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Disease Alert
प्रकोप चेतावनी

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

Inside

Investigation of Dengue Outbreak in Purulia Municipality, West Bengal

Background

Cases of suspected Dengue (fever with bleeding manifestations) were reported from Wards 1 & 21 located on both sides of Deshbandhu Road, Purulia Municipality on 31st July, 2018. On receipt of the report, RRT of Purulia district led by DSO, IDSP, Purulia visited the location and carried out thorough investigation.

Epidemiological observation

On investigation it was found that the cases started occurring around 28th July. About 4000 people reside in Wards No 1 & 21 adjoining Deshbandhu Road. On final tally, it was found that 57 people were suffering from Dengue in these areas and there were 22 hospitalizations. However, there were no deaths reported. Clustering of Fever and Dengue was detected in these areas.

The 1st case was detected on 31st July, 2018 at DPHL under DM Sadar Hospital. He was a worker of a shopping mall situated at Deshbandhu Road. Another two cases were also reported from ward no. 21 just opposite of that shopping mall.

During survey it was reported that around 50 person (construction workers) came to Purulia City Life Construction site (possibly epi-center) during 1st week of July form Dhulian area (Farakka, Shibtala, Inaetpur) of Murshidabad district. Within 10 days a large number of them started suffering from fever and returned back to their district.

During last week of July and 1st week of August a number of fever cases were also reported from the adjoining areas of Wards 1 & 21 of Purulia. It is possible that sudden increase of dengue cases in a small geographical area possibly indicates in-migration of labourers with dengue followed by transmission.

On 7th August last dengue case (IgM ELISA reactive) was reported from that area. People of all age groups were affected. Attack rate was 1.43%.

Fig. 1: Site Map of Dengue Outbreak in Purulia Municipality, West Bengal

Epidemiological Curve

Onset of first fever cases was on 28th July, 2018. Last case of this outbreak was recorded on 31st August. Peak of fever cases was on 31st July and large number of fever cases were reported during 1st week of August.
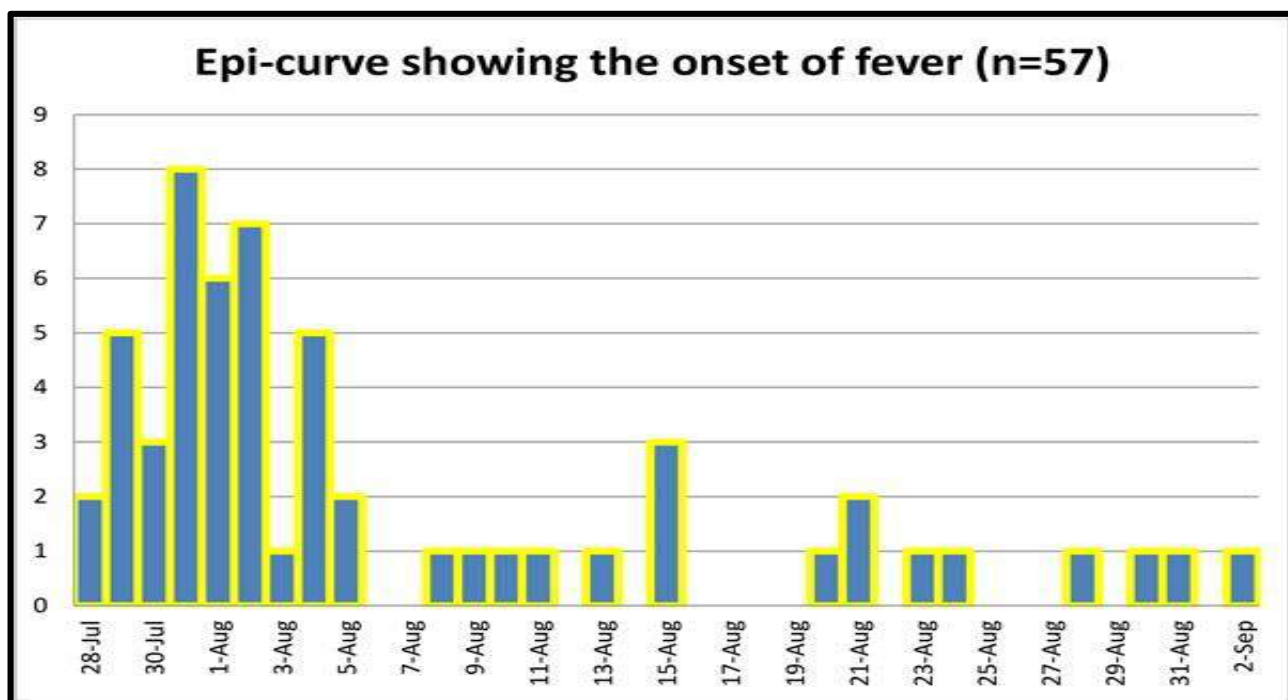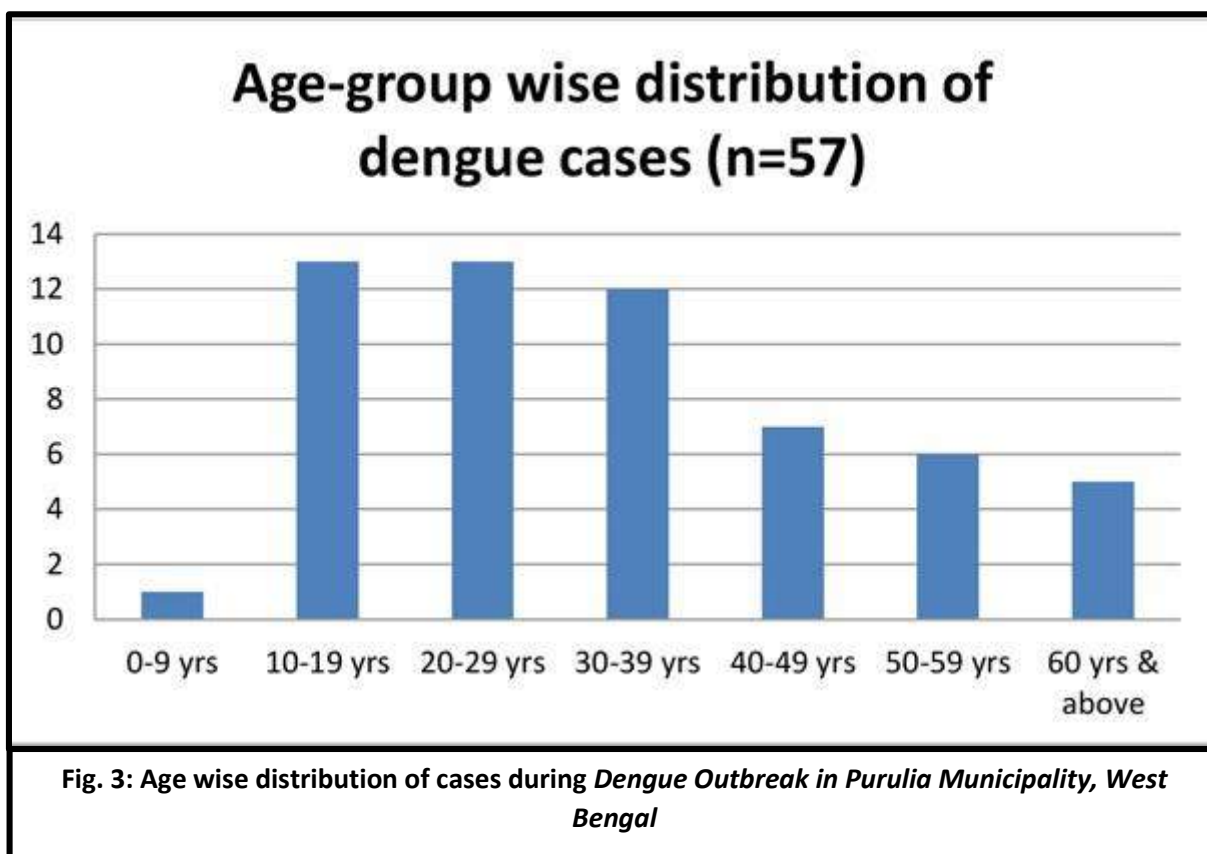

Fig. 2: Epi-Curve showing cases during *Dengue Outbreak in Purulia Municipality, West Bengal*

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Age & Gender-wise Distribution of cases

Young adults of 10-19 years and 20-29 years were mostly affected followed by 30-39 years age group.

Fig. 3: Age wise distribution of cases during *Dengue Outbreak in Purulia Municipality, West Bengal*

Among gender, 60% of affected were males with females constituting 40% of patients

Fig. 4: Gender wise distribution of cases during *Dengue Outbreak in Purulia Municipality, West Bengal*
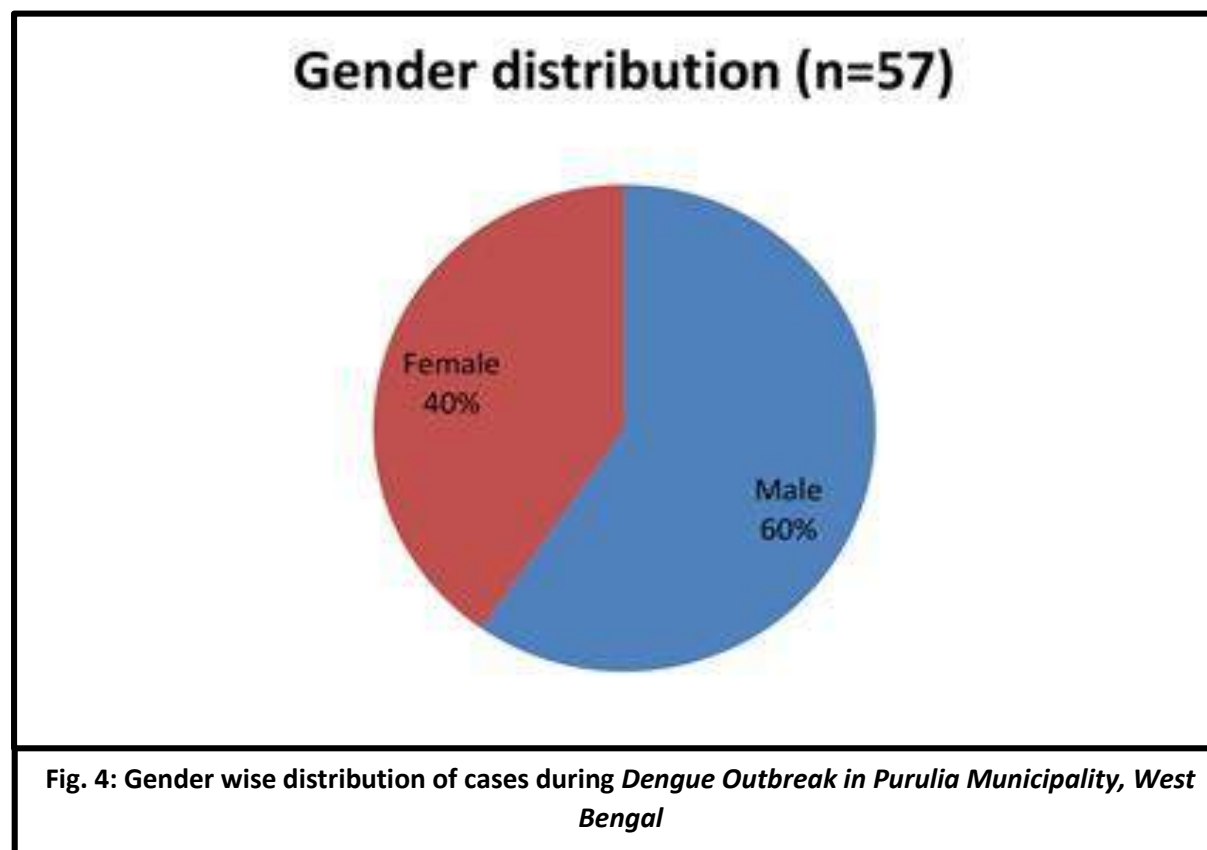
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Entomological findings

1. Large number of vector (*Aedes*) density was detected at construction site of City Life building.
2. Stagnant water pools detected along with old containers. Many of them had *Aedes* larvae.
3. Main drain of Deshbandhu Road (adjoining NH-60A) was found to be blocked and there were large number of mosquito larvae present in it
4. Stagnant water was found behind Wards No: 1 & 21 in Mahalaxmi Bagan area
5. *Aedes* larvae found in Hunda gaurage, behind furniture shop and some household containers too (though pupa not found).

Laboratory Investigations

A total of 85 serum sample tested for Dengue (78 for NS-1 ELISA and 7 for IgM ELISA) at DPHL, Purulia.
Out of 85 samples tested, 53 samples found positive by NS-1 ELISA (Positivity Rate of 62.35%). Out of 7 samples tested by IgM ELISA, 4 were found reactive (Positivity Rate of 57.14%).

Actions taken

1. *Regular fever surveys, sample collection of the patients having dengue like sign & symptoms.*

2. *Spray of larvicides in the stagnant water*

3. *Fogging in the area and also in construction sites.*

4. *IEC by displaying Flex posters and distributing leaflets on Dengue.*

5. *Cleaning of main drain of Deshbandhu Road (adjoining NH-60A).*

6. *Stagnant water of all Construction sites were cleaned by the owners.*

7. *List of Labours along with their address prepared by the construction authority. Fever amongst the labour was made reportable to the ULB Nodal Officer with a copy to the Health Department on regular basis.*

8. *Removal of stagnant* water from low land adjacent to Ward No.-1.

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* Data extracted from IDSP Portal (www.idsp.nic.in) as on December 26, 2018.

Fig. 5: RU wise reporting based on P & L form during August 2016 - 2018
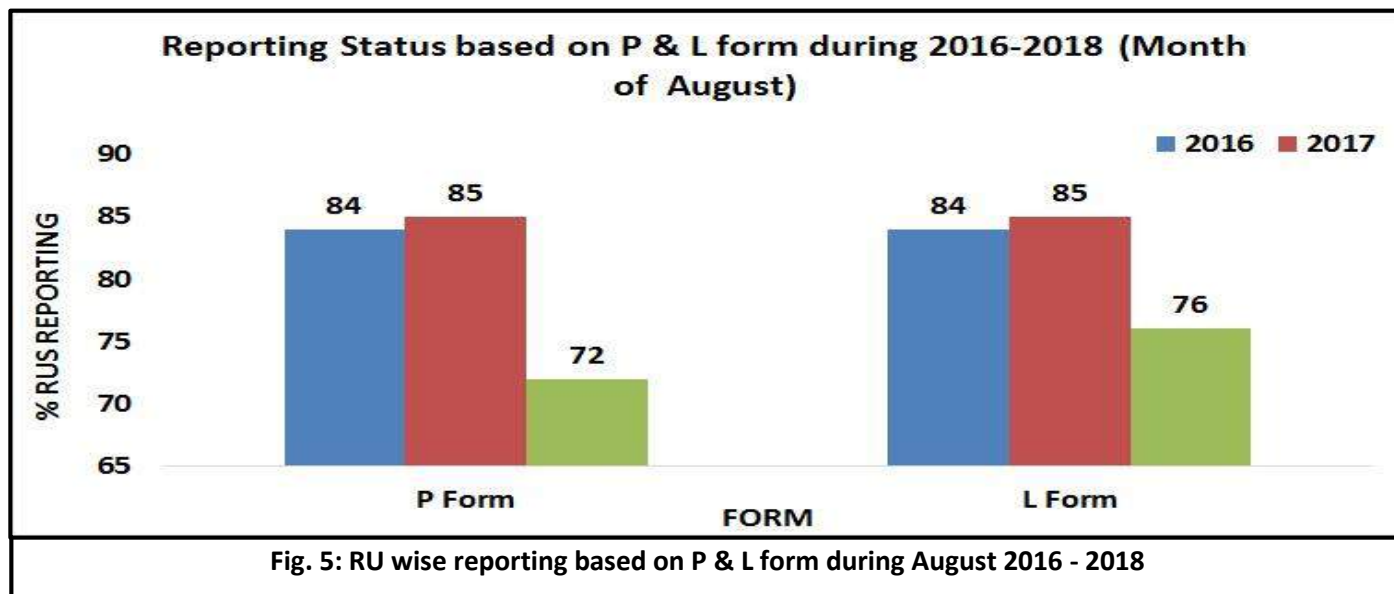
As shown in Fig 5, in August 2016, 2017 and 2018, the 'P' form reporting percentage (i.e. % RU reporting out of total in P form) was 84%, 85% and 72% respectively across India, for all disease conditions reported under IDSP in P form. Similarly, L form reporting percentage was 84%, 85% and 76% respectively 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.

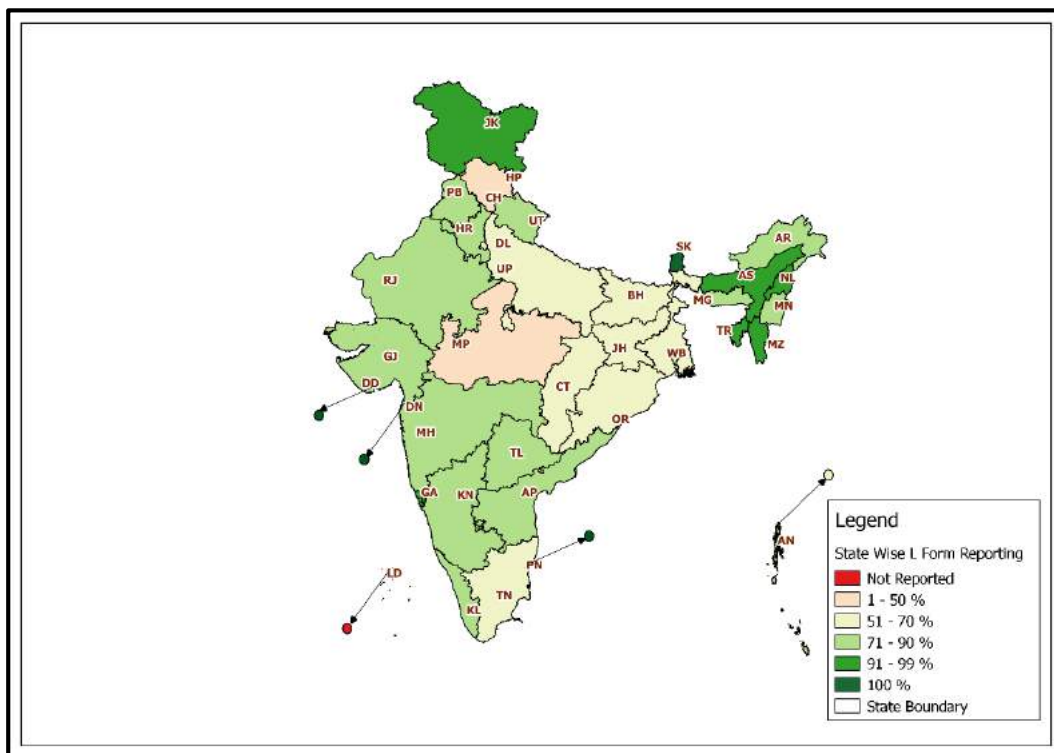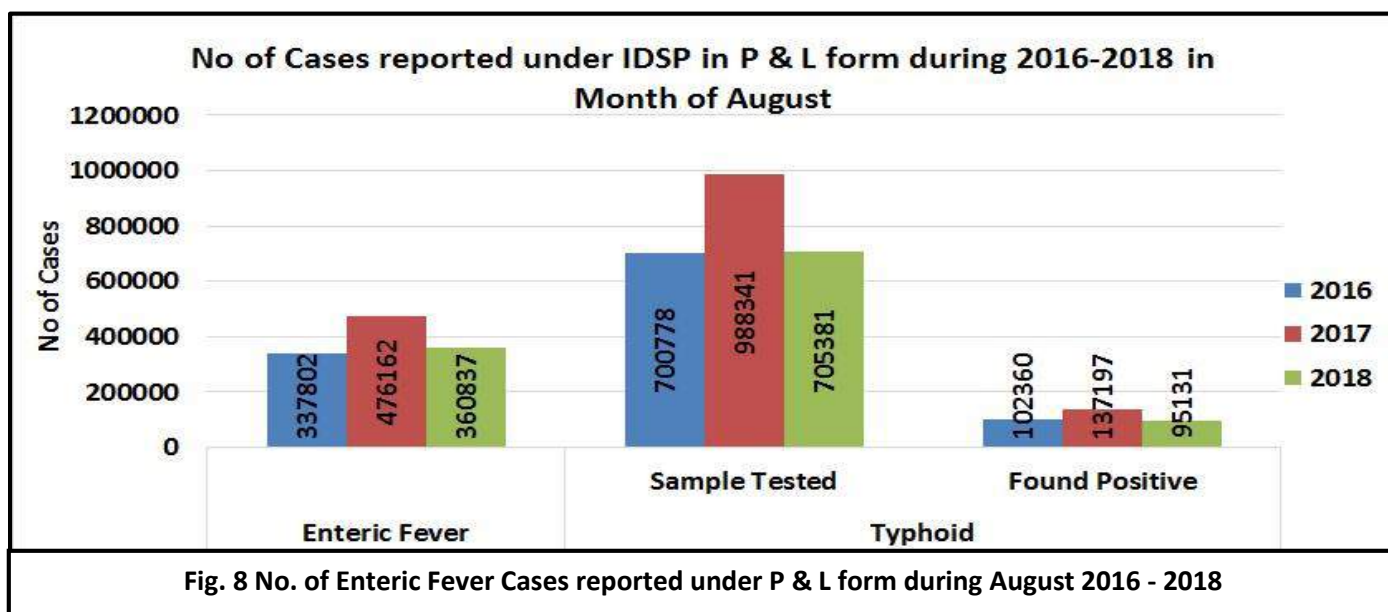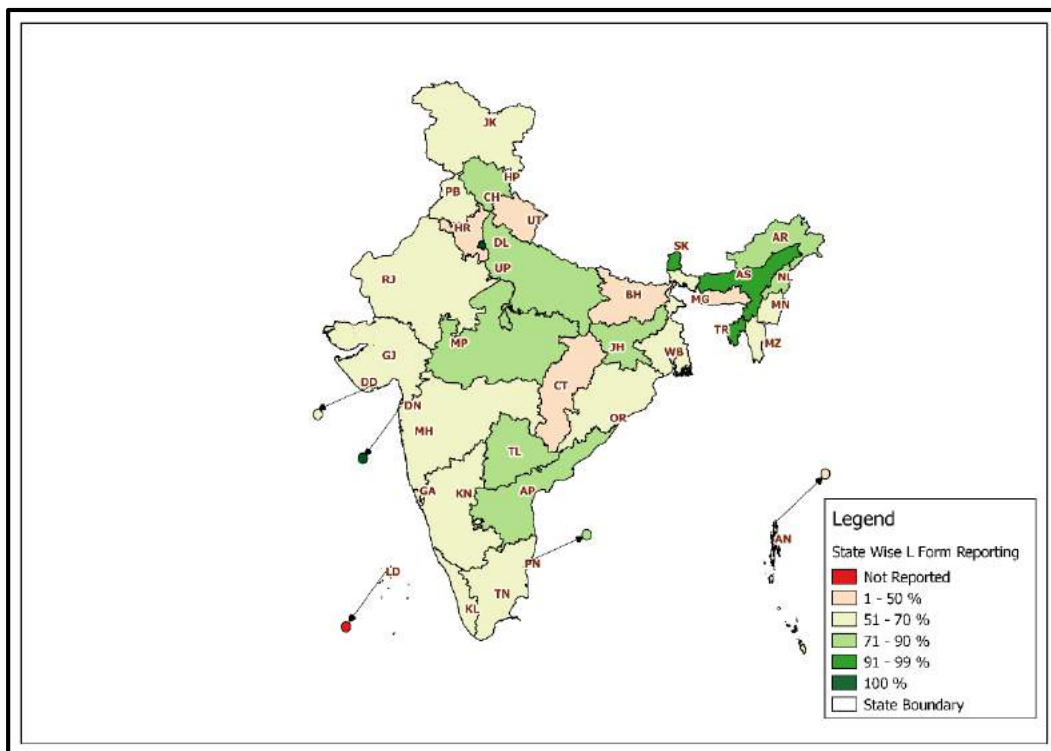**Fig 6: State/UT wise P form completeness % for August 2018**

Fig 7: State/UT wise L form completeness % for August 2018

Fig. 8 No. of Enteric Fever Cases reported under P & L form during August 2016 - 2018

As shown in Fig 8, number of presumptive enteric fever cases, as reported by States/UTs in 'P' form was 337802 in August 2016; 476162 in August 2017 and 360837 in August 2018. These presumptive cases are diagnosed on the basis of standard case definitions provided under IDSP.

As reported in L form, in August 2016; 700778 samples were tested for Typhoid, out of which 102360 were found positive. In August 2017; out of 988341 samples, 137197 were found to be positive and in August 2018, out of 705381 samples, 95131 were found to be positive.

Sample positivity has been 14.61%, 13.88% and 13.49% in August 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.

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Fig 9: State/UT wise Presumptive Enteric fever cases and outbreaks for August 2018
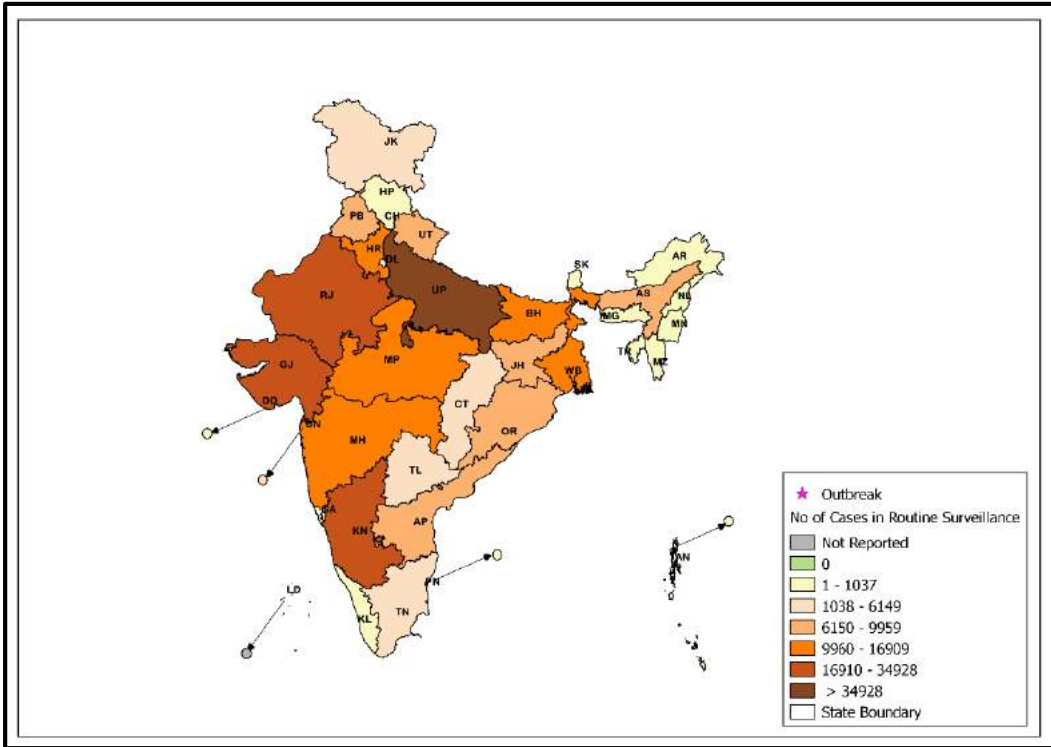
Fig 10: State/UT wise Lab Confirmed Typhoid cases and outbreaks for August 2018

Fig. 11 No. of ADD Cases reported under IDSP in P Form & Cholera Cases in L form during August 2016 - 2018
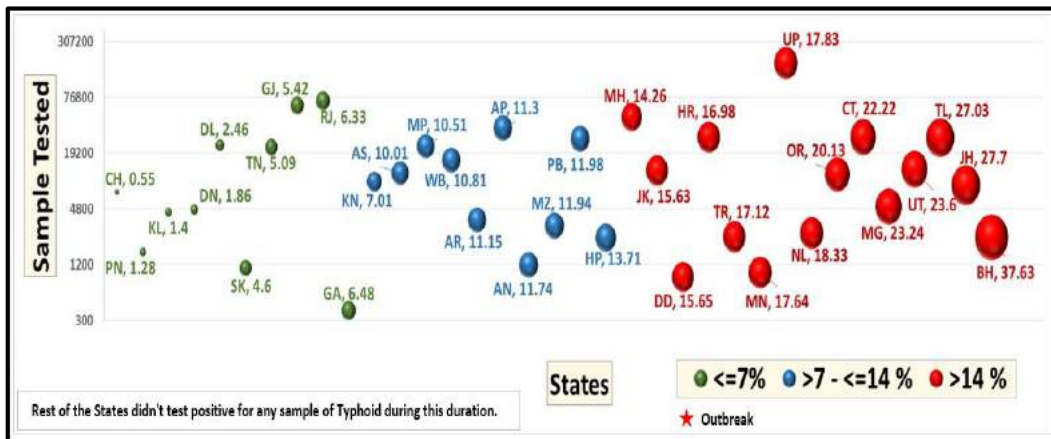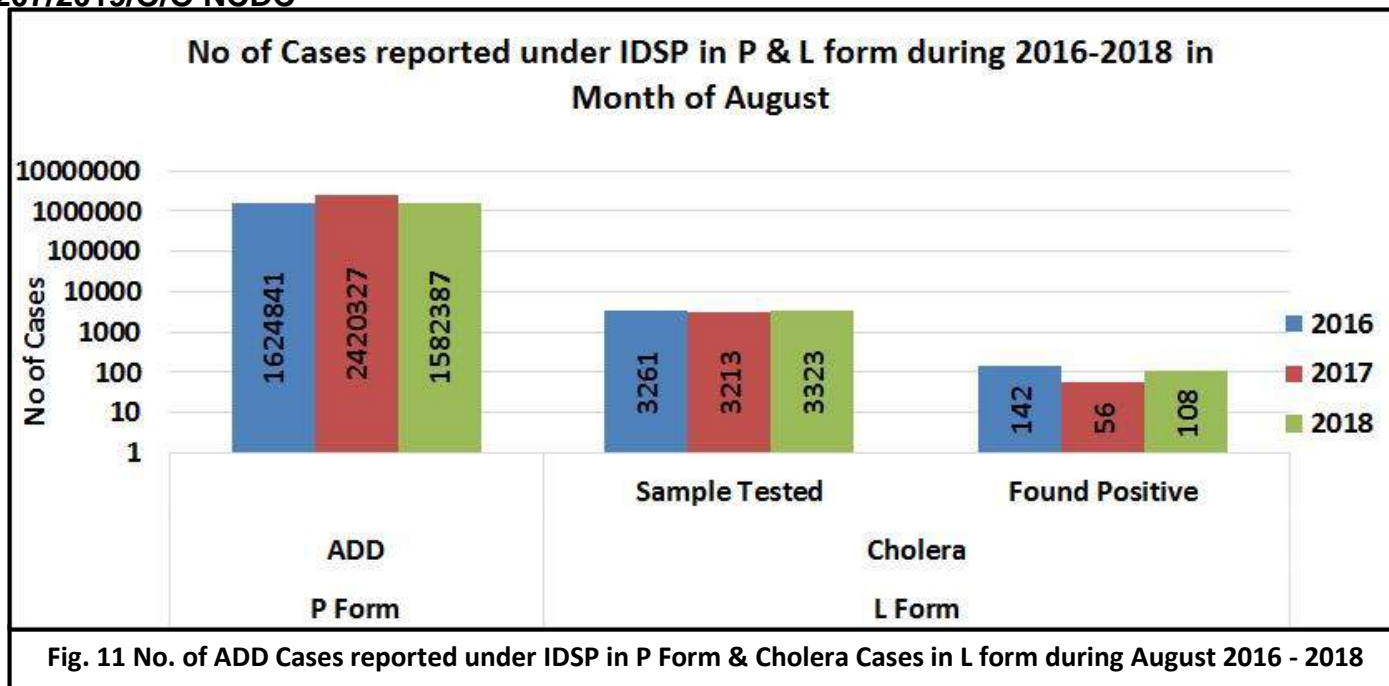
As shown in Fig 11, number of Acute Diarrhoeal Disease cases, as reported by States/UTs in 'P' form was 1624841 in August 2016; 2420327 in August 2017 and 1582387 in August 2018. These presumptive cases are diagnosed on the basis of standard case definitions provided under IDSP.

As reported in L form, in August 2016, 3261 samples were tested for Cholera out of which 142 tested positive; in August 2017, out of 3213 samples, 56 tested positive for Cholera and in August 2018, out of 3323 samples, 108 tested positive.

Sample positivity of samples tested for Cholera has been 4.35%, 1.74% and 3.25% in August month of 2016, 2017 & 2018 respectively.

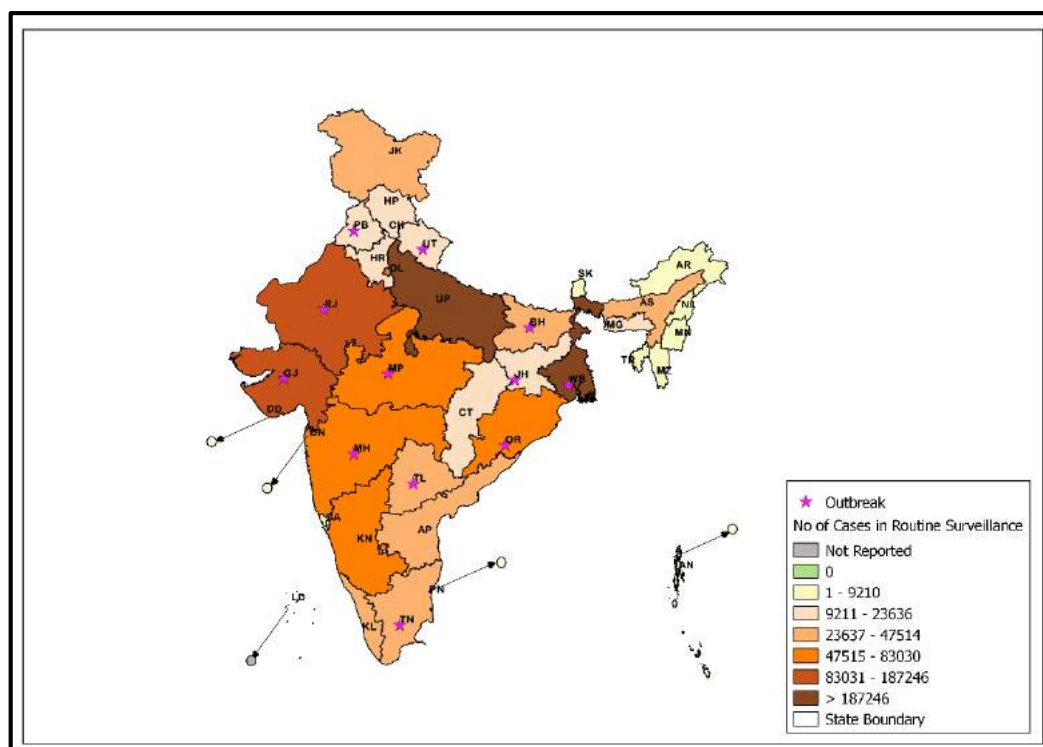**Fig 12: State/UT wise Presumptive ADD cases and outbreaks for August 2018**

Fig 13: State/UT wise Lab Confirmed Cholera cases and outbreaks for August 2018

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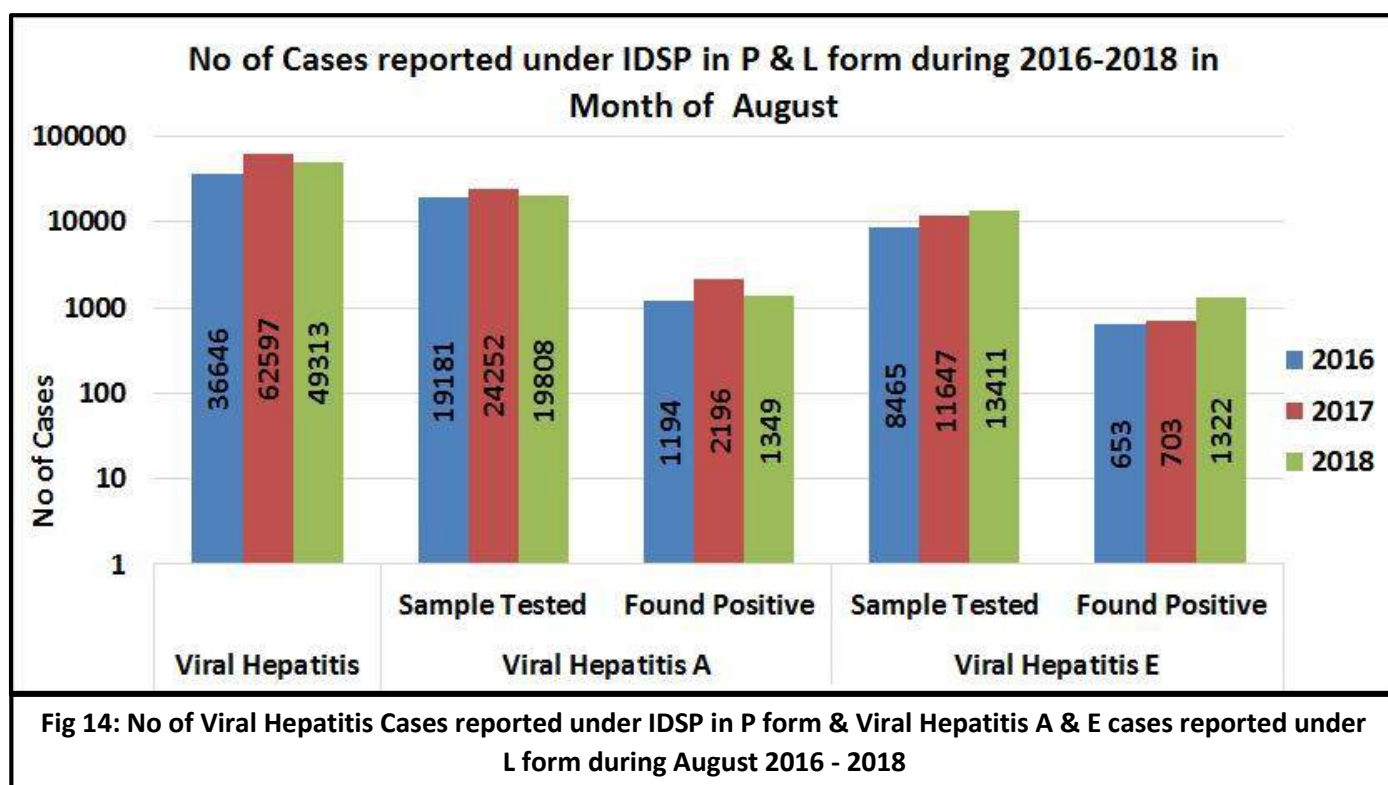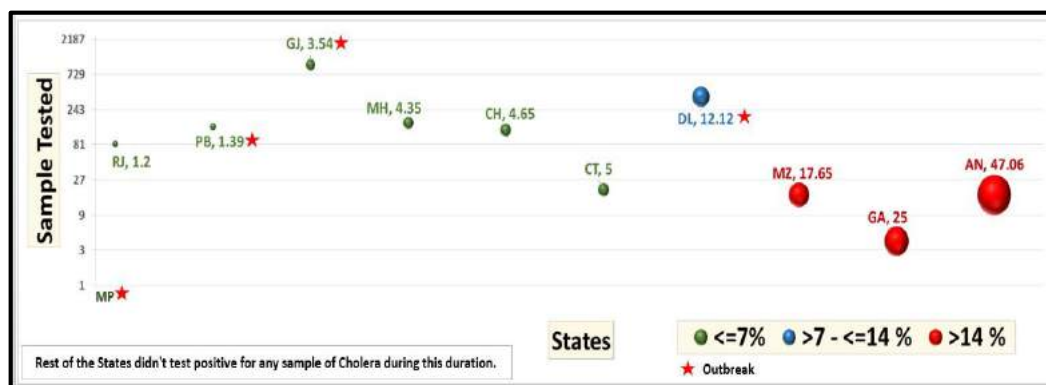

Fig 14: No of Viral Hepatitis Cases reported under IDSP in P form & Viral Hepatitis A & E cases reported under L form during August 2016 - 2018

As shown in Fig 14, the number of presumptive Viral Hepatitis cases was 36646 in August 2016, 62597 in August 2017 and 49313 in August 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 August 2016; 19181 samples were tested out of which 1194 were found positive. In August 2017 out of 24252 samples, 2196 were found to be positive and in August 2018, out of 19808 samples, 1349 were found to be positive.

Sample positivity of samples tested for Hepatitis A has been 6.22%, 9.05% and 6.81% in August month of 2016, 2017 & 2018 respectively.

As reported in L form for Viral Hepatitis E, in August 2016; 8465 samples were tested out of which 653 were found positive. In August 2017; out of 11647 samples, 703 were found to be positive and in August 2018, out of 13411 samples, 1322 were found to be positive.

Sample positivity of samples tested for Hepatitis E has been 7.71%, 6.04% and 9.85% in August month of 2016, 2017 & 2018 respectively.

Fig 15: State/UT wise Presumptive Viral Hepatitis cases and outbreaks for August 2018
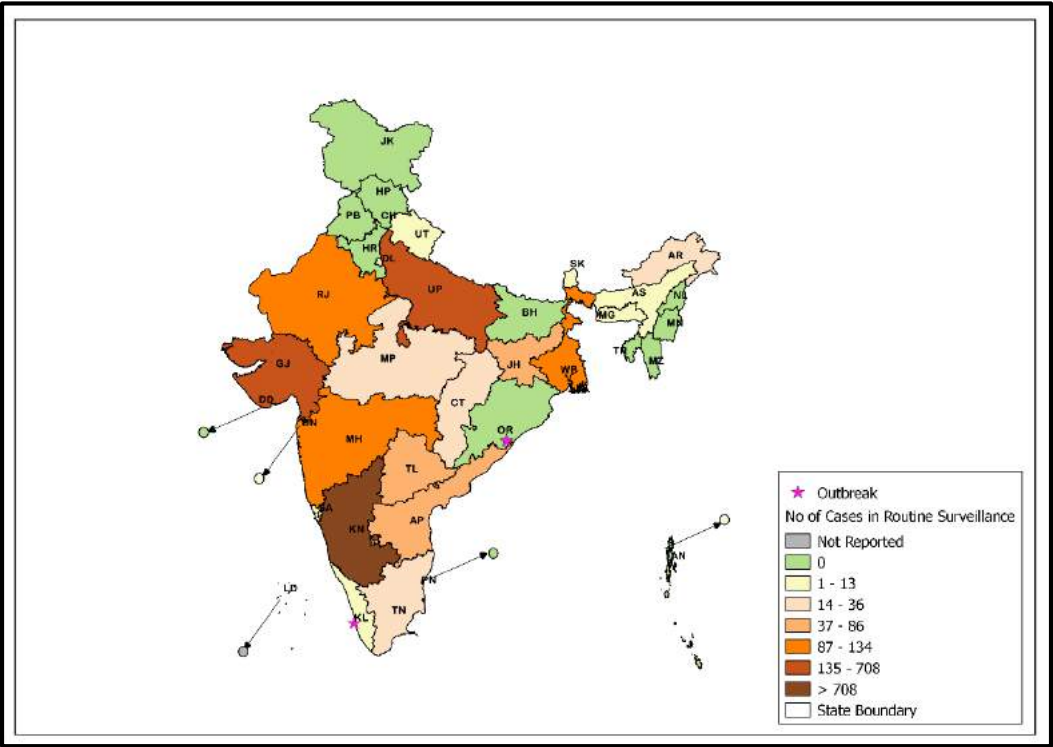

Fig 16: State/UT wise Lab Confirmed Viral Hepatitis A cases and outbreaks for August 2018
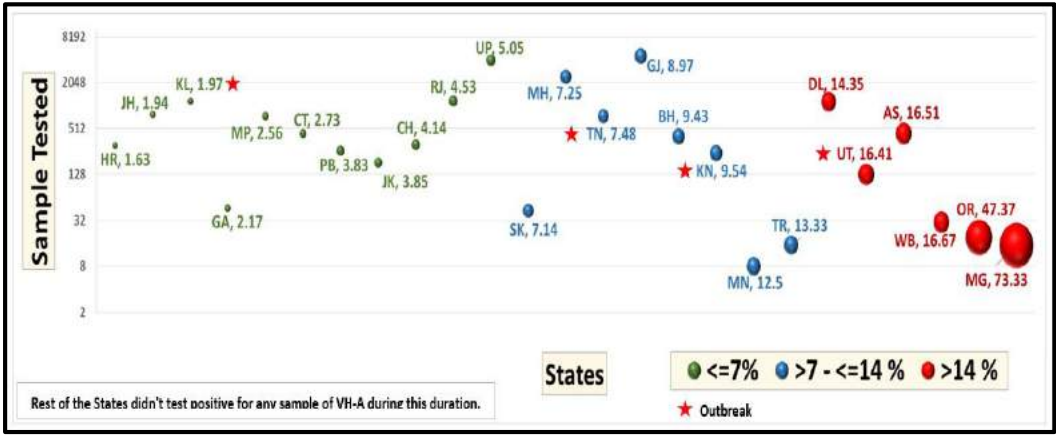
Fig 17: State/UT wise Lab Confirmed Viral Hepatitis E cases and outbreaks for August 2018
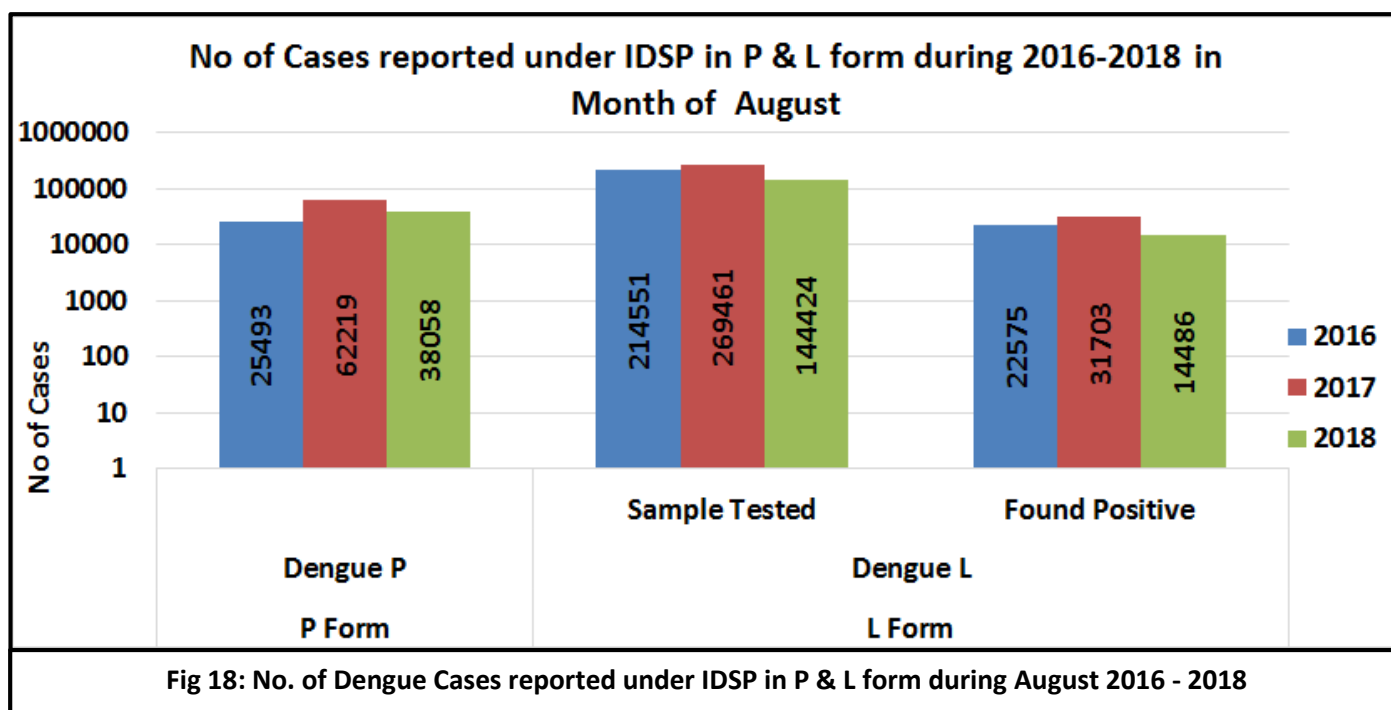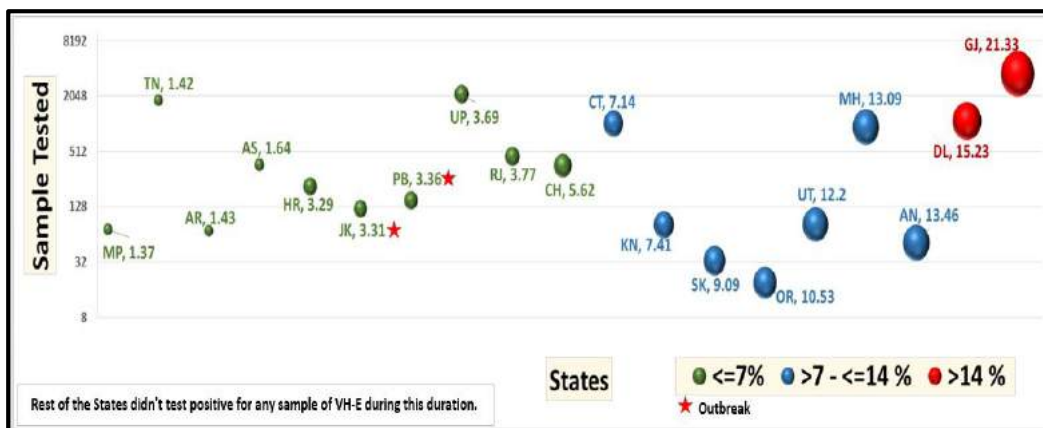

Fig 18: No. of Dengue Cases reported under IDSP in P & L form during August 2016 - 2018

As shown in Fig 18, number of presumptive Dengue cases, as reported by States/UTs in 'P' form was 25493 in August 2016; 62219 in August 2017 and 38058 in August 2018. These presumptive cases are diagnosed on the basis of standard case definitions provided under IDSP.

As reported in L form, in August 2016; 214551 samples were tested for Dengue, out of which 22575 were found positive. In August 2017; out of 269461 samples, 31703 were found to be positive and in August 2018, out of 144424 samples, 14486 were found to be positive.

Sample positivity of samples tested for Dengue has been 10.52%, 11.76% and 10.03% in August month of 2016, 2017 & 2018 respectively.

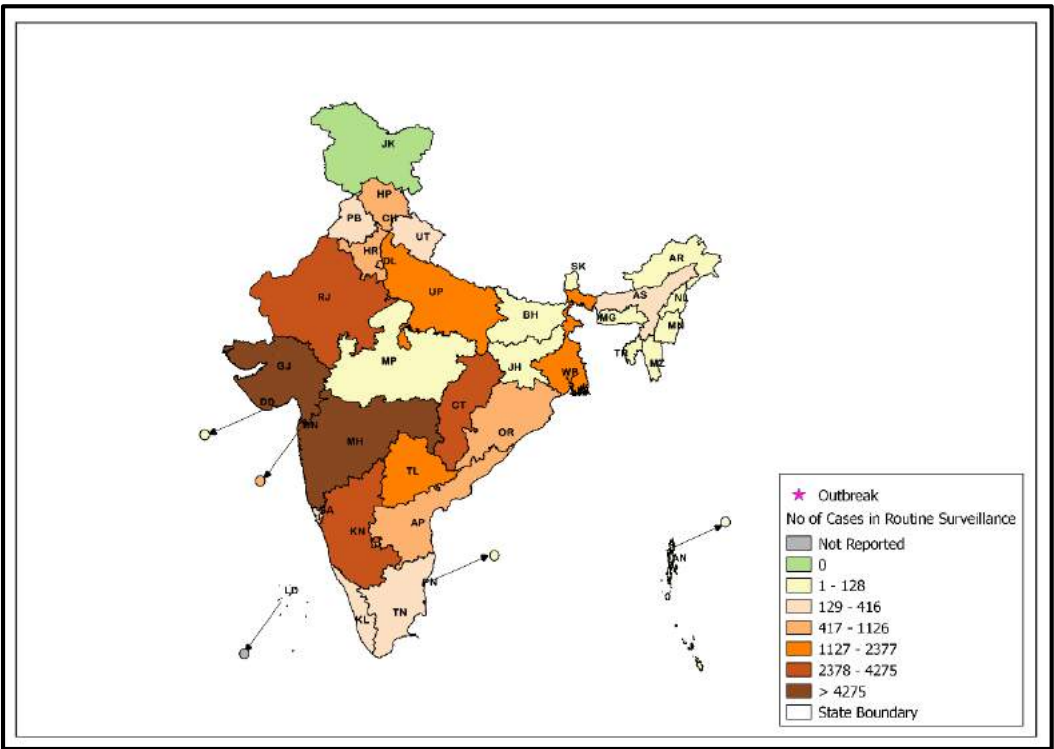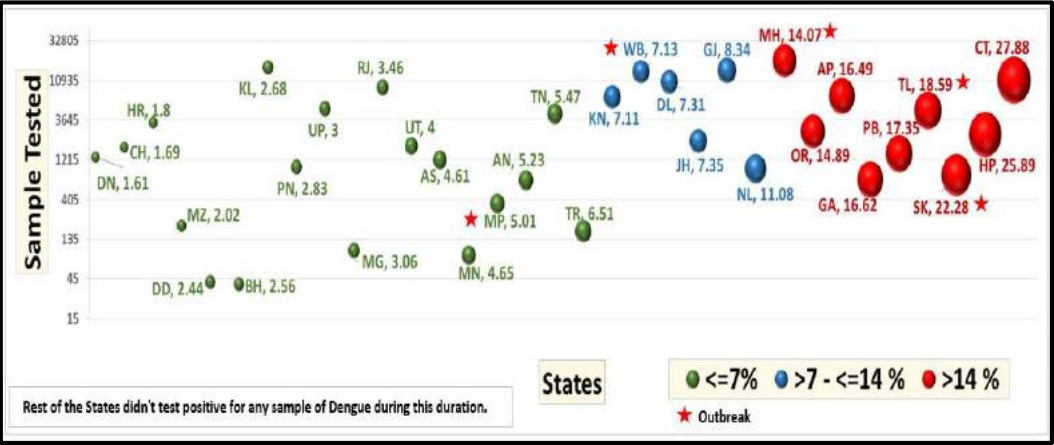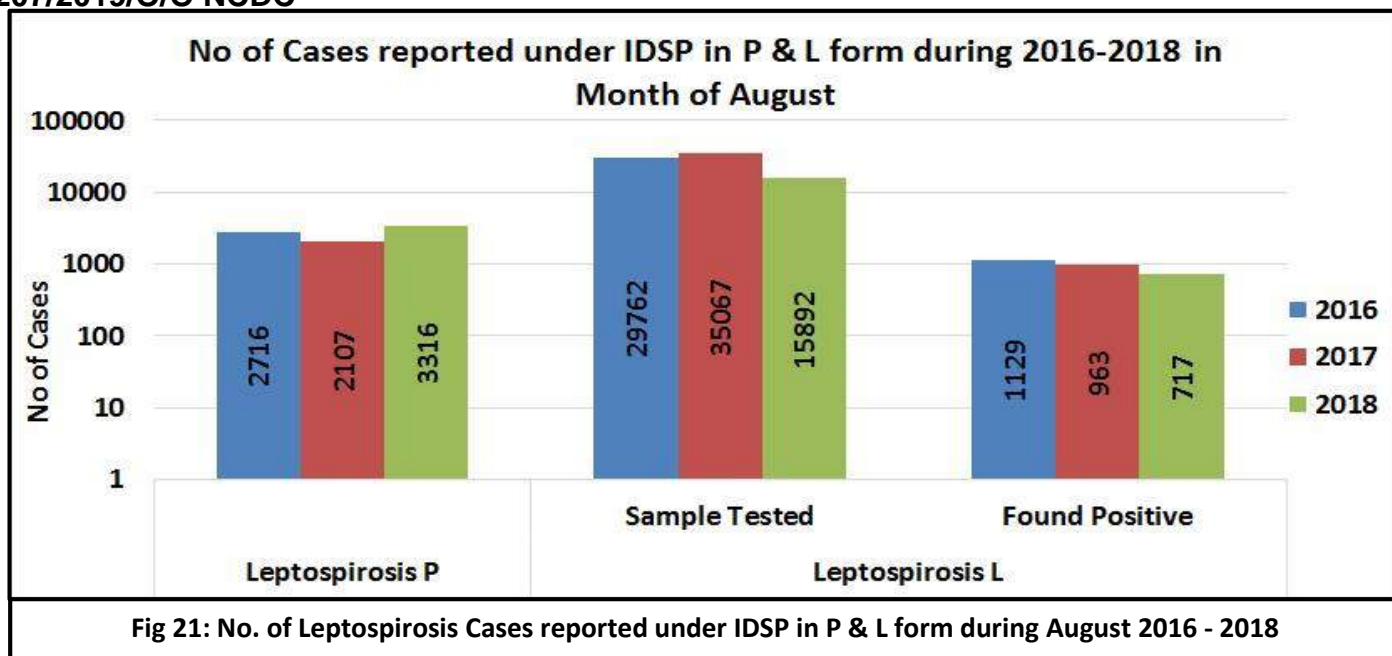**Fig 19: State/UT wise Presumptive Dengue cases and outbreaks for August 2018**

Fig 20: State/UT wise Lab Confirmed Dengue cases and outbreaks for August 2018

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

Fig 21: No. of Leptospirosis Cases reported under IDSP in P & L form during August 2016 - 2018

As shown in Fig 21, number of presumptive Leptospirosis cases, as reported by States/UTs in 'P' form was 2716 in August 2016; 2107 in August 2017 and 3316 in August 2018. These presumptive cases are diagnosed on the basis of standard case definitions provided under IDSP.

As reported in L form, in August 2016; 29762 samples were tested for Leptospirosis, out of which 1129 were found positive. In August 2017; out of 35067 samples, 963 were found to be positive and in August 2018, out of 15892 samples, 717 were found to be positive.

Sample positivity of samples tested for Dengue has been 3.79%, 2.75% and 4.51% in August month of 2016, 2017 & 2018 respectively.

Fig 22: State/UT wise Presumptive Leptospirosis cases and outbreaks for August 2018
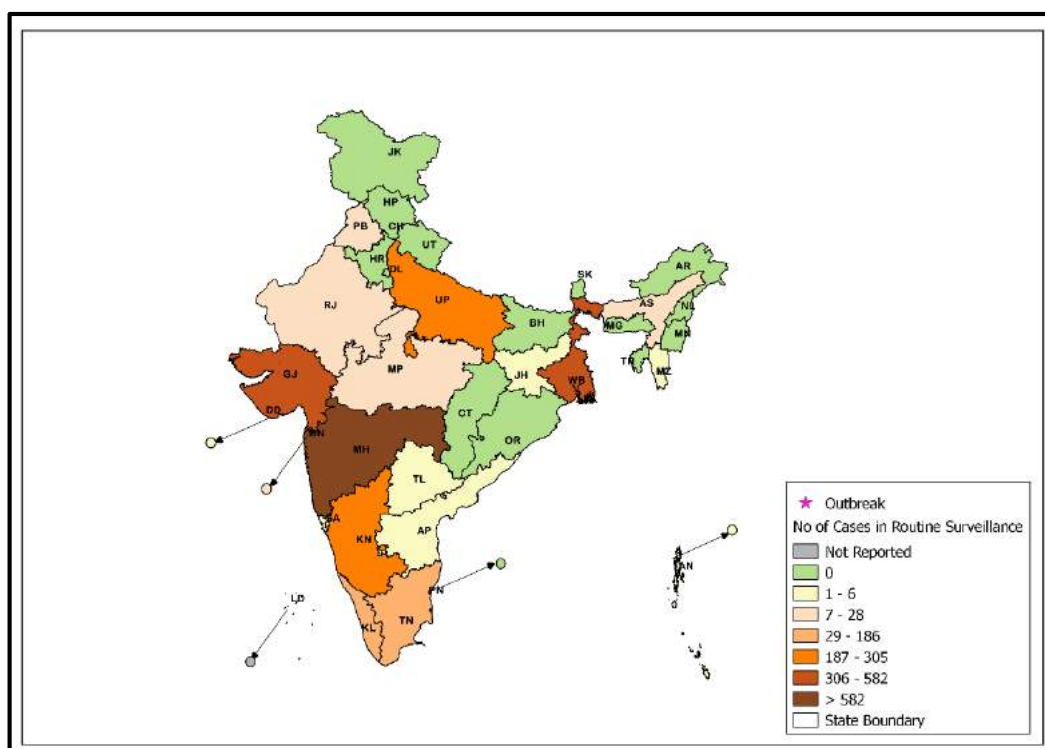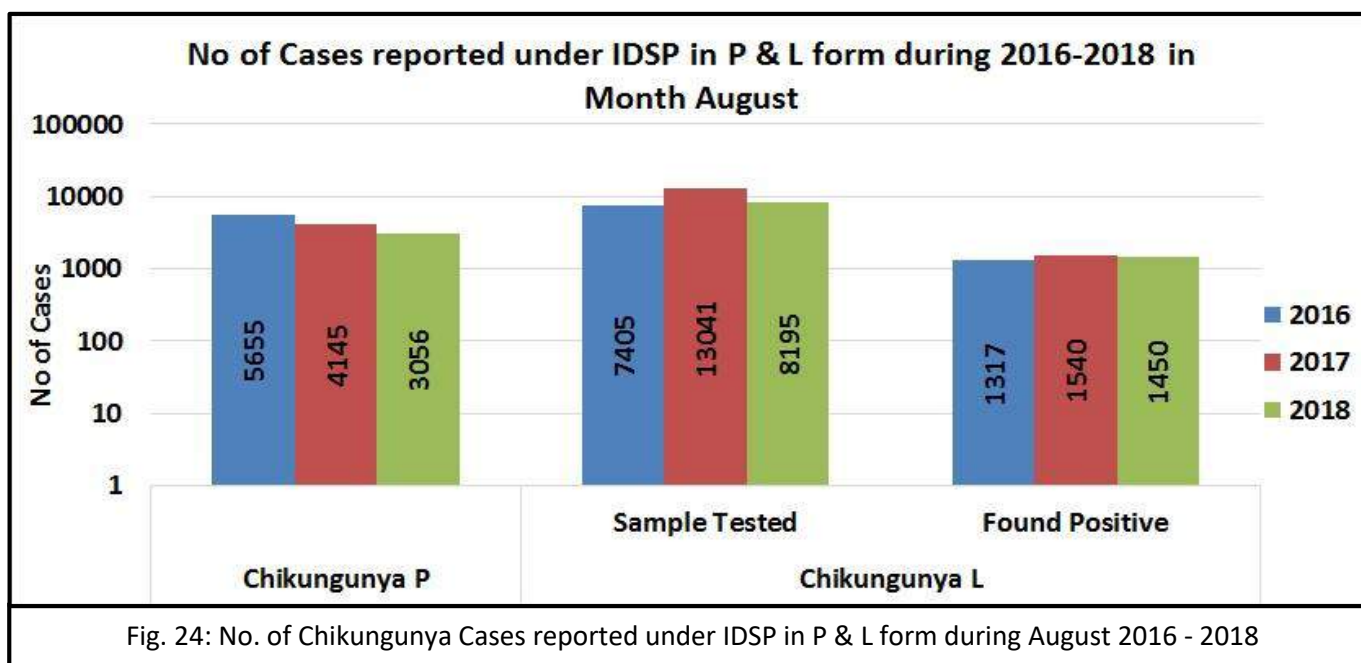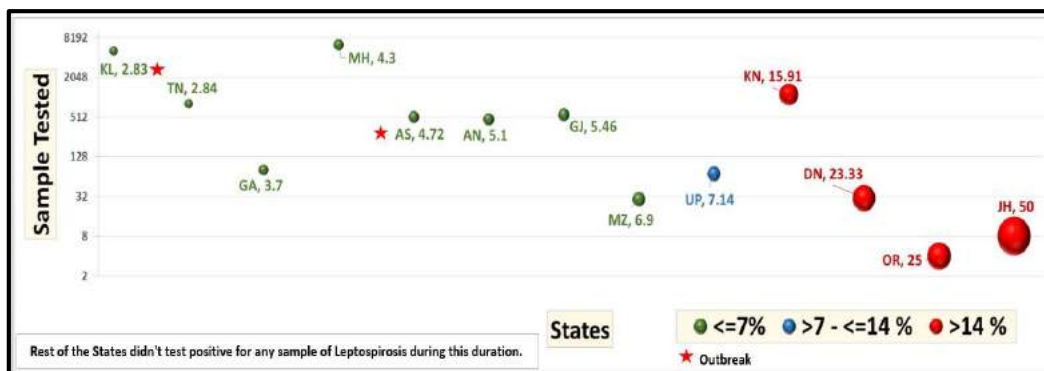
Fig 23: State/UT wise Lab Confirmed Leptospirosis cases and outbreaks for August 2018

Fig. 24: No. of Chikungunya Cases reported under IDSP in P & L form during August 2016 - 2018

As shown in Fig 24, number of presumptive Chikungunya cases, as reported by States/UTs in 'P' form was 56555 in August 2016; 4145 in August 2017 and 3056 in August 2018. These presumptive cases are diagnosed on the basis of standard case definitions provided under IDSP.

As reported in L form, in August 2016; 7405 samples were tested for Chikungunya, out of which 1317 were found positive. In August 2017; out of 13041 samples, 1540 were found to be positive and in August 2018, out of 8195 samples, 1450 were found to be positive.

Sample positivity of samples tested for Chikungunya has been 17.78%, 11.81% and 17.69% in August month of 2016, 2017 & 2018 respectively.

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Fig 25: State/UT wise Presumptive Chikungunya cases and outbreaks for August 2018

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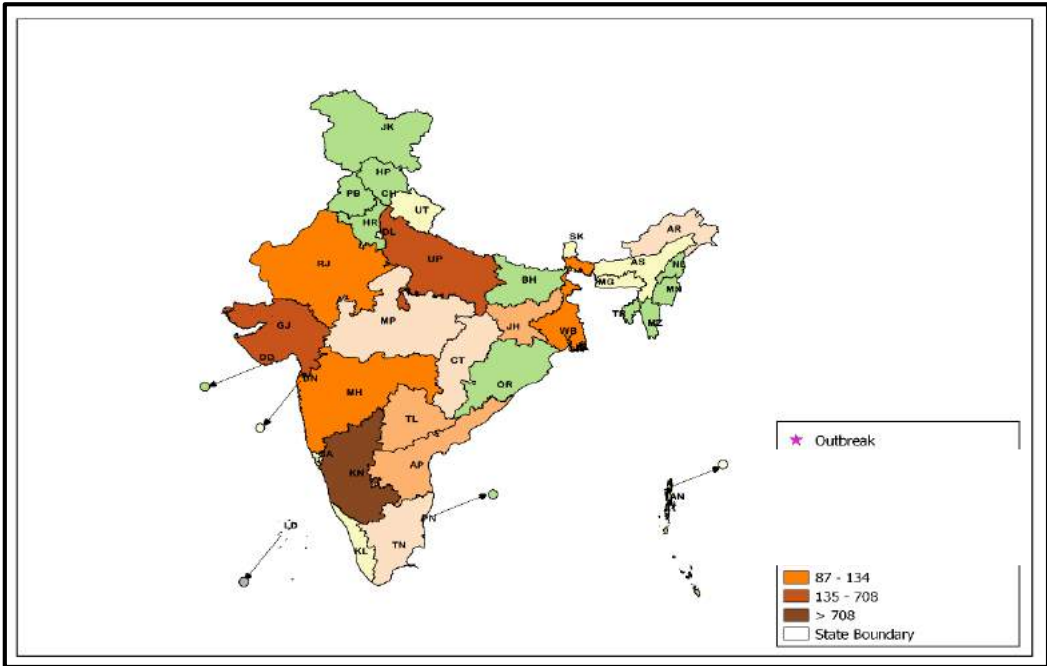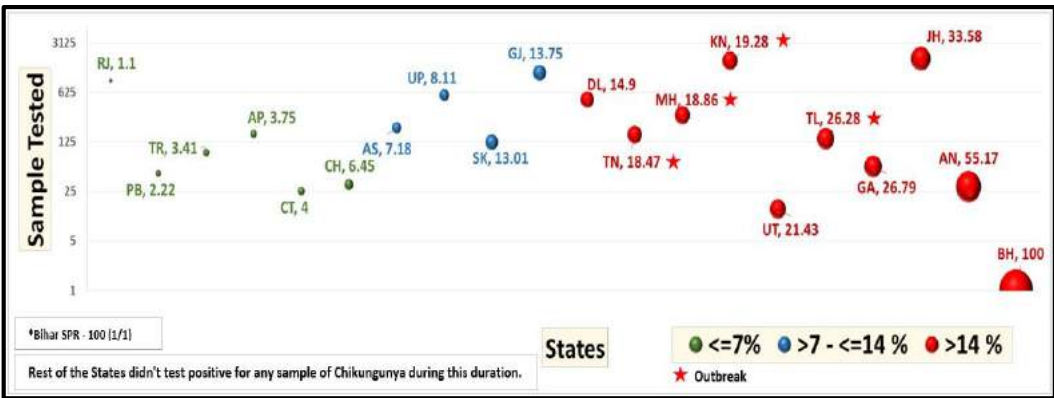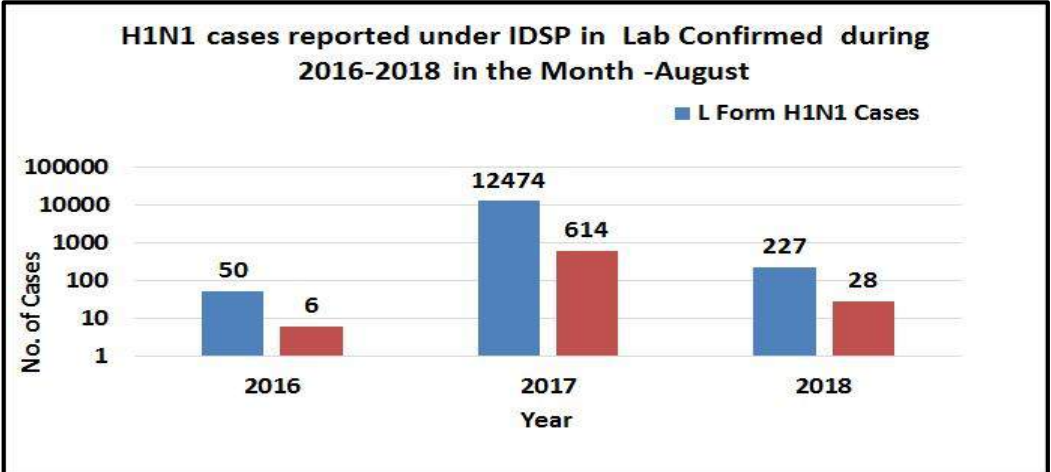**Fig 26: State/UT wise Lab Confirmed Chikungunya cases and outbreaks for August 2018**

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Fig 27: H1N1 cases reported under IDSP in L Form during 2016-2018 in August Month

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As reported in L form, in August 2016; there were 50 cases and 6 deaths. In August 2017; there were 12474 cases and 614 deaths and in August 2018, there were 227 cases and 28 deaths.

Case fatality rate for H1N1 were 12.00%, 4.92% and 12.33% in August month of 2016, 2017 & 2018 respectively.

Fig 28: State/UT wise Lab-confirmed H1N1 cases and outbreaks for August 2018
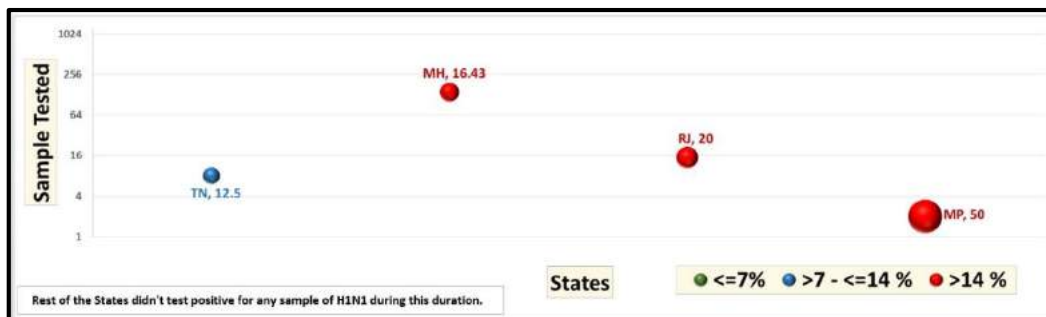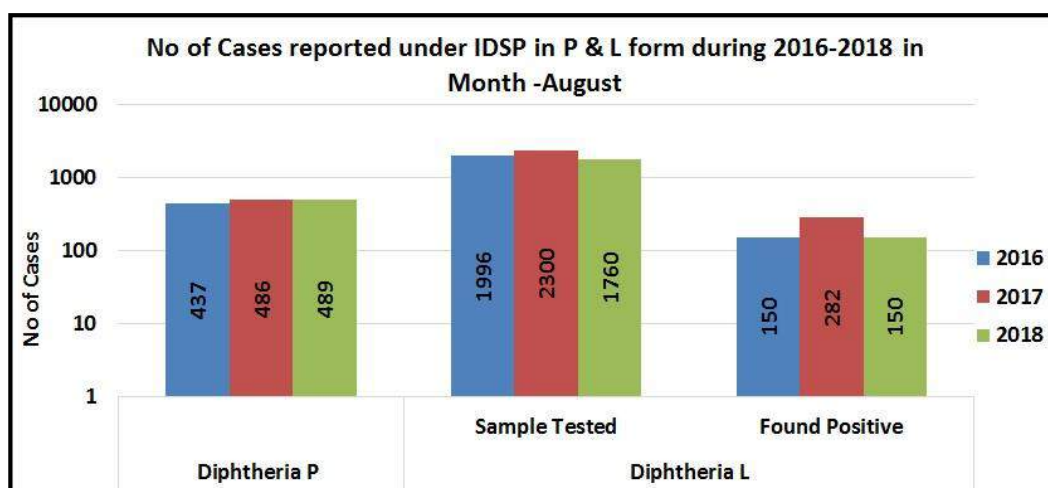

Fig 29: Diphtheria cases reported under IDSP under P & L Form during 2016-2018 in August Month

As shown in Fig 29, number of presumptive Diphtheria cases, as reported by States/UTs in 'P' form was 437 in August 2016; 486 in August 2017 and 489 in August 2018. These presumptive cases are diagnosed on the basis of standard case definitions provided under IDSP.

As reported in L form, in August 2016; 1996 samples were tested for Diphtheria, out of which 150 were found positive. In August 2017; out of 2300 samples, 282 were found to be positive and in August 2018, out of 1760 samples, 150 were found to be positive.

Sample positivity of samples tested for Diphtheria has been 7.52%, 12.26% and 8.52% in August month of 2016, 2017 & 2018 respectively

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Fig 30: Presumptive Diphtheria cases reported under IDSP under P & L Form during 2016-2018 in August Month
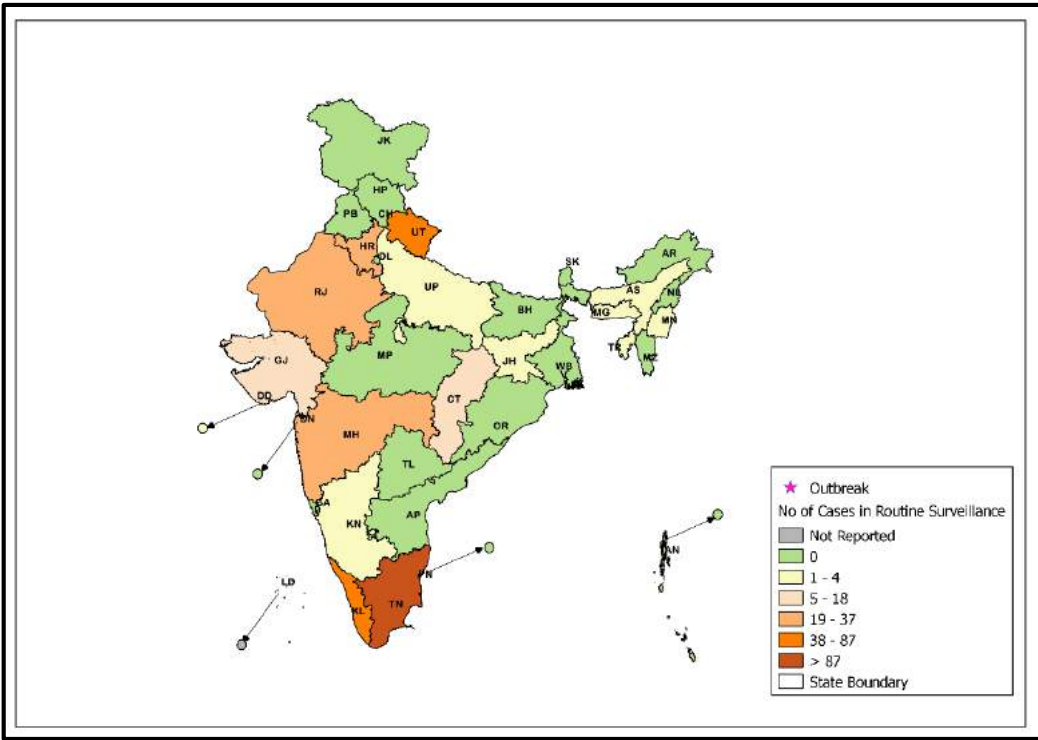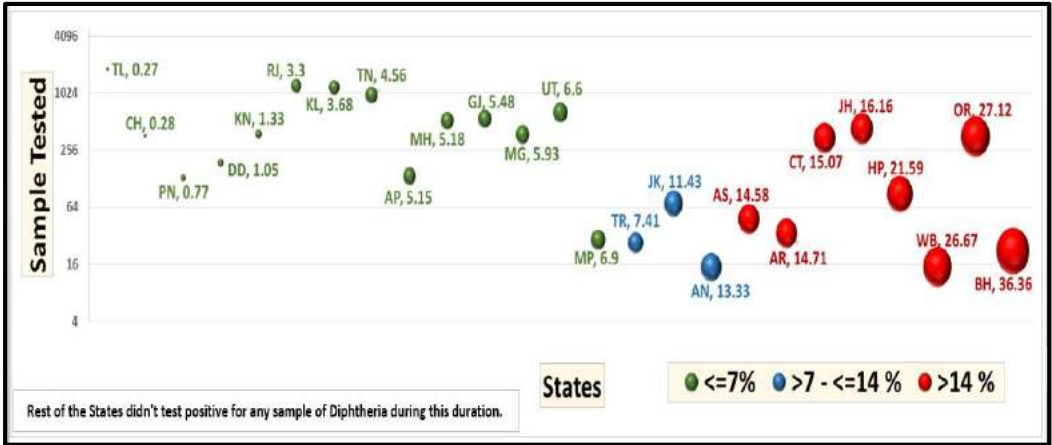

Fig 31: Lab Confirmed Diphtheria cases reported under IDSP under P & L Form during 2016-2018 in August Month

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)

- **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 leptospirochetes 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 leptospirochetes 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

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