were found to be positive.

Sample positivity of samples tested for Hepatitis A has been 5%, 5% and 5% in April month of 2018, 2019 & 2020 respectively.

As reported in L form for Viral Hepatitis E, in April 2018; 9654 samples were tested out of which 844 were found positive. In April 2019; out of 14601 samples, 959 were found to be positive and in April 2020, out of 2276 samples, 122 were found to be positive.

Sample positivity of samples tested for Hepatitis E has been 9%, 7% and 5% in April month of 2018, 2019 & 2020 respectively.

Fig 19: State/UT wise Presumptive Viral Hepatitis cases and outbreaks for April 2020

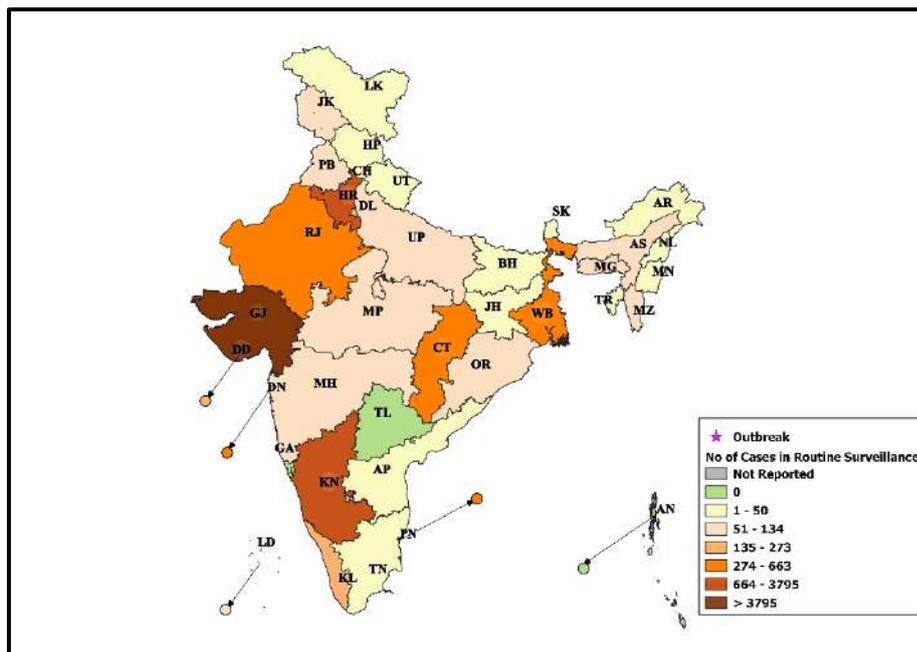


Fig 20: State/UT wise Lab Confirmed Viral Hepatitis A cases and outbreaks for April 2020

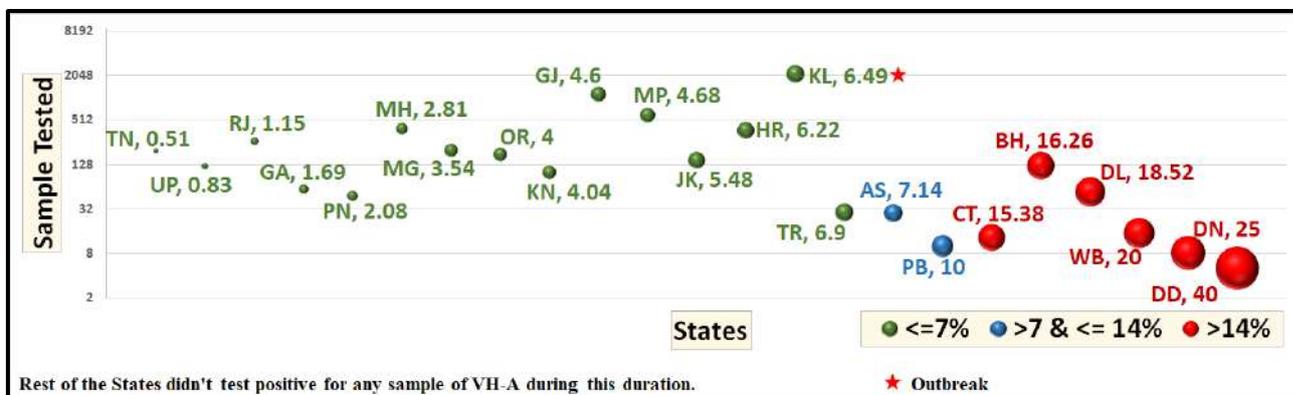


Fig 21: State/UT wise Lab Confirmed Viral Hepatitis E cases and outbreaks for April 2020

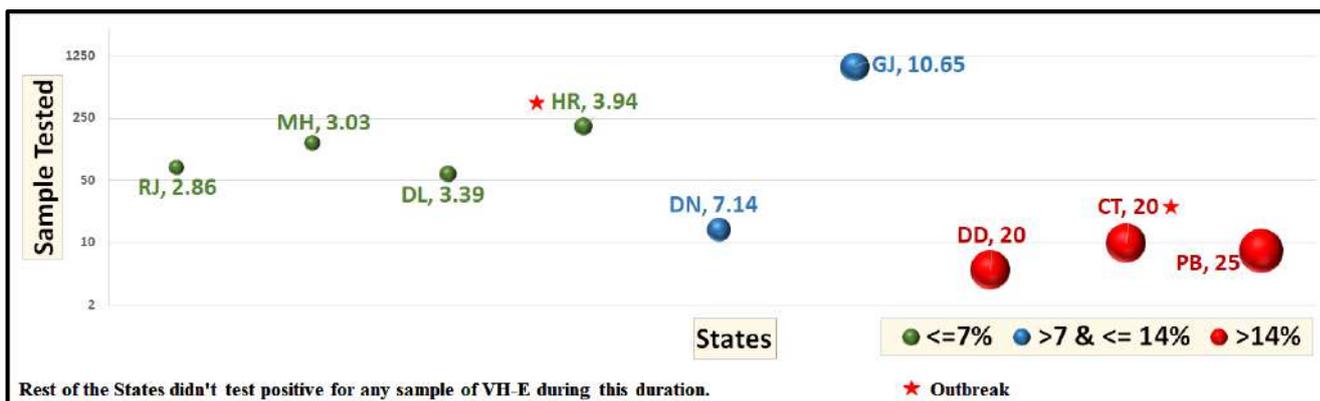
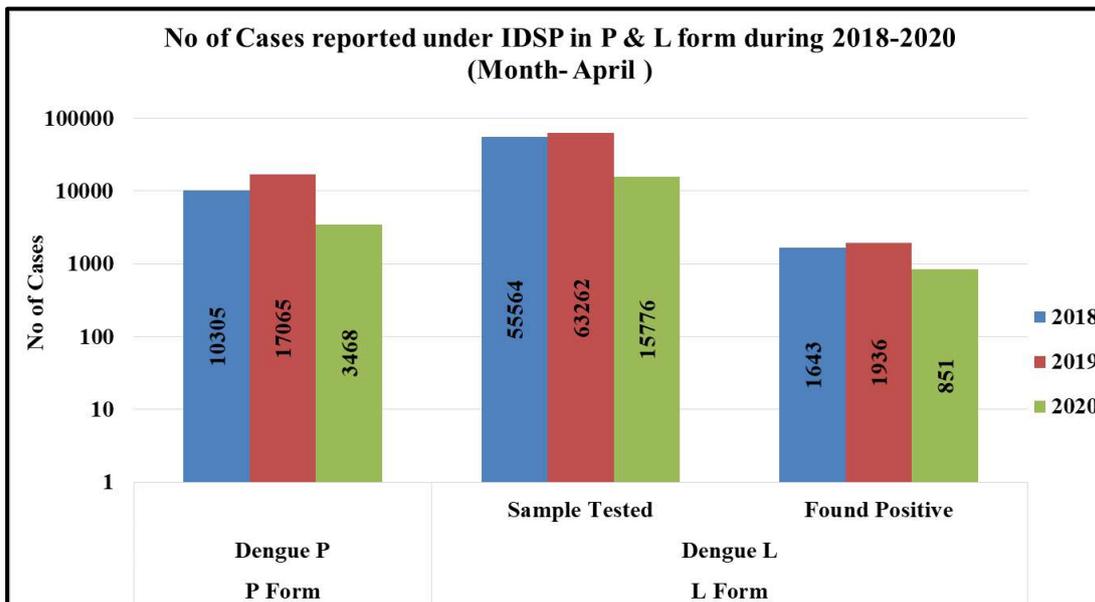


Fig 22: No. of Dengue Cases reported under IDSP in P & L form during April 2018 - 2020



As shown in Fig 22, number of presumptive Dengue cases, as reported by States/UTs in ‘P’ form was 10305 in April 2018; 17065 in April 2019 and 3468 in April 2020. These presumptive cases are diagnosed on the basis of standard case definitions provided under IDSP.

As reported in L form, in April 2018; 55564 samples were tested for Dengue, out of which 1643 were found positive. In April 2019; out of 63262 samples, 1936 were found to be positive and in April 2020, out of 15776 samples, 851 were found to be positive.

Sample positivity of samples tested for Dengue has been 2.96%, 3.06% and 5.39% in April month of 2018, 2019 & 2020 respectively.

Fig 23: State/UT wise Presumptive Dengue cases and outbreaks for April 2020

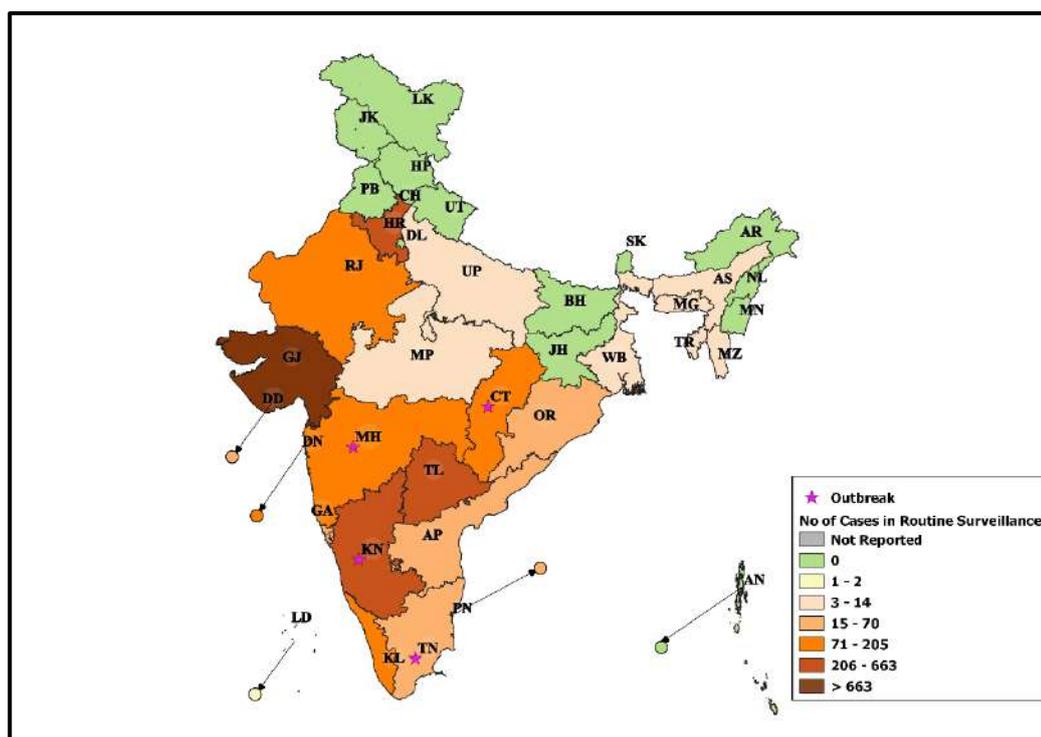


Fig 24: State/UT wise Lab Confirmed Dengue cases and outbreaks for April 2020

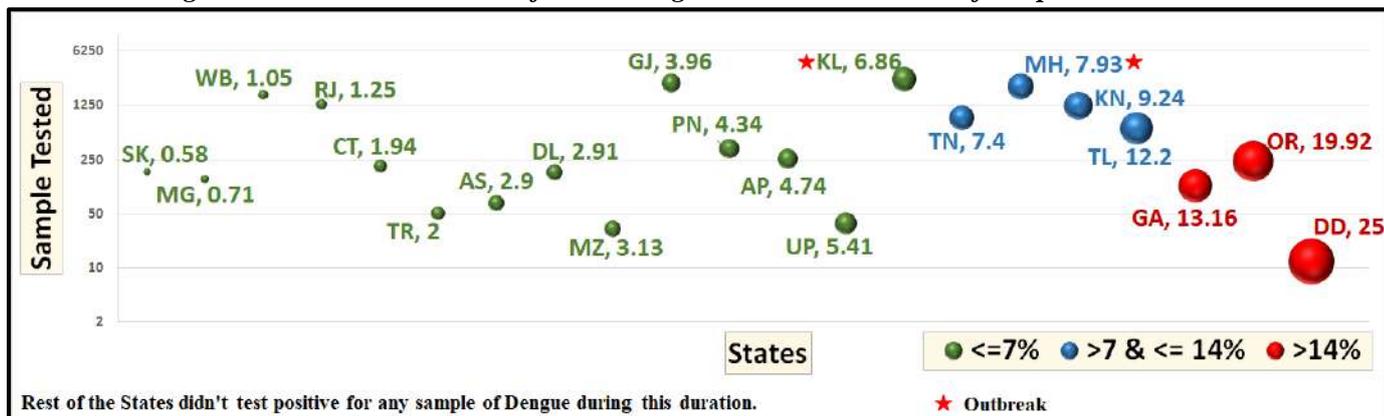
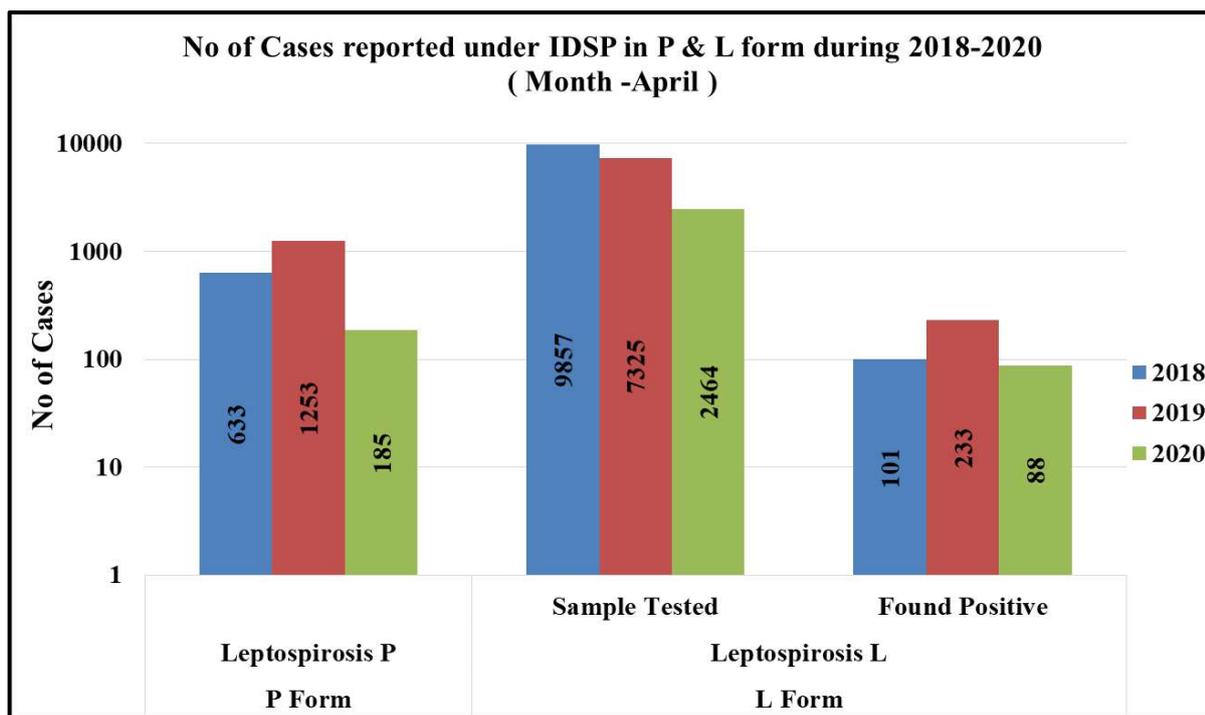


Fig 25: No. of Leptospirosis Cases reported under IDSP in P & L form during April 2018 – 2020



As shown in Fig 25, number of presumptive Leptospirosis cases, as reported by States/UTs in ‘P’ form was 633 in April 2018; 1253 in April 2019 and 185 in April 2020. These presumptive cases are diagnosed on the basis of standard case definitions provided under IDSP.

As reported in L form, in April 2018; 9857 samples were tested for Leptospirosis, out of which 101 were found positive. In April 2019; out of 7325 samples, 233 were found to be positive and in April 2020, out of 2464 samples, 88 were found to be positive.

Sample positivity of samples tested for Leptospirosis has been 1.02%, 3.18% and 3.57% in April month of 2018, 2019 & 2020 respectively.

Fig 26: State/UT wise Presumptive Leptospirosis cases and outbreaks for February 2020

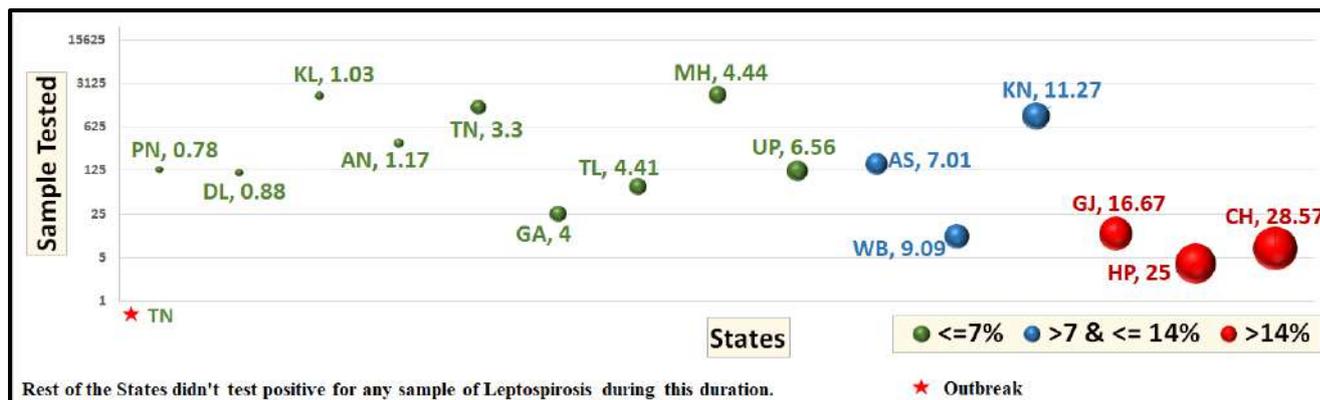
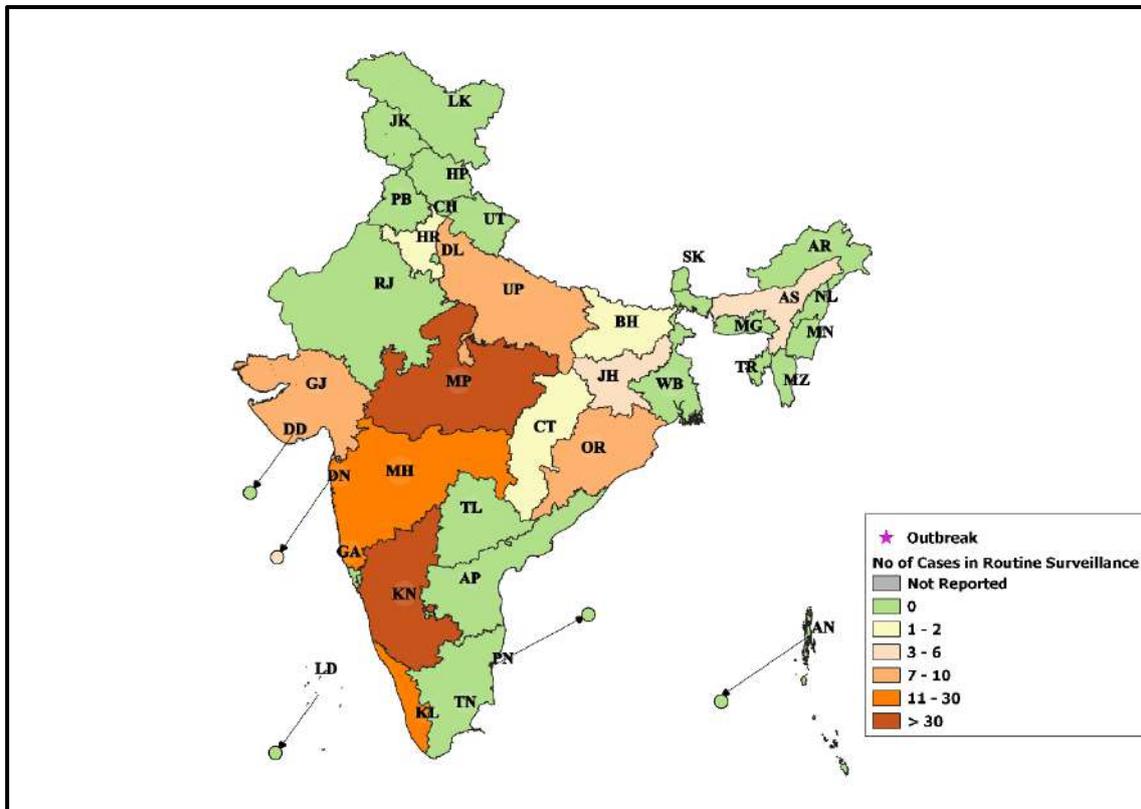
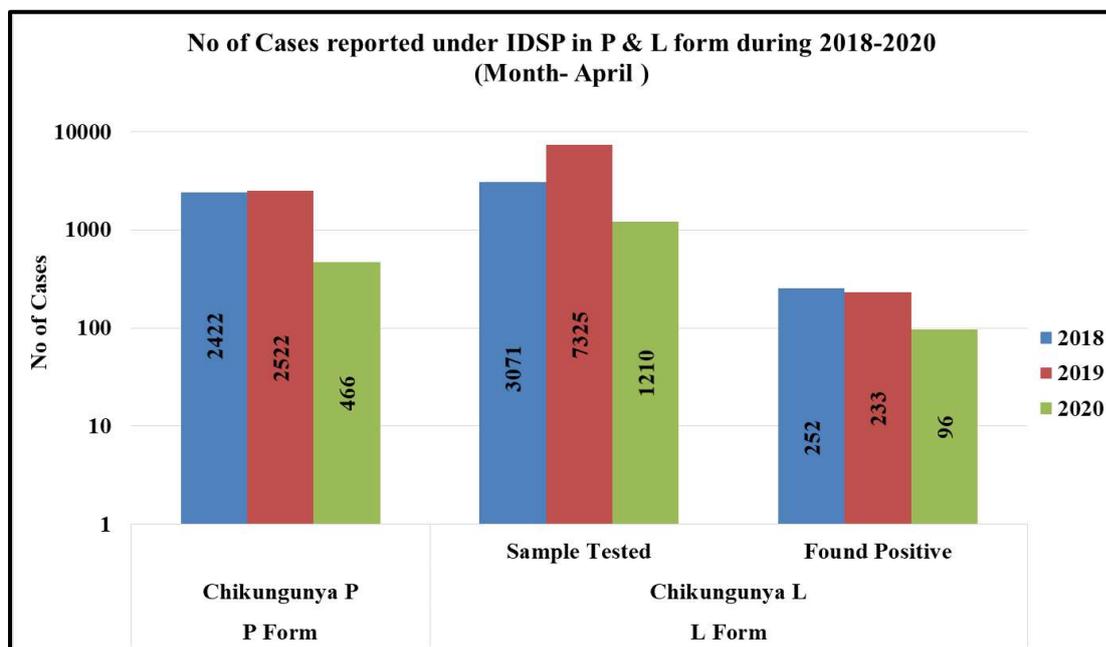


Fig 27: State/UT wise Lab Confirmed Leptospirosis cases and outbreaks for April 2020

**Fig. 28: No. of Chikungunya Cases reported under IDSP in P & L form during April 2018 - 2020**



As shown in Fig 28, number of presumptive Chikungunya cases, as reported by States/UTs in 'P' form was 2422 in April 2018; 2522 in April 2019 and 466 in April 2020. These presumptive cases are diagnosed on the basis of standard case definitions provided under IDSP.

As reported in L form, in April 2018; 3071 samples were tested for Chikungunya, out of which 252 were found positive. In April 2019; out of 7325 samples, 233 were found to be positive and in April 2020, out of 1210 samples, 96 were found to be positive.

Sample positivity of samples tested for Chikungunya has been 8%, 3% and 8% in April month of 2018, 2019 & 2020 respectively.

**Fig 29: State/UT wise Presumptive Chikungunya cases and outbreaks for April 2020**

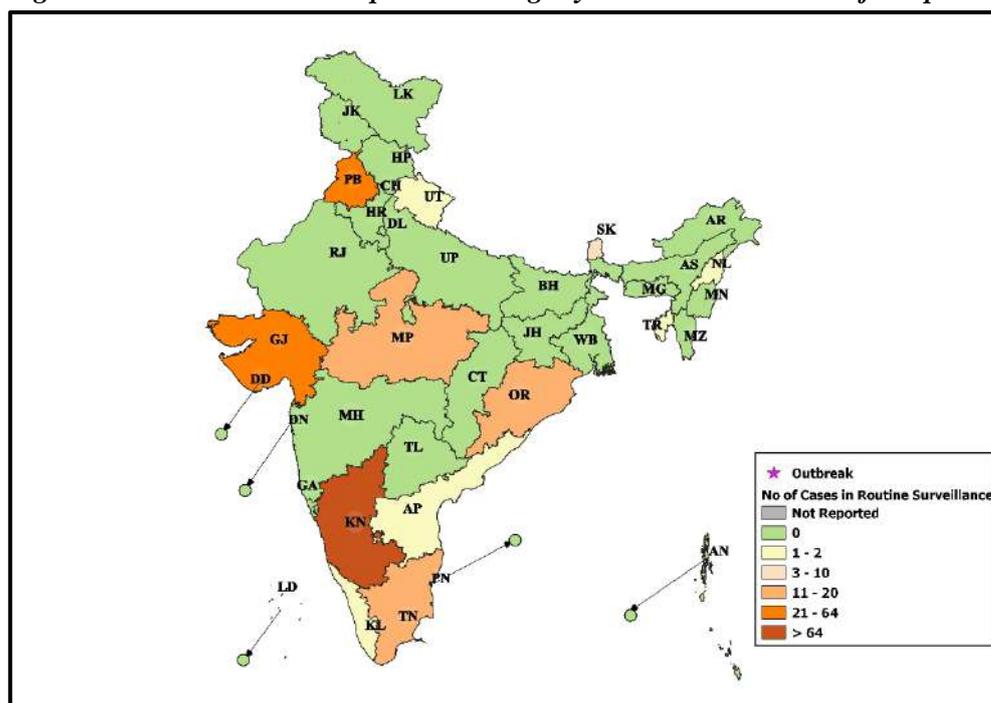


Fig 30: State/UT wise Lab Confirmed Chikungunya cases and outbreaks for April 2020

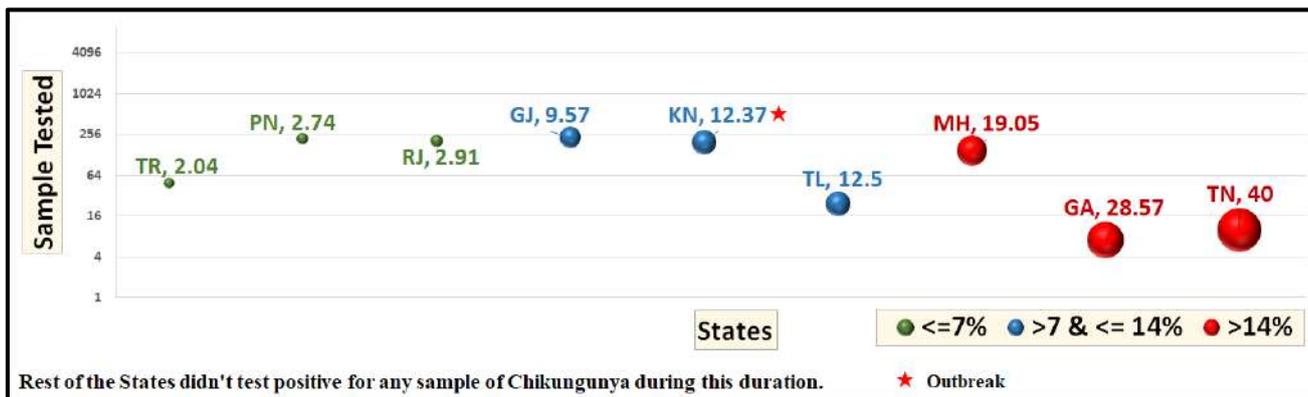
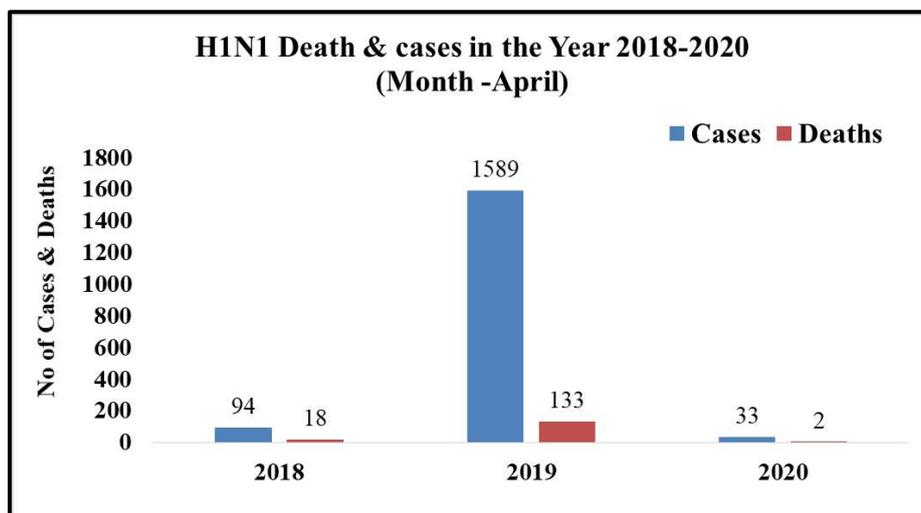


Fig 31: H1N1 cases reported under IDSP in L Form during 2018-2020 in April 2020



As shown in Fig 31. as reported in L form, in April 2018, there were 94 cases and 18 deaths. In April 2019, there were 1589 cases and 133 deaths; and in April 2020, there were 33 cases and 02 deaths.

Case fatality rate for H1N1 were 19.15%, 8.37% and 6.06% in April month of 2018, 2019 & 2020 respectively.

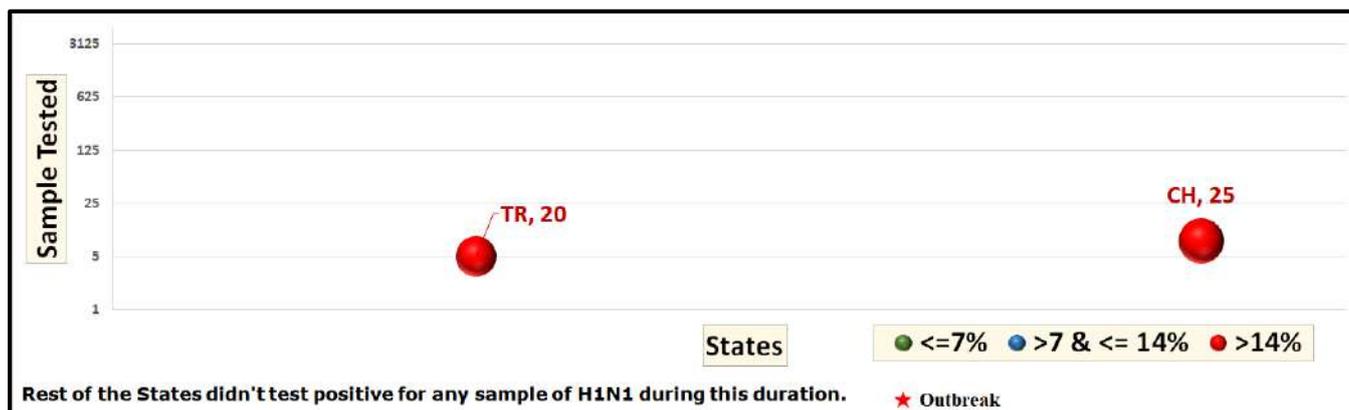


Fig 32: State/UT wise H1N1 cases and outbreaks for April 2020

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

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