1045249/2018/O/O NCDC

Disease Alert
प्रकोप चेतावनी

A monthly Surveillance Report from Integrated Disease Surveillance Programme National Health Mission

Investigation of Suspected Anthrax Outbreak in Sankarpur PHC under Hariharpara BPHC, Murshidabad district, West Bengal

Introduction

According to report submitted by SSU, IDSP, West Bengal and DSU, Murshidabad, the first case of suspected anthrax came on 14th May to Hariharpara BPHC. The patient had fever and vesicles on arm having a history of slaughtering sick cow. He was admitted to Murshidabad MCH later on 16th May.

On 15th May, District RRT along with Block RRT (Block Medical Officer of Health and Block Livestock Development Officer) initiated the investigation to ascertain the cause of the patients' symptoms.

Methodology adopted by RRT

A case definition was made to label patients as suspected cases of Anthrax

"A case that is compatible with the clinical description and has an epidemiological link to confirm or suspected animal cases or contaminated animal products with or without gram positive bacilli in short chains".

Following findings came to light:-

1. A cow had suddenly become sick on 09th May'18. It was slaughtered and the meat was distributed amongst the residents of the said village. A few people from a neighbouring village, Old Ramna were also invited for a meal consisting of cow's meat.

2. The person who slaughtered the said cow developed fever and vesicles on both arm. He reported to Murshidabad MCH on 16th and was admitted there.

3. During active case search, 8 more cases were found having blackish haemorrhegic blister with ulcer in finger and plam typical of anthrax, developed after 2-3 days of handling the sick cow or its meat.

4. A total of 13 cases were reported till 28th May. Majority of cases were reported on 15th (8 cases) and 16th (3 cases). One more case occurred on 18th May.

5. Patients took treatment from a local doctor before reporting to BPHC.

Fig. 1: Lesion in suspected anthrax case on hand during outbreak in Hariharpara BPHC, Murshidabad district, West Bengal

Descriptive Epidemiology:

Descriptive epidemiology was undertaken to understand time, place and person distribution of cases. Comparison with the data with last 3 years was made.
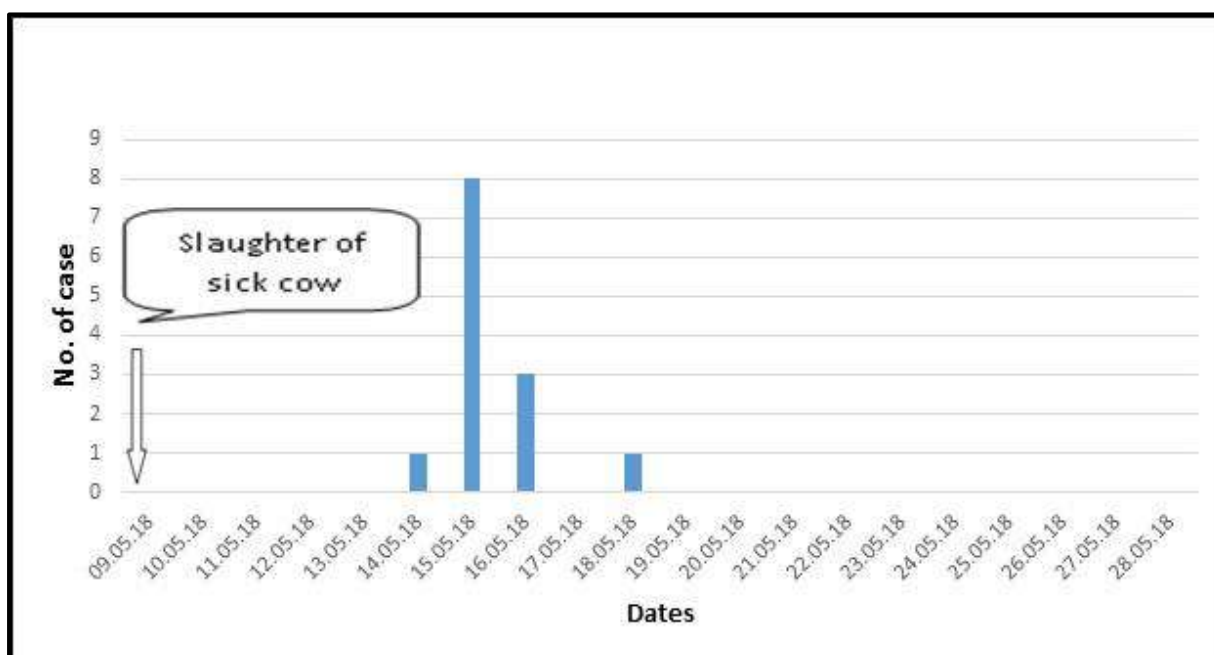
Fig. 2: Lesion in suspected anthrax case on hand during outbreak in Hariharpara BPHC, Murshidabad district, West Bengal

It was found that 81 total cases were exposed. 6 persons had the history of slaughtering the sick cow, 30 people had the history of handling raw meat and remaining 45 had only consumed the meat. Out of the 13 cases, 6 were directly involved in slaughtering and remaining 7 cases were involved in handling raw meat. **The overall attack rate was 19%.**

Fig. 3: Persons got affected out of persons exposed to sick cow/ meat during outbreak in Hariharpara BPHC, Murshidabad district, West Bengal
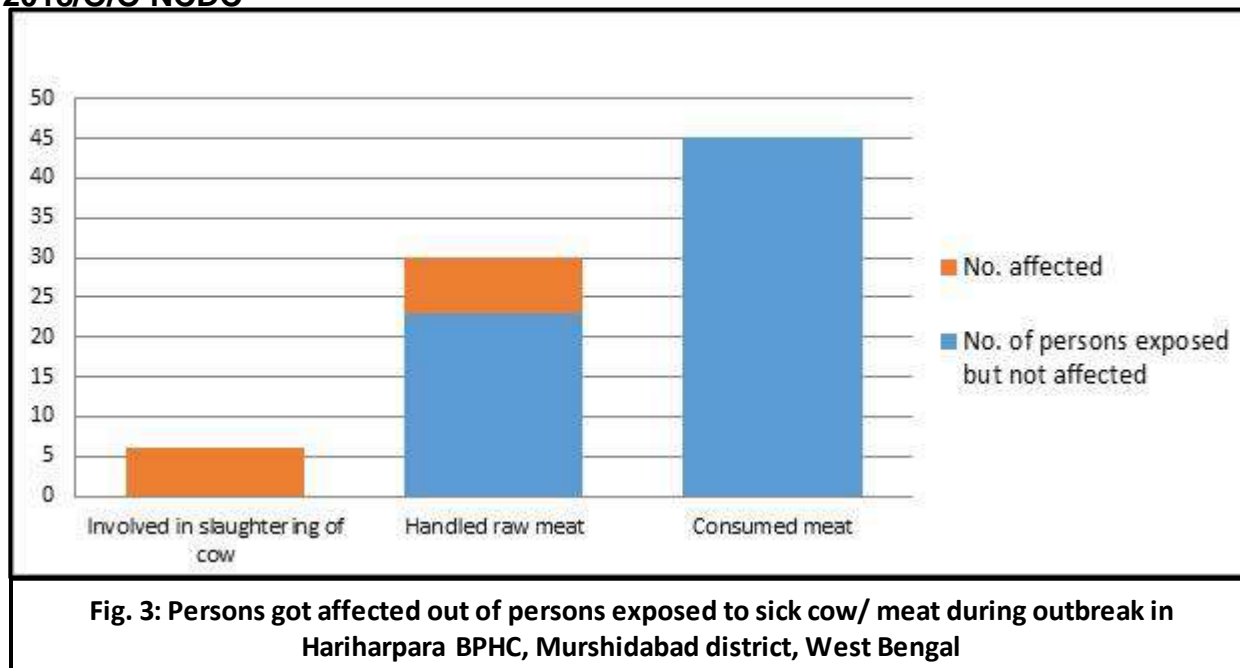
Control Measures undertaken

1. Medical camp was organized to provide treatment to the cases of suspected anthrax and to give chemoprophylaxis to rest of the contacts.

2. IEC was performed through mike publicity and interpersonal communication.

3. Animal vaccination camp started at Sankarpur PHC on 15.05.18 by BLDO and continued till 16.05.18. All the animals at risk were vaccinated (162 cattle and 395 goats).

Laboratory Results

As reported by DPHL, Murshidabad, all the samples were negative for B. anthracis both in Gram stain and in culture. However, it must be noted that all the cases had already received antibiotic treatment before collection of samples. Report of soil sample was also negative for anthrax spores.

Conclusion

In absence of positive laboratory result the diagnosis of the cases was labelled as: Suspected Anthrax. However, surveillance data available under IDSP, SSU for the same period of the year 2015-2017 indicated that there were no case of anthrax in human population in the sub-center area or Hariharpara Block.

Data from ARD indicated there were no cases of Anthrax reported in animal population. However, based on clinical findings and prior antibiotic treatment, this episode was declared as a suspected anthrax outbreak due to exposure to infected cattle.

Recommendations

Generation of public awareness in the affected and neighbouring villages not to slaughter sick or dead animals, and to inform the ARD functionaries immediately about any death of animal due to disease and to report at the BPHC as soon as there is any suspected lesion in a human being occurs needs to be re-enforced. Samples for lab test should be taken as early as possible during investigation before the patients start antibiotic treatment.

1045249/2018/O/O NCDC

<table>
<tr><td>**Surveillance data of Enteric Fever, Acute Diarrhoeal Disease, Viral Hepatitis A & E, Dengue Leptospirosis and Chikungunya During May 2016 - 2018***</td></tr>
</table>

* Data extracted from IDSP Portal (www.idsp.nic.in) as on 30 August, 2018.

Fig. 4: RU wise reporting based on P & L form during May 2016 - 2018
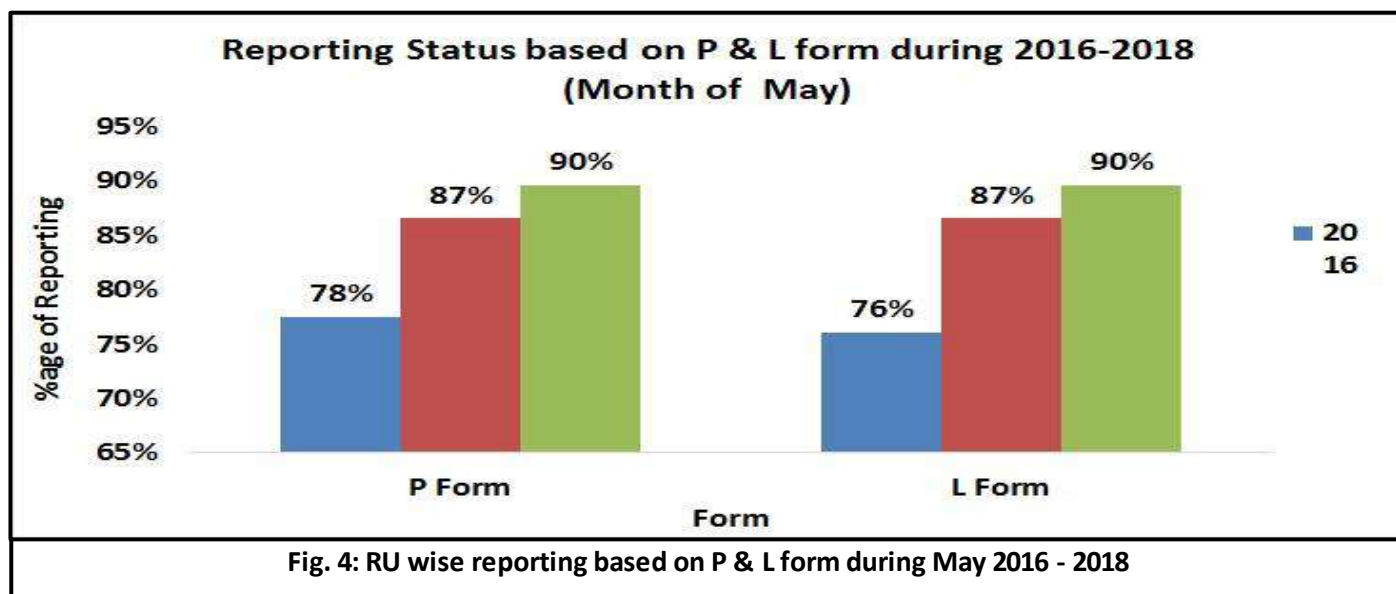
As shown in Fig 4, in May 2016, 2017 and 2018, the 'P' form reporting percentage (i.e. % RU reporting out of total in P form) was 78%, 87% and 90% respectively across India, for all disease conditions reported under IDSP in P form. Similarly, L form reporting percentage was 76%, 87% and 90% respectively 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 increased over the years in both P and L form, thereby improving the quality of surveillance data.

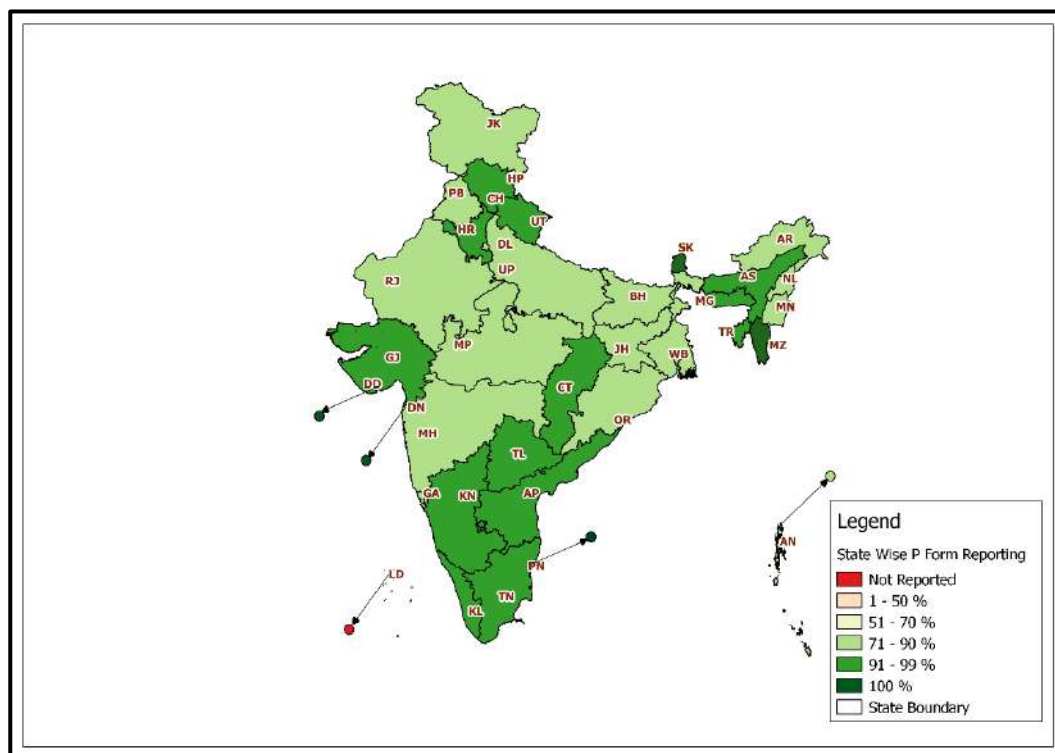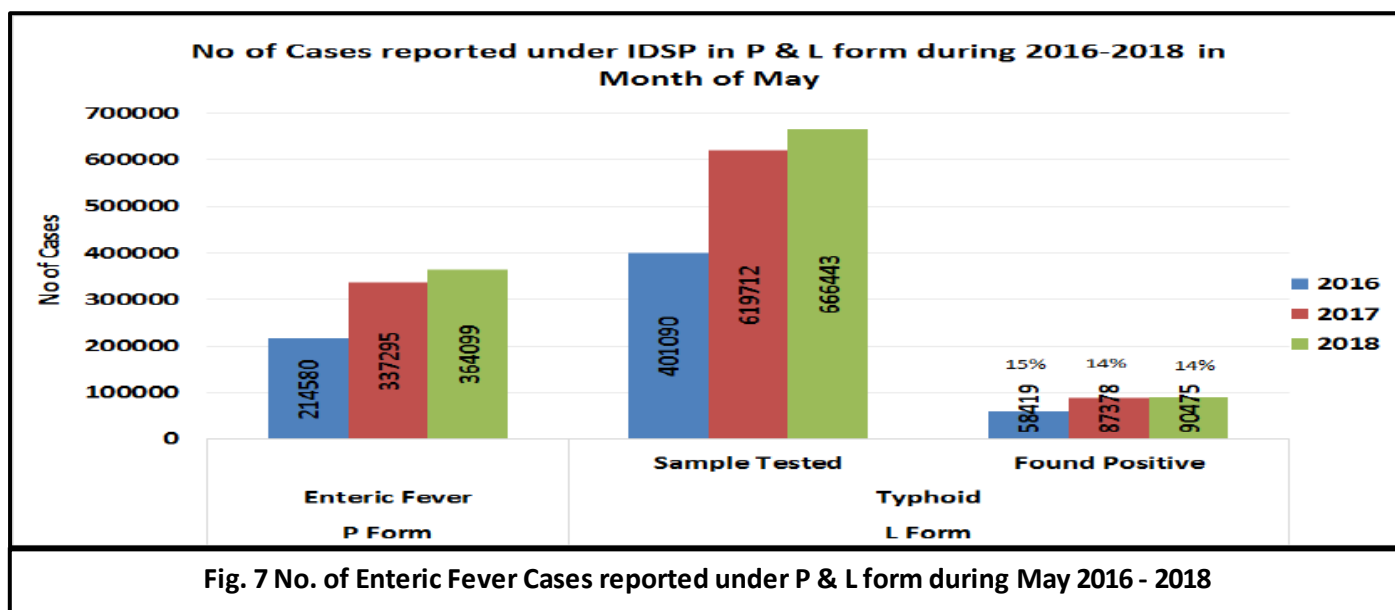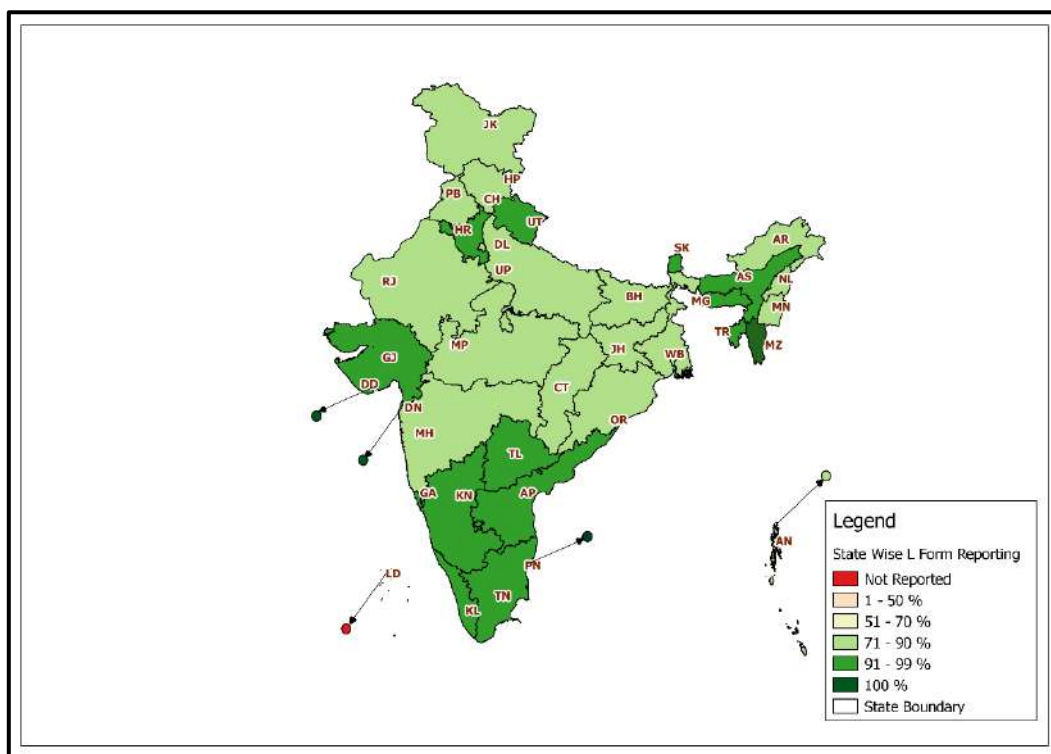**Fig 5: State/UT wise P form completeness % for May 2018**

1045249/2018/O/O NCDC

Fig 6: State/UT wise L form completeness % for May 2018

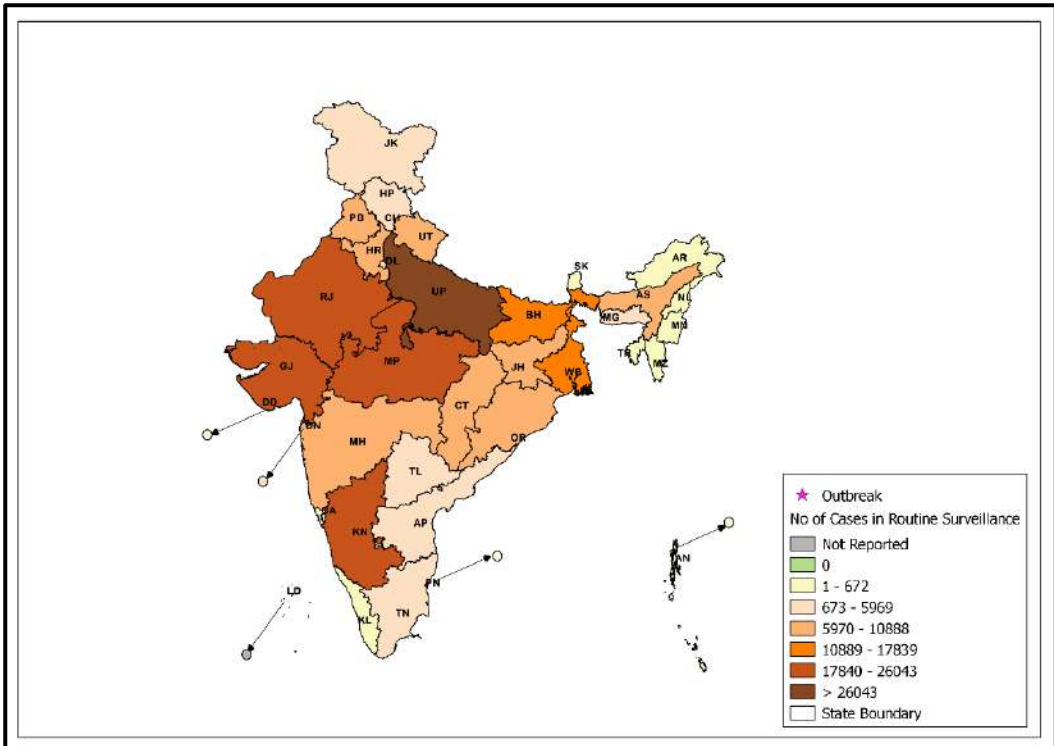**Fig. 7 No. of Enteric Fever Cases reported under P & L form during May 2016 - 2018**

As shown in Fig 7, number of presumptive enteric fever cases, as reported by States/UTs in 'P' form was 214580 in May 2016; 337295 in May 2017 and 364099 in May 2018. These presumptive cases are diagnosed on the basis of standard case definitions provided under IDSP.

As reported in L form, in May 2016; 401090 samples were tested for Typhoid, out of which 58419 were found positive. In May 2017; out of 619712 samples, 87378 were found to be positive and in May 2018, out of 666443 samples, 90475 were found to be positive.
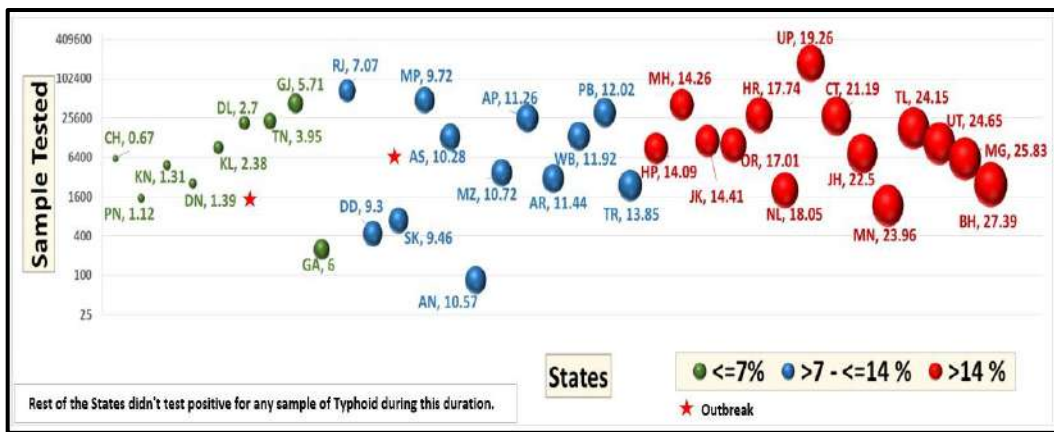
Sample positivity has been 14.56%, 14.10% and 13.57% in May month of 2016, 2017 & 2018 respectively.
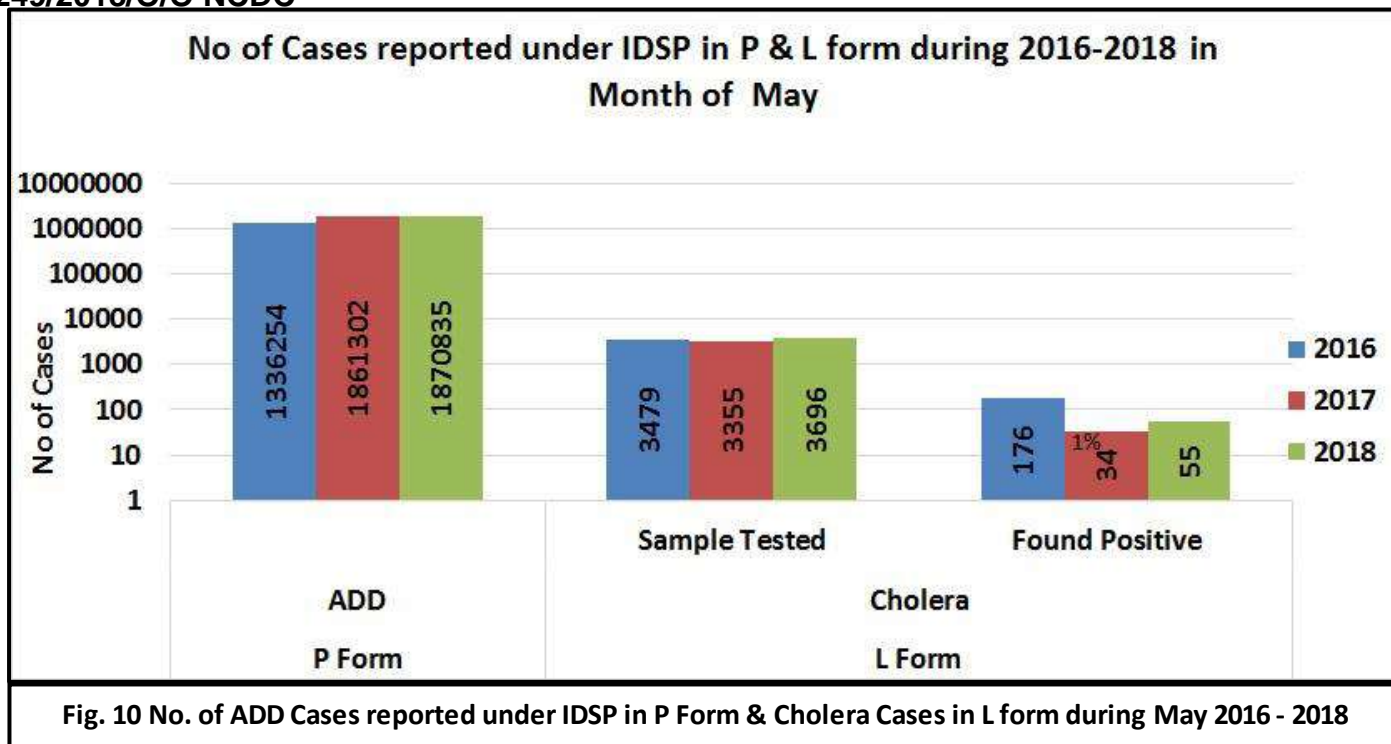
Limitation: The test by which above mentioned samples were tested could not be ascertained, as currently there is no such provision in L form

Fig 8: State/UT wise Presumptive Enteric fever cases and outbreaks for May 2018

Fig 9: State/UT wise Lab Confirmed Typhoid cases and outbreaks for May 2018

No of Cases reported under IDSP in P & L form during 2016-2018 in Month of May

Fig. 10 No. of ADD Cases reported under IDSP in P Form & Cholera Cases in L form during May 2016 - 2018

As shown in Fig 10, number of Acute Diarrhoeal Disease cases, as reported by States/UTs in 'P' form was 1336254 in May 2016; 1861302 in May 2017 and 1870835 in May 2018. These presumptive cases are diagnosed on the basis of standard case definitions provided under IDSP.

As reported in L form, in May 2016, 3479 samples were tested for Cholera out of which 176 tested positive; in May 2017, out of 3355 samples, 34 tested positive for Cholera and in May 2018, out of 3696 samples, 55 tested positive.

Sample positivity of samples tested for Cholera has been 5.06%, 1.01% and 1.49% in May month of 2016, 2017 & 2018 respectively.

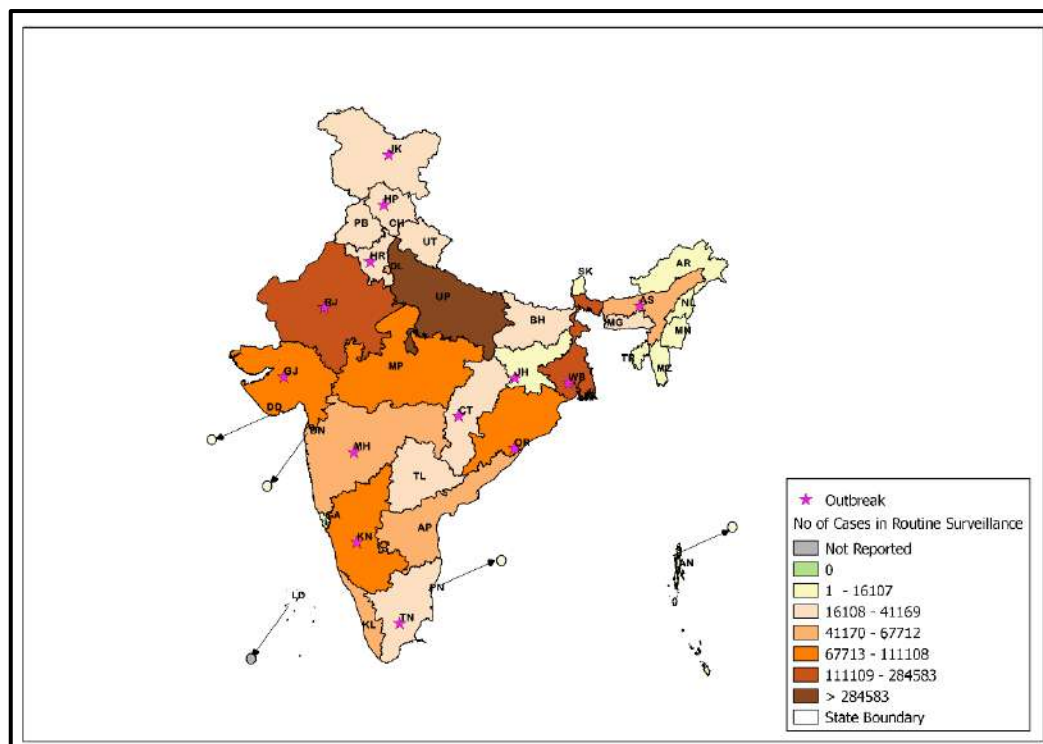**Fig 11: State/UT wise Presumptive ADD cases and outbreaks for May 2018**

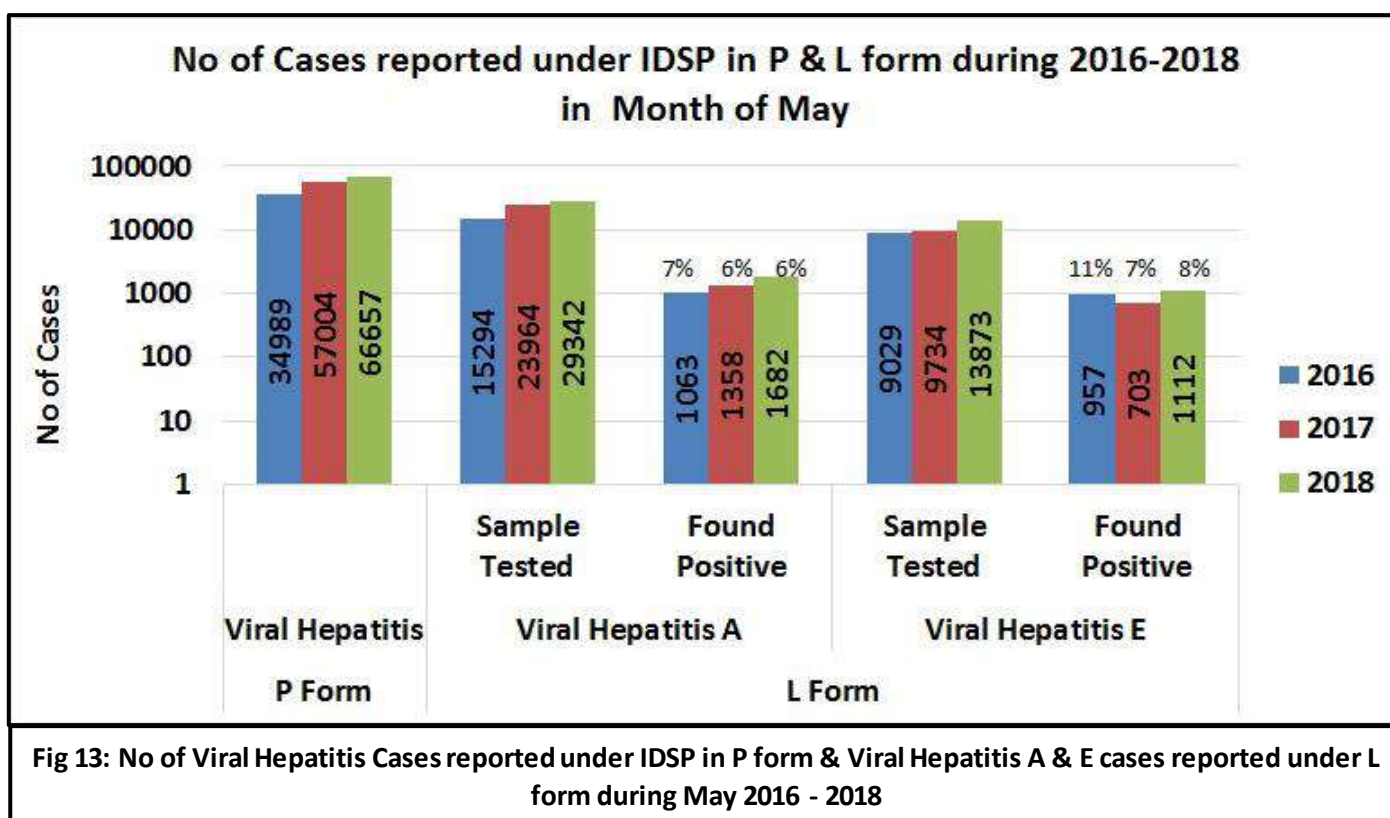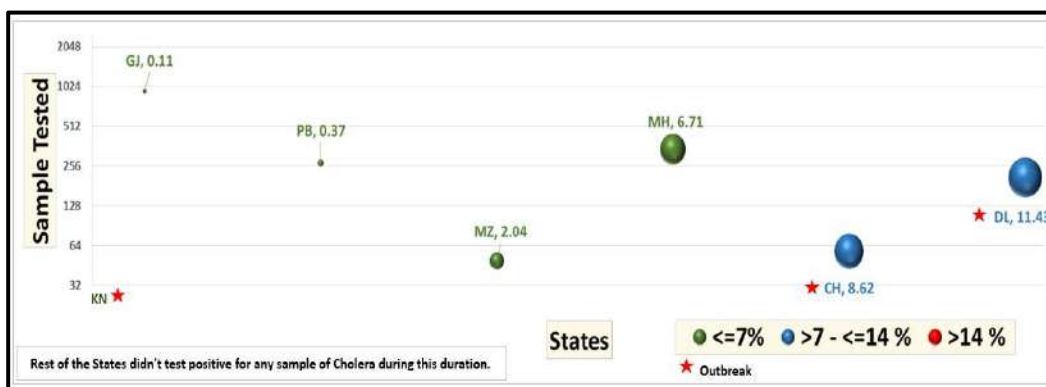Fig 12: State/UT wise Lab Confirmed Cholera cases and outbreaks for May 2018

Fig 13: No of Viral Hepatitis Cases reported under IDSP in P form & Viral Hepatitis A & E cases reported under L form during May 2016 - 2018

As shown in Fig13, the number of presumptive Viral Hepatitis cases was 34989 in May 2016, 57004 in May 2017 and 66657 in May 2018. These presumptive cases were diagnosed on the basis of case definitions provided under IDSP.

As reported in L form for Viral Hepatitis A, in May 2016; 15294 samples were tested out of which 1063 were found positive. In May 2017 out of 23964 samples, 1358 were found to be positive and in May 2018, out of 29342 samples, 1682 were found to be positive.

Sample positivity of samples tested for Hepatitis A has been 6.95%, 5.67% and 5.73% in May month of 2016, 2017 & 2018 respectively.

As reported in L form for Viral Hepatitis E, in May 2016; 9029 samples were tested out of which 957 were found positive. In May 2017; out of 9734 samples, 703 were found to be positive and in May 2018, out of 13873 samples, 1112 were found to be positive.
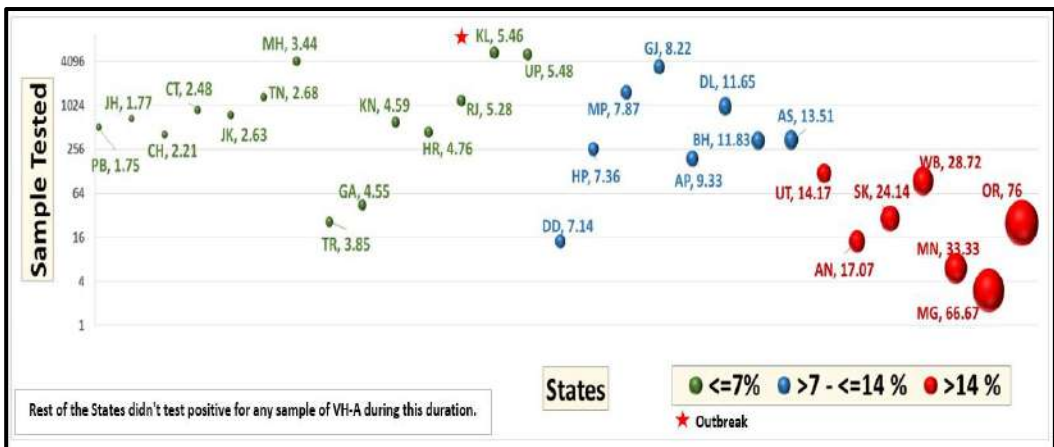
Sample positivity of samples tested for Hepatitis E has been 10.60%, 7.22% and 8.01% in May month of 2016, 2017 & 2018 respectively.
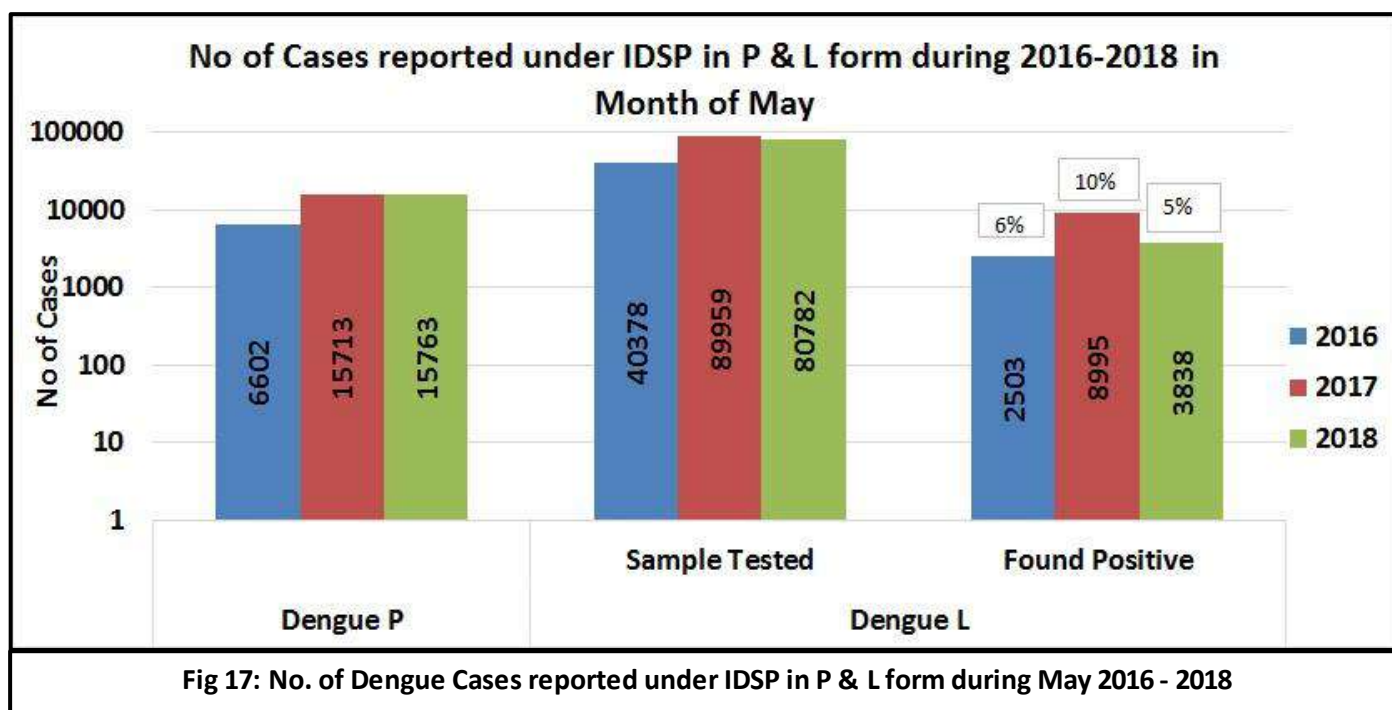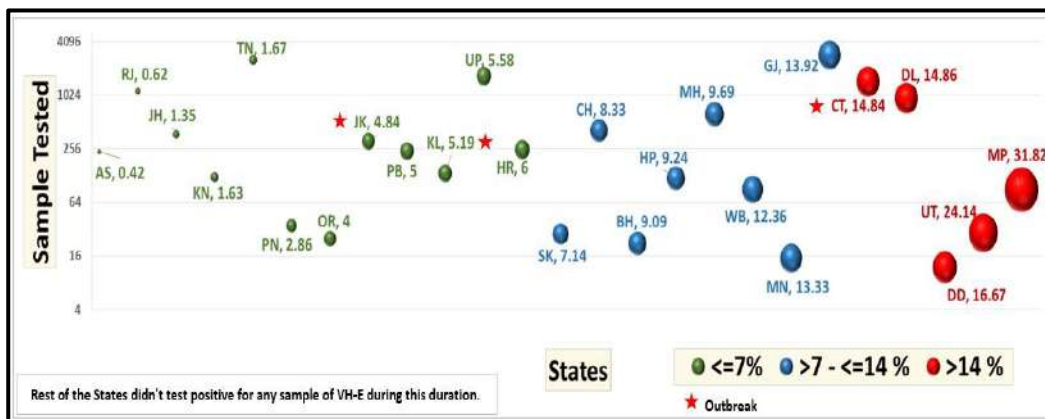
Fig 14: State/UT wise Presumptive Viral Hepatitis A cases and outbreaks for May 2018
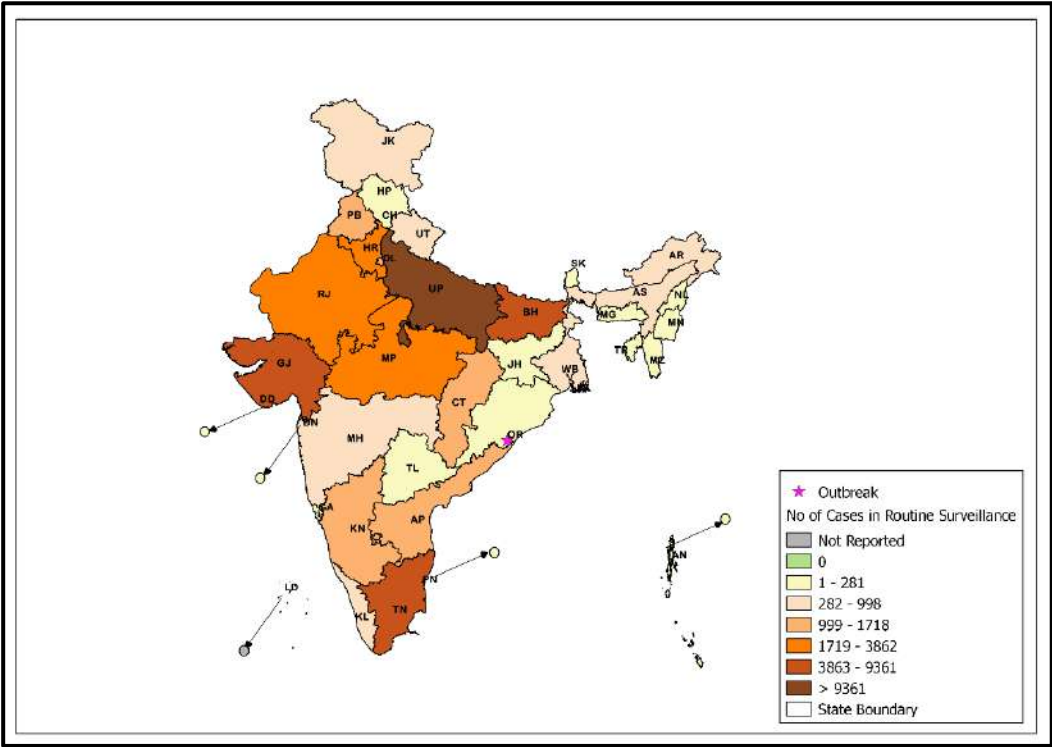
Fig 15: State/UT wise Lab Confirmed Viral Hepatitis A cases and outbreaks for May 2018

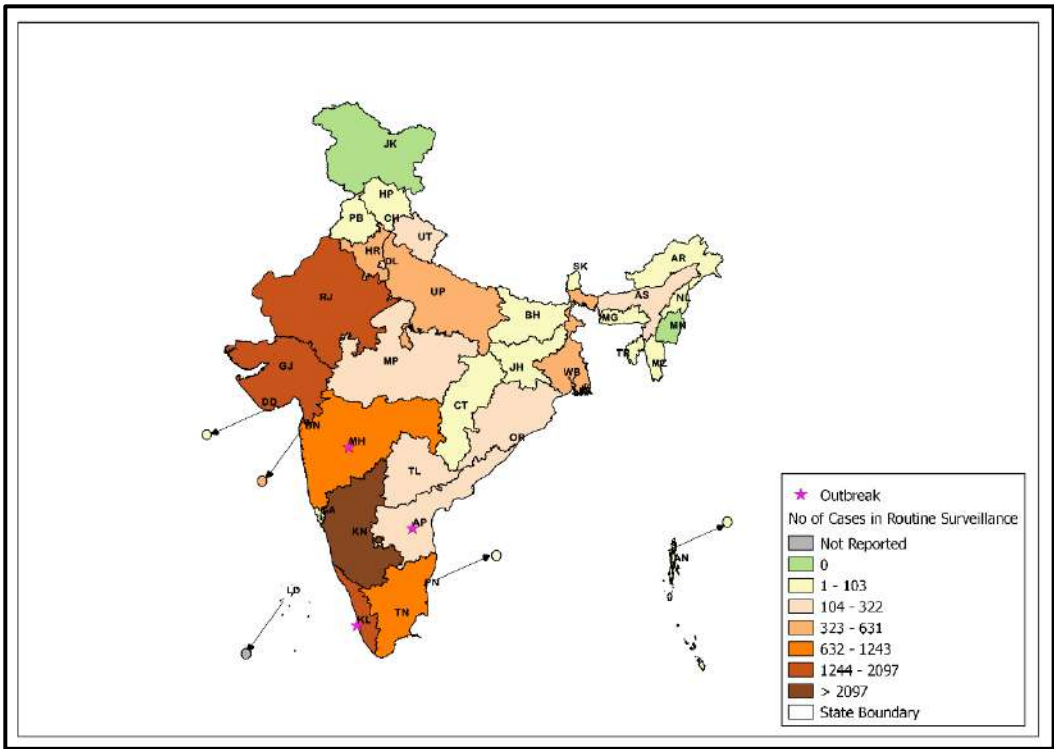Fig 16: State/UT wise Lab Confirmed Viral Hepatitis E cases and outbreaks for May 2018

Fig 17: No. of Dengue Cases reported under IDSP in P & L form during May 2016 - 2018

As shown in Fig 17, number of presumptive Dengue cases, as reported by States/UTs in 'P' form was 6602 in May 2016; 15713 in May 2017 and 15763 in May 2018. These presumptive cases are diagnosed on the basis of standard case definitions provided under IDSP.
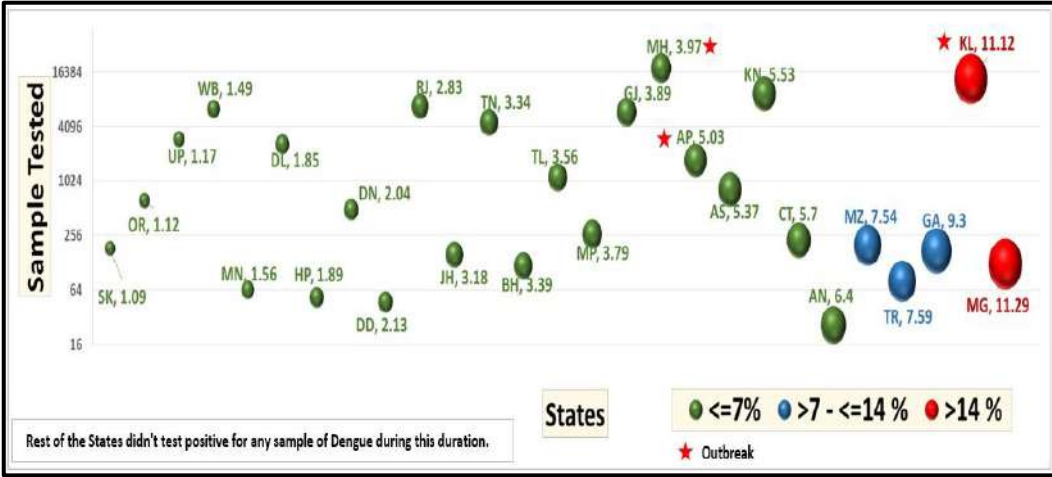
As reported in L form, in May 2016; 40378 samples were tested for Dengue, out of which 2503 were found positive. In May 2017; out of 89959 samples, 8995 were found to be positive and in May 2018, out of 80782 samples, 3838 were found to be positive.

Sample positivity of samples tested for Dengue has been 6.20%, 10.0% and 4.75% in May month of 2016, 2017 & 2018 respectively.

Fig 18: State/UT wise Presumptive Dengue cases and outbreaks for May 2018

Fig 19: State/UT wise Lab Confirmed Dengue cases and outbreaks for May 2018

No of Cases reported under IDSP in P & L form during 2016-2018 in Month of May
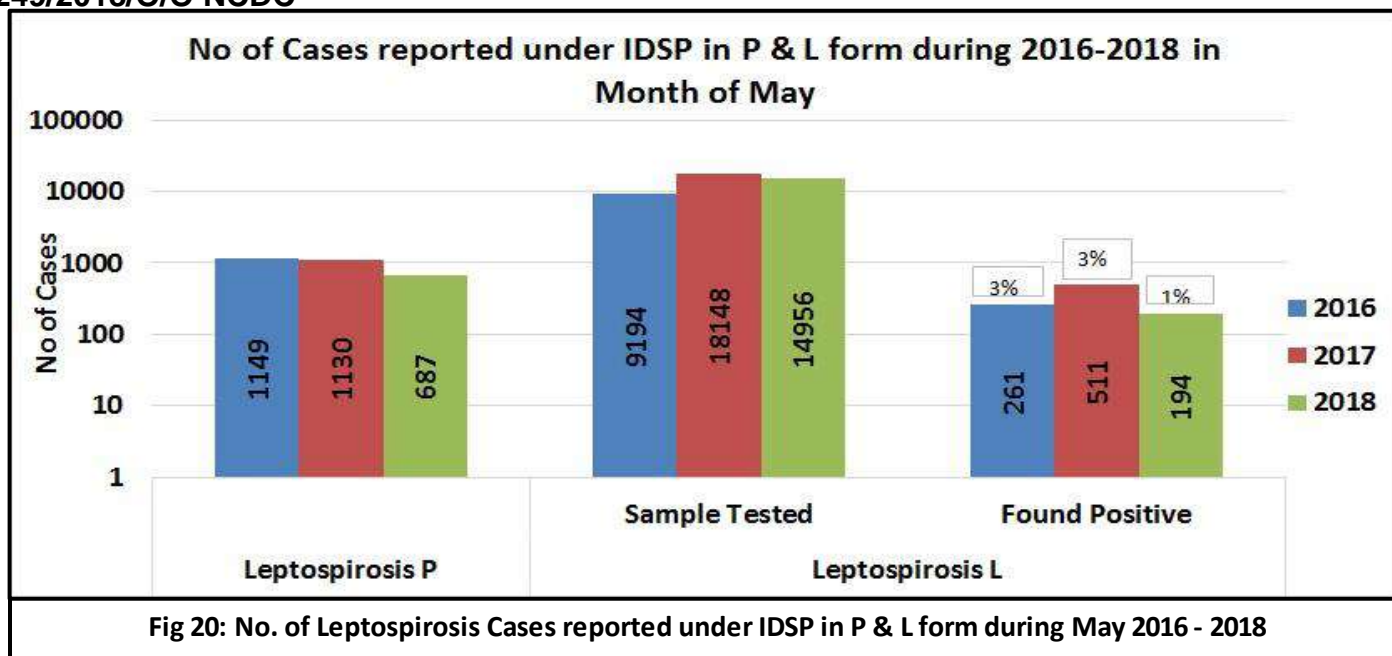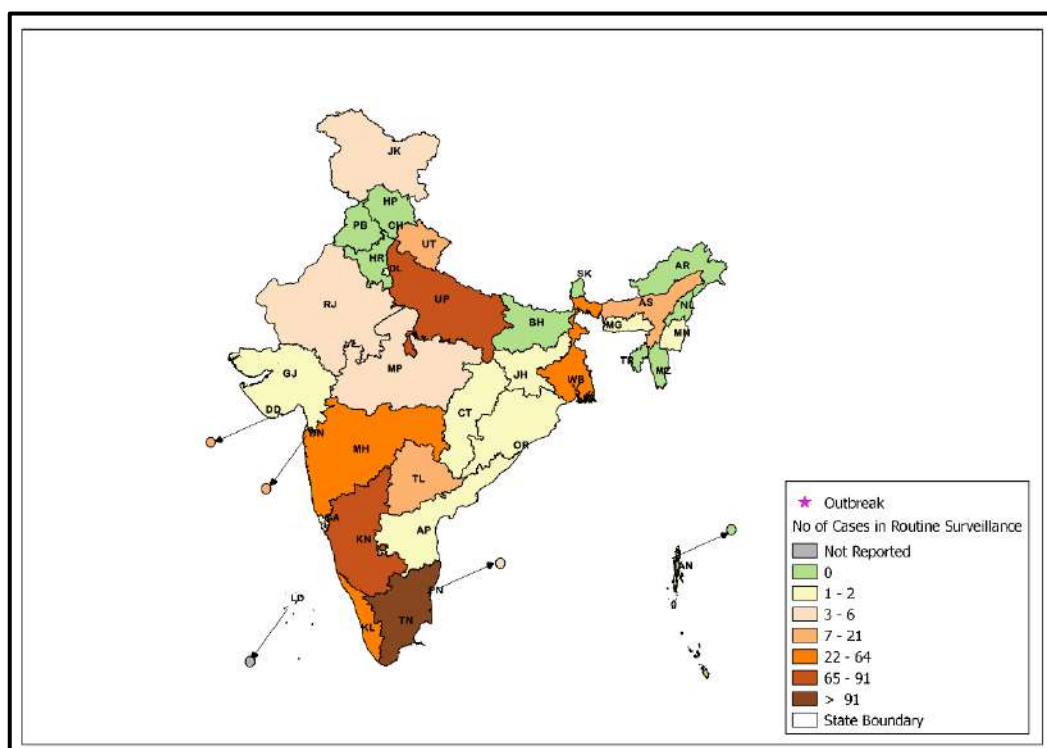

Fig 20: No. of Leptospirosis Cases reported under IDSP in P & L form during May 2016 - 2018

As shown in Fig 20, number of presumptive Leptospirosis cases, as reported by States/UTs in 'P' form was 1149 in May 2016; 1130 in May 2017 and 687 in May 2018. These presumptive cases are diagnosed on the basis of standard case definitions provided under IDSP.

As reported in L form, in May 2016; 9194 samples were tested for Leptospirosis, out of which 261 were found positive. In May 2017; out of 18148 samples, 511 were found to be positive and in May 2018, out of 14956 samples, 194 were found to be positive.

Sample positivity of samples tested for Dengue has been 2.84%, 2.81% and 1.30% in May month of 2016, 2017 & 2018 respectively.

Fig 21: State/UT wise Presumptive Leptospirosis cases and outbreaks for May 2018

1045249/2018/O/O NCDC

Fig 22: State/UT wise Lab Confirmed Leptospirosis cases and outbreaks for May 2018

Fig. 23: No. of Chikungunya Cases reported under IDSP in P & L form during May 2016 - 2018

As shown in Fig 23, number of presumptive Chikungunya cases, as reported by States/UTs in 'P' form was 627 in May 2016; 1511 in May 2017 and 2160 in May 2018. These presumptive cases are diagnosed on the basis of standard case definitions provided under IDSP.
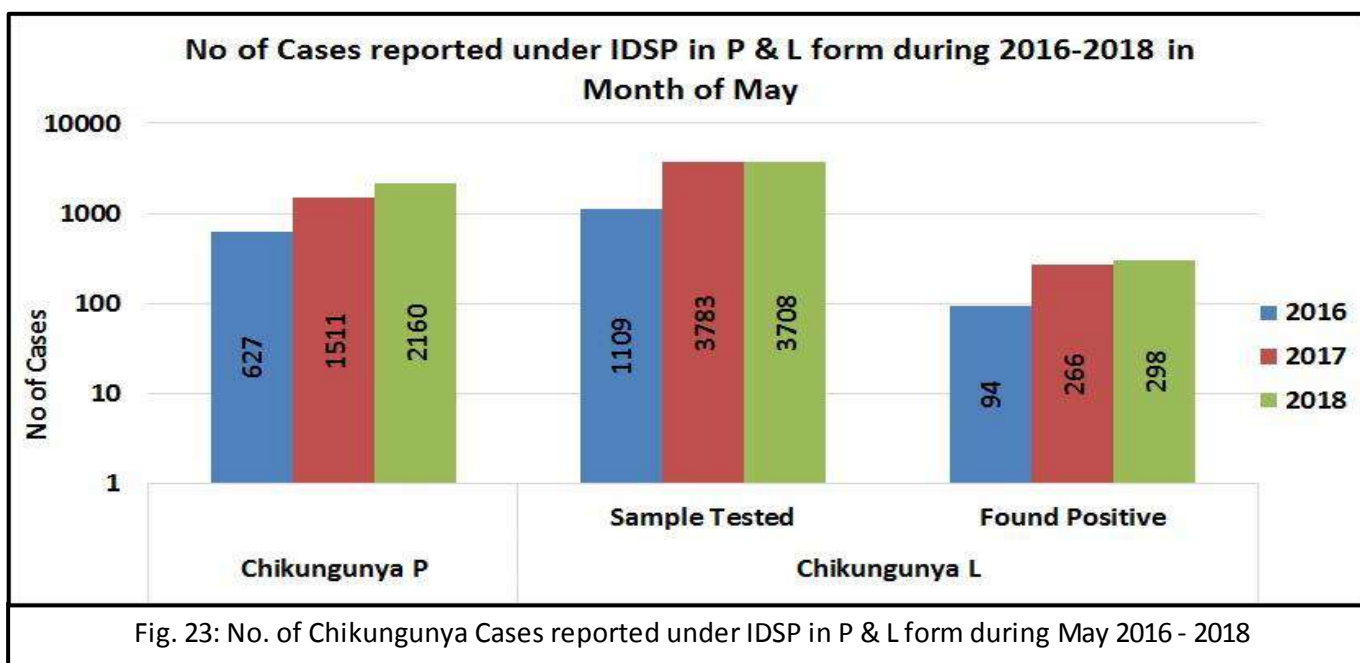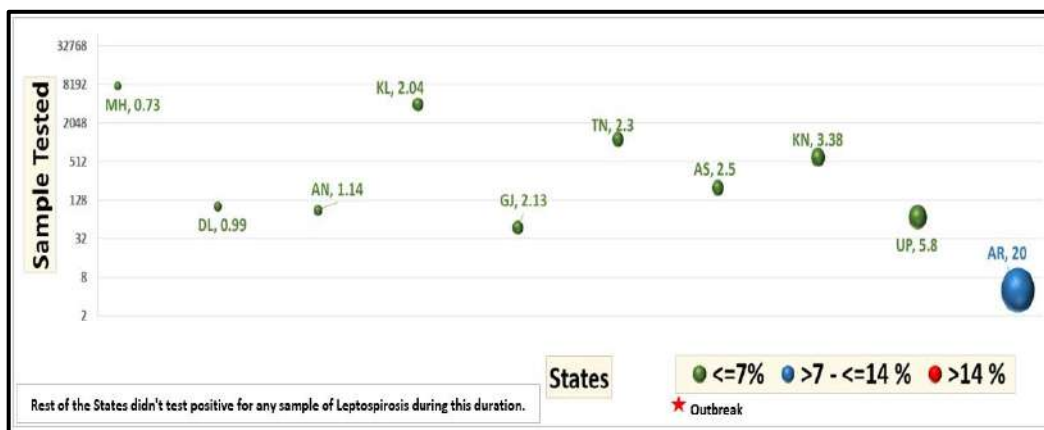
As reported in L form, in May 2016; 1109 samples were tested for Chikungunya, out of which 94 were found positive. In May 2017; out of 3783 samples, 266 were found to be positive and in May 2018, out of 3708 samples, 298 were found to be positive.

Sample positivity of samples tested for Chikungunya has been 8.48%, 7.03% and 8.03 % in May month of 2016, 2017 & 2018 respectively.

Fig 26: State/UT wise Presumptive Chikungunya cases and outbreaks for May 2018
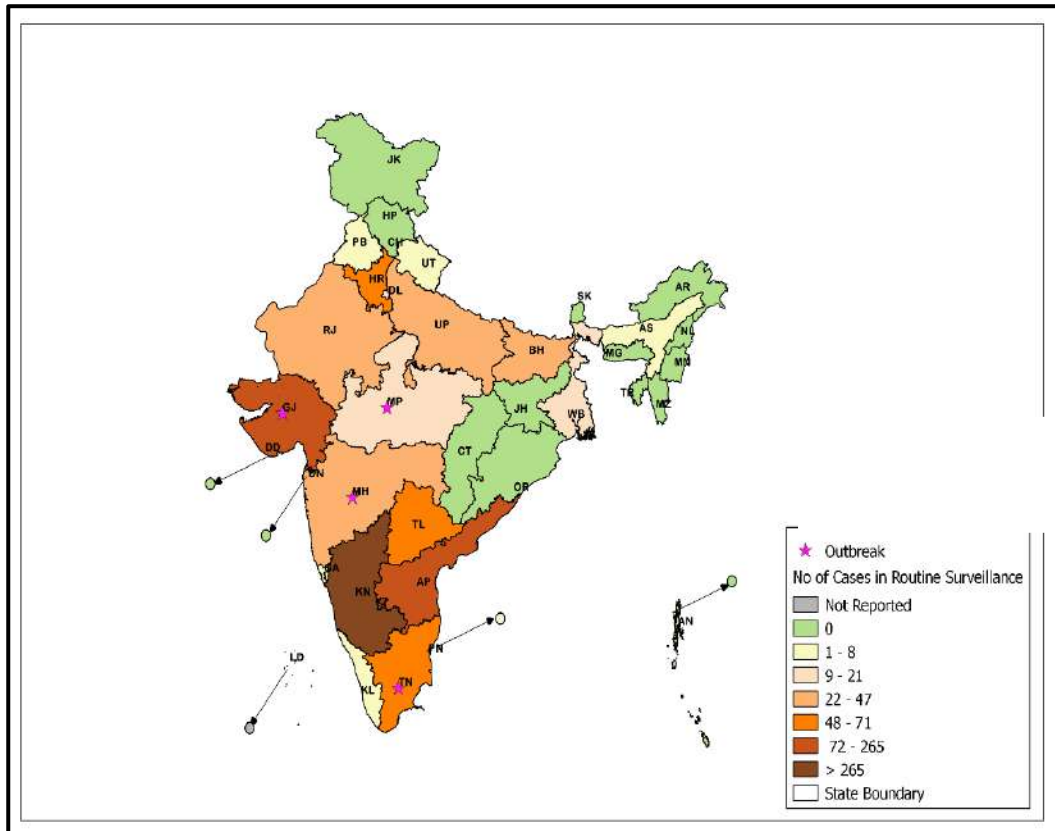
Fig 27: State/UT wise Lab Confirmed Chikungunya cases and outbreaks for May 2018
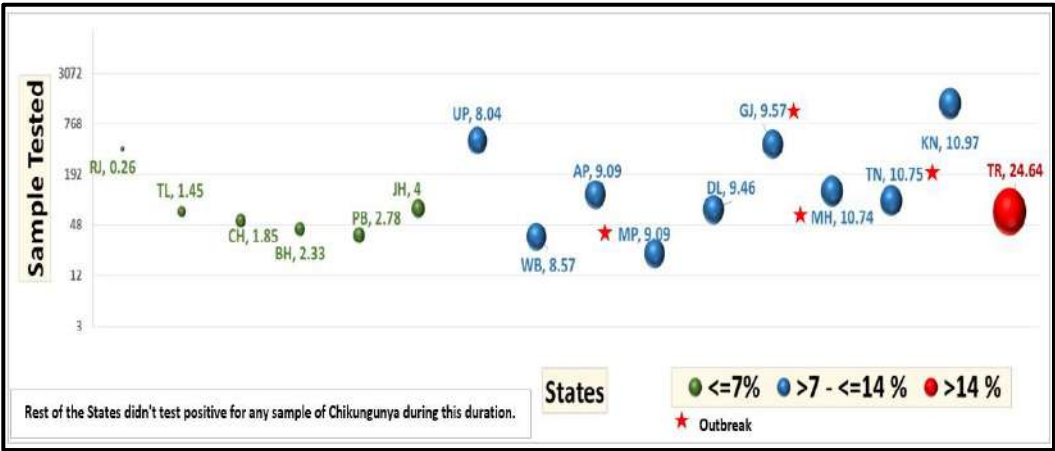
Fig 28: State/UT wise Influenza A (H1N1) cases & outbreak for May 2018

Action from the field

Glossary:

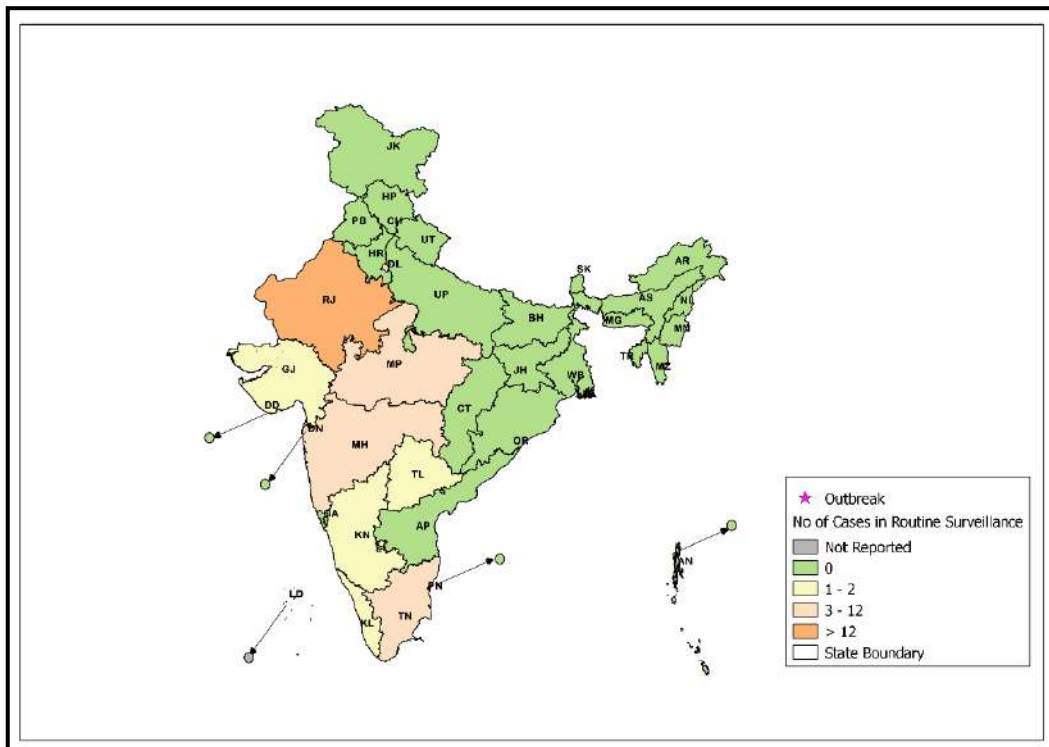- **P form:** Presumptive cases form, in which cases are diagnosed and reported based on typical history and clinical examination by Medical Officers.
- **Reporting units under P form:** Additional PHC/ New PHC, CHC/ Rural Hospitals, Infectious Disease Hospital (IDH), Govt. Hospital / Medical College*, 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.

Case definitions:

- **Enteric Fever: Presumptive**: Any patient with fever for more than one week and with any two of the following: Toxic look, Coated tongue, Relative bradycardia, Splenomegaly, Exposure to confirmed case, Clinical presentation with complications e.g. GI bleeding, perforation, etc. AND/OR Positive serodiagnosis (Widal test)
  Confirmed: A case compatible with the clinical description of typhoid fever with confirmed positive culture (blood, bone marrow, stool, urine) of *S. typhi*/ S paratyphi.
  ARI/ ILI**:-**An acute respiratory infection with fever of more than or equal to 38° C and cough; with onset within the last 10 days.
- **Acute Diarrheal Disease: Presumptive Acute Diarrheal Disease (Including Acute Gastroenteritis):** Passage of 3 or more loose watery stools in the past 24 hours. (With or without vomiting).
- **Confirmed Cholera**: A case of acute diarrhoea with isolation and identification of Vibrio cholera serogroup O1 or O139 by culture of a stool specimen.
- **Viral Hepatitis**: **Presumptive**: Acute illness typically including acute jaundice, dark urine, anorexia, malaise, extreme fatigue, and right upper quadrant tenderness.
  Confirmed: Hepatitis A: A case compatible with the clinical description of acute hepatitis with demonstration of anti-HAV IgM in serum sample.
  Confirmed: Hepatitis E: A case compatible with the clinical description of acute hepatitis with demonstration of anti-HEV IgM in serum sample.

- **Dengue**: **Presumptive**: An acute febrile illness of 2-7 days duration with two or more of the mentioned manifestations:
  - Headache, Retro-orbital pain, Myalgia, Arthralgia, Rash, haemorrhagic manifestations, leukopenia, or Non-ELISA based NS1 antigen/IgM positive. (A positive test by RDT will be considered as probable due to poor sensitivity and specificity of currently available RDTs.)

  Confirmed: A case compatible with the clinical description of dengue fever with at least one of the following:

  - Demonstration of dengue virus NS-1 antigen in serum sample by ELISA.
  - Demonstration of IgM antibodies by IgM antibody capture ELISA in single serum sample.
  - IgG seroconversion in paired sera after 2 weeks with fourfold increase of IgG titre.
  - Detection of viral nucleic acid by polymerase Chain reaction (PCR).
  - Isolation of the dengue virus (virus culture +ve) from serum, plasma, leucocytes.
    (Source – Dengue National guidelines, NVBDCP 2014)

1045249/2018/O/O NCDC

- **Leptospirosis Case Definition**: **Presumptive Leptospirosis**: Acute febrile illness with headache, myalgia and prostration associated with a history of exposure to infected animals or an environment contaminated with animal urine With one or more of the following:
    - Calf muscle tenderness
    - Conjunctival suffusion
    - Oliguria or anuria and/or proteinuria
    - Jaundice
    - Haemorrhagic manifestations (intestines, lung)
    - Meningeal irritation
    - GI symptoms (Nausea/ Vomiting/ Abdominal pain/Diarrhoea)
- And/or one of the following:-
    - A positive result in IgM based immune- assays, slide agglutination test or latex agglutination test or immunochromatographic test.
    - A Microscopic Agglutination Test (MAT) titre of 100/200/400 or above in single sample based on endemicity.
    - Demonstration of leptospires directly or by staining methods

Lab Confirmed Leptospirosis: A case compatible with the clinical description of leptospirosis with at least one of the following:
- Isolation of leptospires from clinical specimen.
- Four fold or greater rise in the MAT titre between acute and convalescent phase serum specimens run in parallel. (Source: -National Guidelines on Diagnosis, Case Management Prevention and Control of Leptospirosis NCDC 2015).

- **Chikungunya case definition: Presumptive Case Definition**: An acute illness characterised by sudden onset of fever with any of the following symptoms: headache, backache, photophobia, severe arthralgia and rash.
    - Lab confirmed: A case compatible with the clinical description of chikungunya fever with at least one of the following: Demonstration of IgM antibodies by IgM antibody capture ELISA in a single serum sample.
    - Detection of viral nucleic acid by PCR.
    - Isolation of chikungunya virus from clinical specimen. (Source – Mid Term Plan Guidelines, NVBDCP 2013.

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

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