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ICAR-NIVEDI

Animal Disease Information e-bulletin

Contents

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October 2018

The top eight diseases reported during October, 2018 are Theileriosis, Peste des petits ruminants, Haemorrhagic septicaemia, Anthrax, Sheep & Goat pox, Babesiosis, Black quarter and Fasciolosis. The following pie chart shows top eight diseases reported during the month of October, 2018 (Fig. 1)
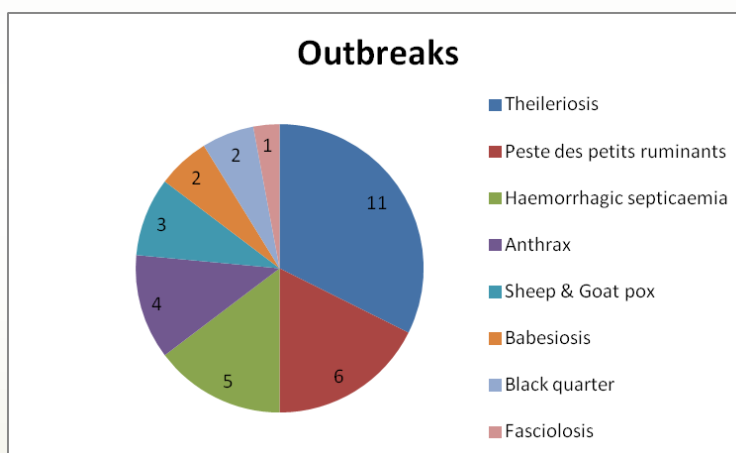
Fig. 1 Top eight diseases Reported during October, 2018
(Numbers in chart indicate outbreaks)

Theileriosis has been reported from West Bengal involving four districts. Hugli, Haora, North Twenty Four Parganas and Paschim Medinipur are the outbreak districts of West Bengal.

Peste des petits ruminants has been reported from five states involving six districts. Haryana state reported highest number of outbreaks includes Sonipat and Hisar districts. Kerala, Andhra Pradesh, Tripura and Himachal Pradesh are the other states which have reported the disease.

Haemorrhagic septicaemia disease has been reported from two states involving three districts. Maximum number of outbreaks has been reported from Andhra Pradesh involving Kadapa and Krishna districts. Kerala is the other state that reported the disease.
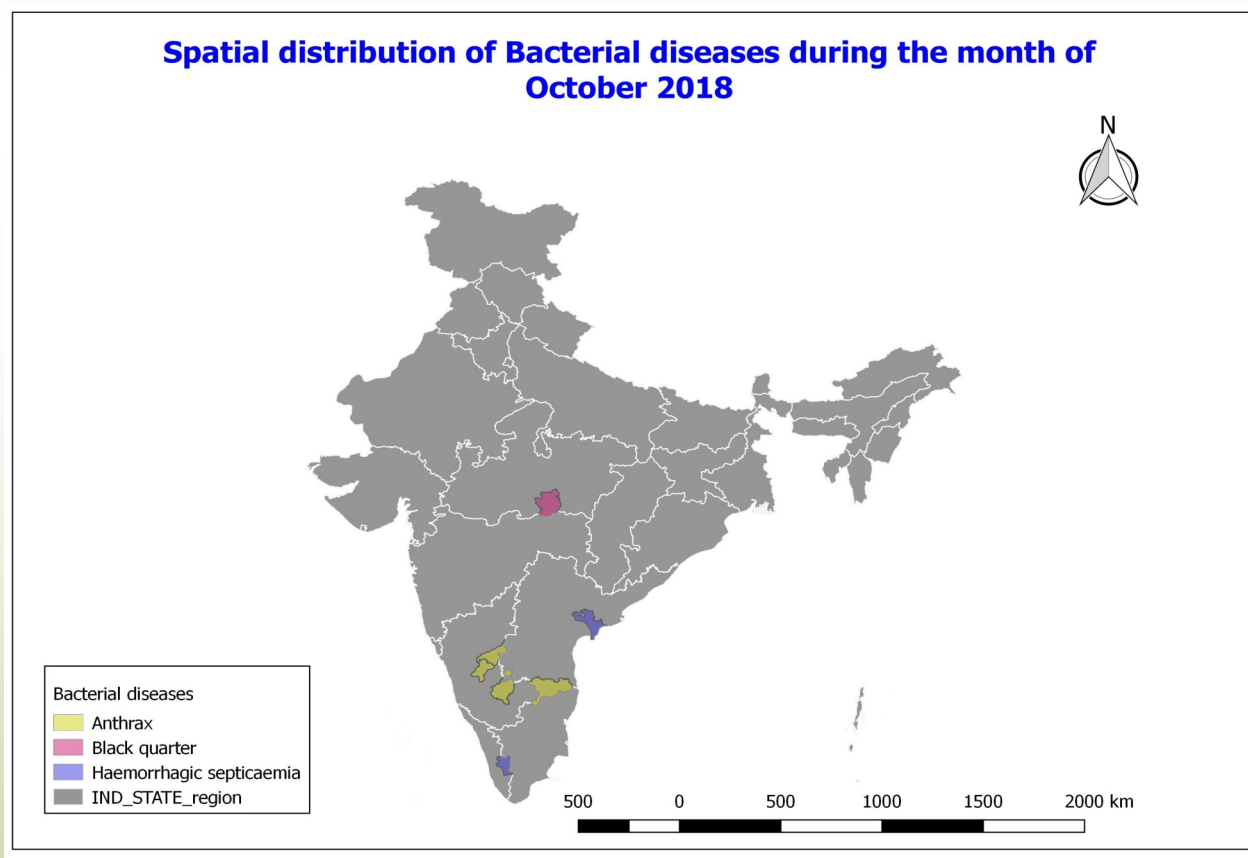
Anthrax disease has been reported from two states involving four districts. Karnataka state reported highest number of outbreaks involving Bellary, Davanagere and Tumkur districts. Andhra Pradesh is the other state that reported the disease.

Sheep & Goat pox has been reported from three states involving three districts. Krishna district of Andhra Pradesh, South Tripura district of Tripura and Haora district of West Bengal are the districts that reported the disease.
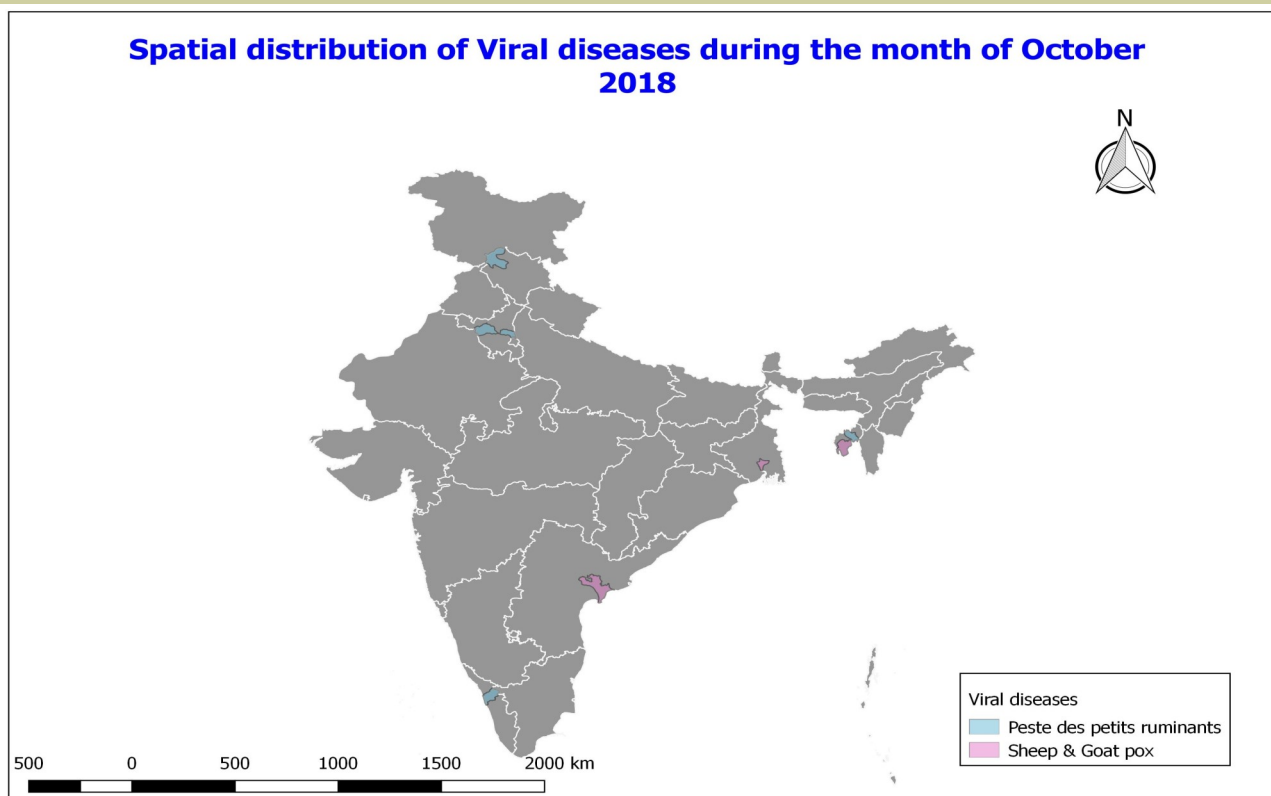
Babesiosis has been reported from two states involving two districts. Goa and West Bengal are the states which have reported the disease.

Black quarter been reported from Madhya Pradesh involving one district. Chhindwara is the outbreak district of Madhya Pradesh.

Fasciolosis has been reported from Imphal East district of Manipur.

Fig. 2 Spatial distribution of bacterial diseases reported during October 2018

Spatial distribution of Viral diseases during the month of October 2018

Viral diseases
- Peste des petits ruminants
- Sheep & Goat pox

Fig. 3 Spatial distribution of viral diseases reported during October 2018

Table: 1 State wise disease reports for October, 2018

State	Diseases Reported
Andhra Pradesh	Anthrax (Cattle); Haemorrhagic septicaemia (Bovine/Sheep); Peste des petits ruminants (Sheep); Sheep & Goat pox (Sheep)
Goa	Babesiosis (Cattle)
Haryana	Peste des petits ruminants (Goat)
Himachal Pradesh	Peste des petits ruminants (Goat)
Karnataka	Anthrax
Kerala	Peste des petits ruminants (Goat); Haemorrhagic septicaemia (Cattle)
Madhya Pradesh	Black quarter (Cattle/Buffalo)
Manipur	Fasciolosis (Cattle)
Tripura	Peste des petits ruminants (Goat); Sheep & Goat pox (Goat)
West Bengal	Sheep & Goat pox (Goat); Theileriosis (Bovine); Babesiosis (Canine)

Note: The livestock species in the bracket indicates the occurrence of the disease in those species of livestock during the reporting month in respective states

November 2018

The top nine diseases reported during November, 2018 are Theileriosis, Babesiosis, Sheep & Goat pox, Anthrax, Fasciolosis, Haemorrhagic septicaemia, Peste des petits ruminants, Bluetongue and Trypanoso-mosis. The following pie chart shows top nine diseases reported during the month of November, 2018 (Fig. 4)
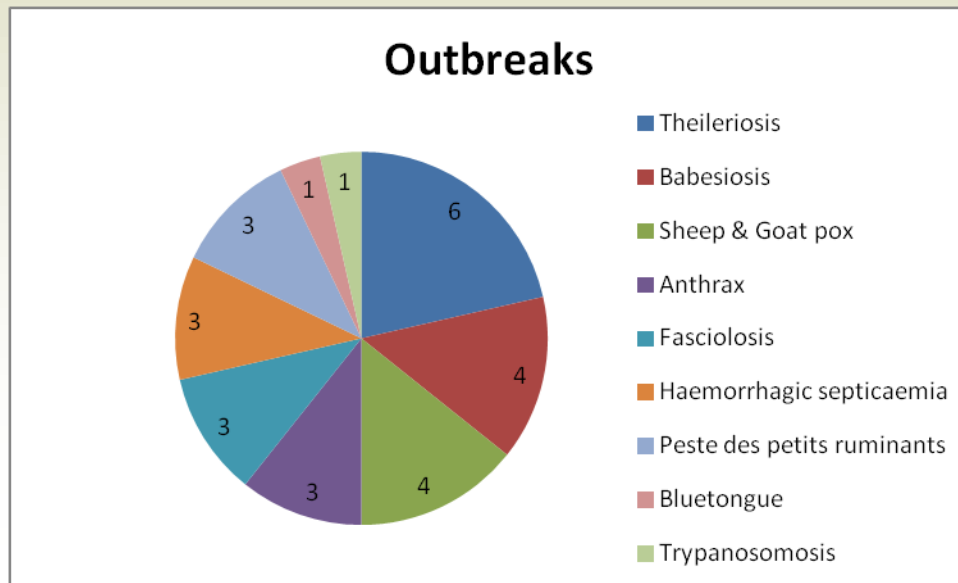
Fig. 4 Top nine diseases Reported during November, 2018
(Numbers in chart indicate outbreaks)

Theileriosis has been reported from West Bengal involving three districts. Haora, South Twenty Four Parganas and Paschim Medinipur are the outbreak districts of West Bengal.

Babesiosis has been reported from two states involving four districts. West Bengal state reported highest number of outbreaks involving Haora, North Twenty Four Parganas and Alipurduar districts. Goa is the other state that reported the disease.

Sheep & Goat pox has been reported from two states involving two districts. North Twenty Four Parganas district of West Bengal and North Tripura district of Tripura are the districts that reported the disease.

Anthrax been reported from Telangana involving two districts. Warangal and Mahbubnagar are the outbreak districts of Telangana.
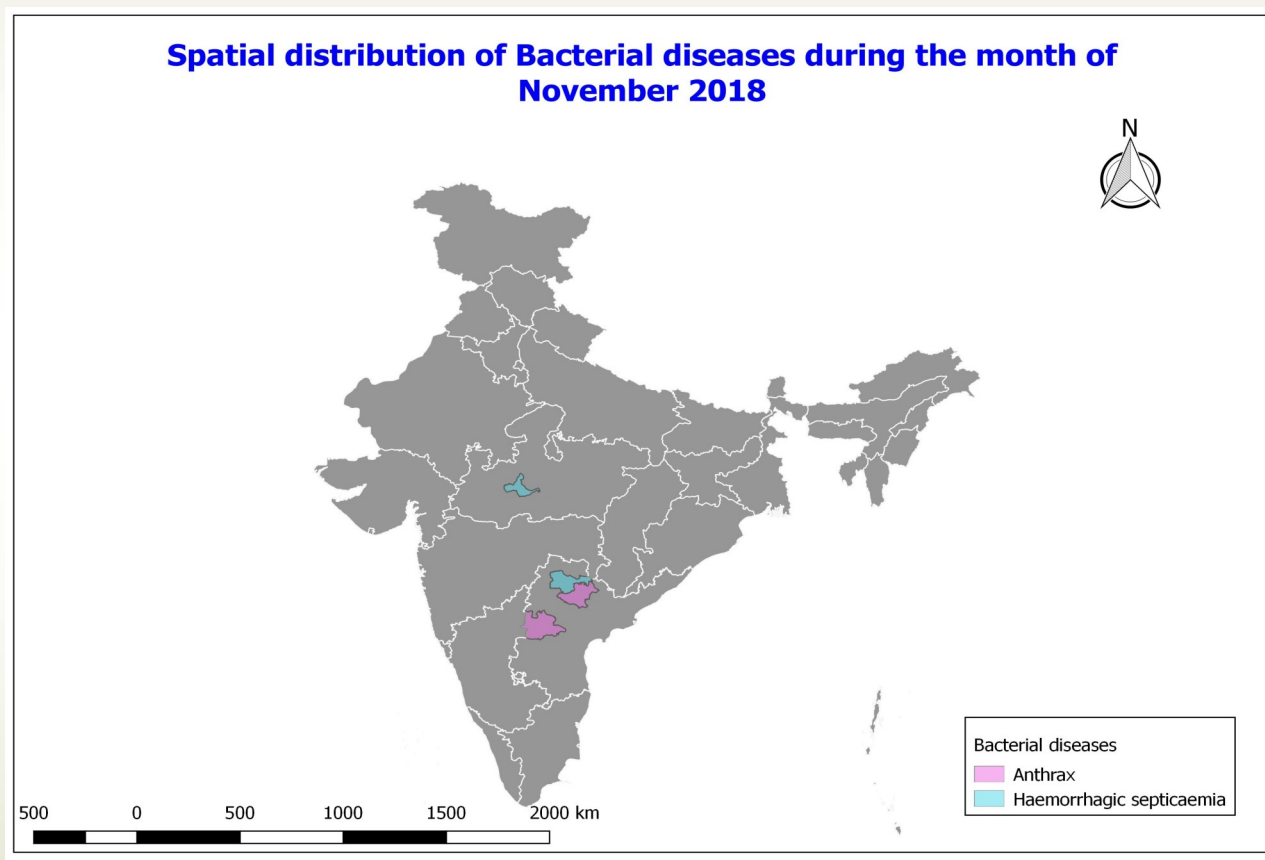
Fasciolosis been reported from two states involving three districts. Imphal East and Imphal West are the outbreak districts of Manipur. Odisha is the other state that reported the disease.

Haemorrhagic septicaemia disease has been reported from two states involving two districts. Telangana and Madhya Pradesh are the states that reported the disease.

Peste des petits ruminants has been reported from two states involving three districts. Maharashtra state reported highest number of outbreaks includes Ahmednagar and Nasik districts. Kerala and Odisha are the other states which has reported the disease.

Bluetongue has been reported from Anantapur district of Andhra Pradesh.

Trypanosomosis has been reported from South Twenty Four Parganas district of West Bengal.

Spatial distribution of Bacterial diseases during the month of November 2018

Bacterial diseases
- Anthrax
- Haemorrhagic septicaemia

Fig. 5 Spatial distribution of bacterial diseases reported during November 2018
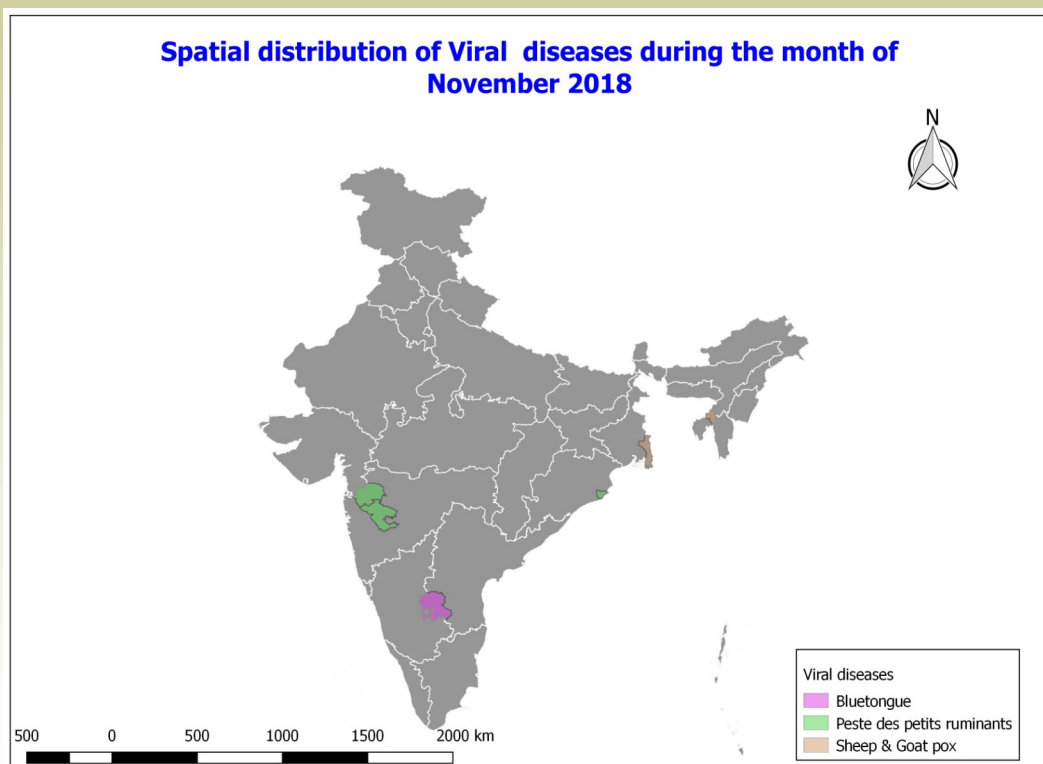
**Fig. 6 Spatial distribution of viral diseases reported during November 2018**

Table: 2 State wise disease reports for November, 2018

State	Diseases Reported
Andhra Pradesh	Bluetongue (Sheep)
Goa	Babesiosis (Cattle)
Madhya Pradesh	Haemorrhagic septicaemia (Buffalo)
Maharashtra	Peste des petits ruminants (Goat)
Manipur	Fasciolosis (Cattle)
Odisha	Fasciolosis (Buffalo); Peste des petits ruminants (Goat)
Telangana	Haemorrhagic septicaemia (Cattle); Anthrax (Sheep)
Tripura	Sheep and Goat pox (Goat)
West Bengal	Sheep and Goat pox (Goat); Theileriosis (Bovine); Babesiosis (Canine/Bovine); Trypanosomosis (Bovine)

Note: The livestock species in the bracket indicates the occurrence of the disease in those species of livestock during the reporting month in respective states

December 2018

The top seven diseases reported during December, 2018 are Black quarter, Peste des petits ruminants, Sheep & Goat pox, Anthrax, Babesiosis, Fasciolosis and Haemorrhagic septicaemia. The following pie chart shows top seven diseases reported during the month of December, 2018 (Fig. 7)
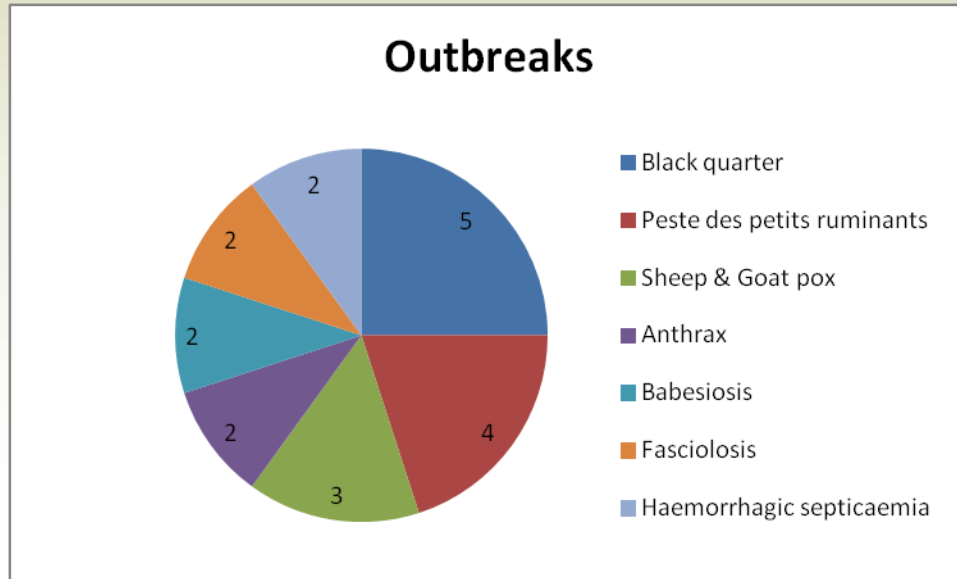
Fig. 7 Top nine diseases Reported during December, 2018
(Numbers in chart indicate outbreaks)

Black quarter been reported from Rajasthan involving two district. Jodhpur and Ganganagar are the outbreak districts of Rajasthan.

Peste des petits ruminants has been reported from four states involving four districts. Maharashtra, Himachal Pradesh, Odisha and Telangana are the states which have reported the disease.

Sheep & Goat pox has been reported from three states involving three districts. Krishna district of Andhra Pradesh, Ahmednagar district of Maharashtra and Khordha district of Odisha are the outbreak districts which have reported the disease.

Anthrax has been reported from two states involving two districts. Bellary district of Karnataka and Karimnagar district of Telangana are the outbreak districts which have reported the disease.

Babesiosis has been reported from North Goa district of Goa.

Fasciolosis has been reported from Imphal West district of Manipur.
Haemorrhagic septicaemia has been reported from Dhule district of Maharashtra.
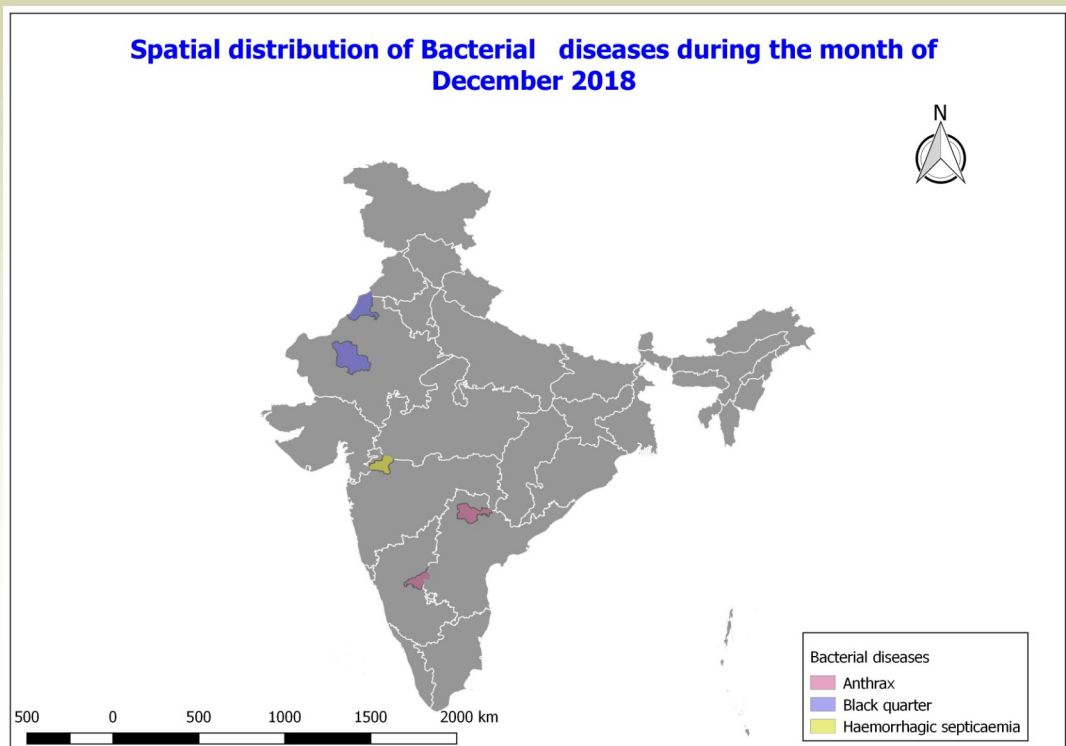
Fig. 8 Spatial distribution of bacterial diseases reported during December 2018
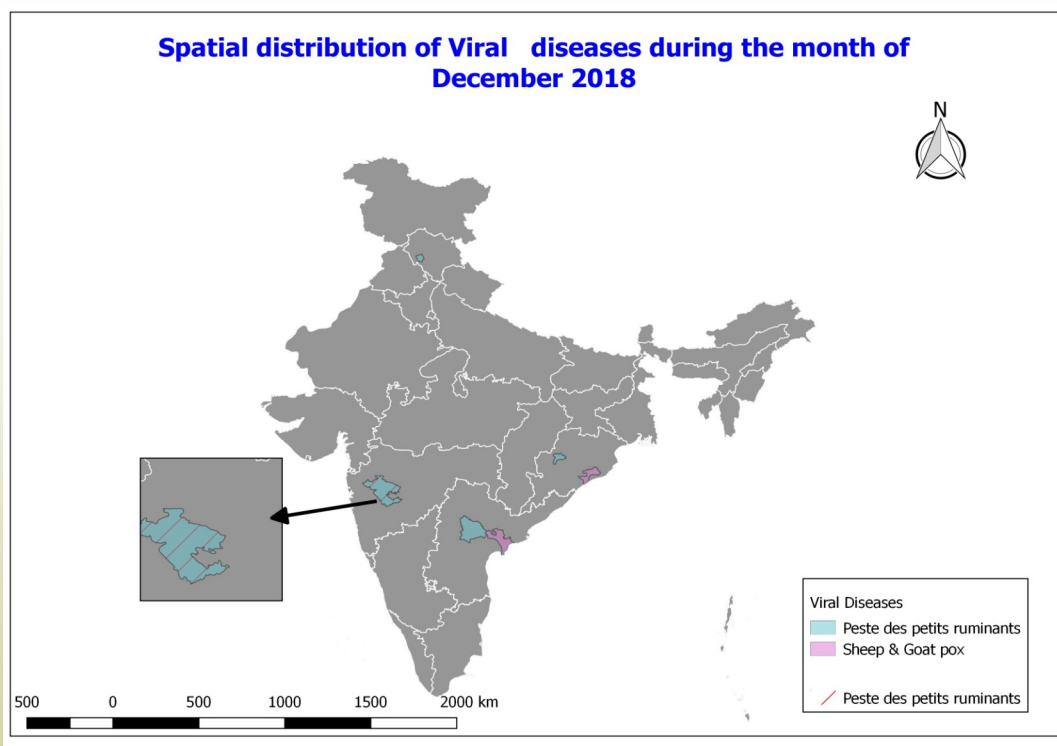
Fig. 9 Spatial distribution of viral diseases reported during December 2018

Table: 3 State wise disease reports for December, 2018

State	Diseases Reported
Andhra Pradesh	Sheep and Goat pox (Sheep)
Goa	Babesiosis (Cattle)
Himachal Pradesh	Peste des petits ruminants (Goat)
Karnataka	Anthrax (Sheep)
Maharashtra	Peste des petits ruminants (Goat/Sheep); Haemorrhagic septi-caemia (Sheep/Goat); Sheep and Goat pox (Sheep)
Manipur	Fasciolosis (Cattle)
Odisha	Peste des petits ruminants (Goat); Sheep and Goat pox (Goat)
Rajasthan	Black quarter (Cattle)
Telangana	Peste des petits ruminants (Goat); Anthrax (Sheep)

Note: The livestock species in the bracket indicates the occurrence of the disease in those species of livestock during the reporting month in respective states

Epi-Research that Matters..

Table. 4 Physical and Chemical Characteristics of PRRS Virus

Parameters	Survivability
Thermal Stability	**4°C- 1week** **21°C- 1 to 6days** **37°C-3hr to 2days** **56°C-30min**
Humidity	**Drying condition-loss of 90% infectivity**
pH	**6-7.5 optimal pH** **<6 and >7.5-loss of 90% infectivity**

Source: https://www.prrscontrol.com

News

Zoonotic Diseases:

National:

⇒ A 75-year-old man from Thotadakoppa under Singanabidire Gram Panchayat in the taluk has died of monkey fever, also known as Kyasanur Forest Disease (KFD), on 1st Feb 2019. One of the doctor of Mandagadde PHC also contracted fever while treating the KFD infected in the village (https://www.deccanherald.com/state/elderly-man-succumbs-kfd-716187.html).

⇒ Bird flu alert was made in Bokaro, Jharkhand after crows dropping dead were tested positive for the H5N1 virus (https://www.telegraphindia.com/states/jharkhand/bird-flu-alert-in-bokaro-after-crows-start-dropping-dead/cid/1684162) and further confirmed in backyard poultry of Fajilkhutahari, Mehrma, Godda, Jharkhand (https://www.promedmail.org).

⇒ A deer was suspected to die in the Sepahijala zoo in West Tripura on Feb 19 due to anthrax (https://thenortheasttoday.com/tripura-zoo-closes-down-after-threat-of-anthrax-infection-among-animals/).

⇒ Three people died due to KFD in Sagar in the first week of March 2019 rising the death toll to 12 in Shivamogga district, Karnatka (https://www.thehindu.com/news/national/karnataka/fresh-outbreak-of-kfd-in-sagar-death-toll-in-shivamogga-district-now-12/article26425507.ece).

International:

⇒ A case of H9N2 avian influenza in 2 year old boy was reported in mainland of China (http://outbreaknewstoday.com/h9n2-avian-influenza-case-reported-china-7th-case-2018/ dated 03.02.2019).

⇒ According to a quick report of the Ministry of Health of Vietnam, two people with severe pneumonia were suspected to be infected with bird flu in February 2019 (https://ww.promedmail.org).

⇒ The Indonesian Health Ministry has said that, from January to February 2019, 628 people were infected with rabies nationwide, with at least 12 cases that turned fatal. A minor girl, who was allegedly bitten by a stray dog, has died owing to shortage of anti-rabies vaccine at hospitals in the Mansehra district of Pakistan. (https://www.promedmail.org).

Epidemiology Concept

Measures of disease frequency

Introduction: As discussed in the last issue, measures of disease frequency may be prevalence or incidence. We have discussed in detail about the prevalence and in this issue we will be discussing about incidence.
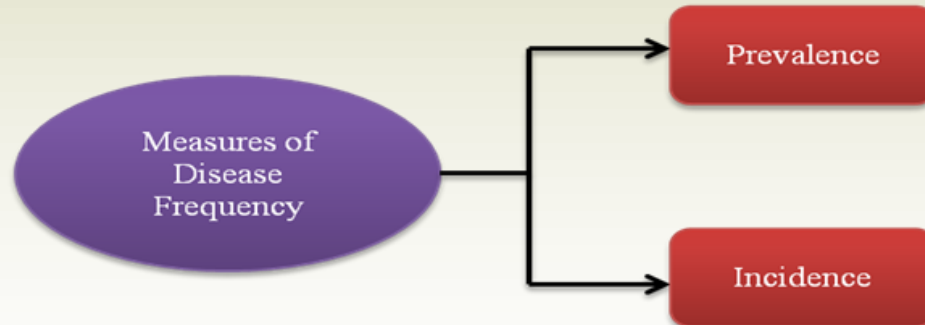
2. Incidence:

Incidence is the measure of **number of new cases of disease** that develop in a population **over a specified period of time**. For example, a cow which is newly diagnosed with brucellosis is an incident case whereas that already has brucellosis is a prevalent case. The study of incident case is essentially important in understanding the etiology of the disease (if it is unknown), outcome of the disease as well as the risk factors associated with the disease. On the other hand, study of the prevalent case (already existing cases) does not provide much information regarding the risk factors.
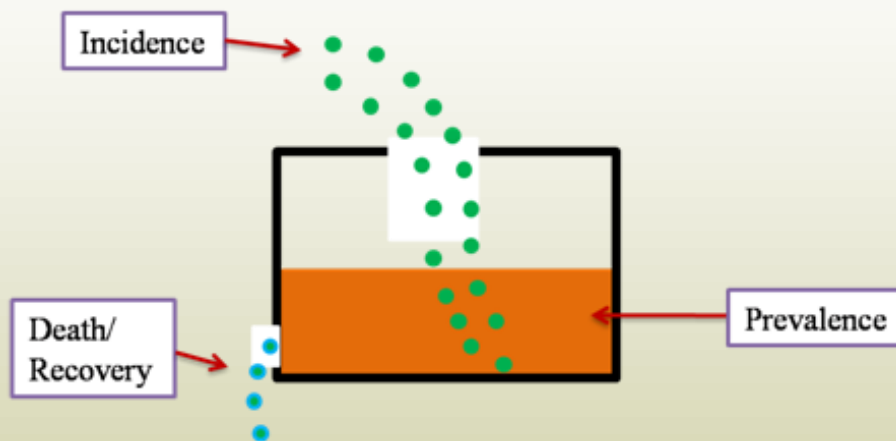
How incidence of a disease can be measured?

Incidence can be measured as a proportion or as a rate. In order to measure the incidence, three elements must be defined;

1) Number of new cases 2) Population at risk and 3) Time period

a. **Incidence measurement as a proportion (Cumulative Incidence or Risk):** Whenever incidence is measured as a proportion, it quantifies the **risk** of occurrence of a disease in a given time period. It is also known as **Cumulative Incidence (CI)**. Cumulative Incidence is defined as the proportion of non-diseased individuals at the beginning of a period of study that becomes diseased during the period. Since CI is a proportion, the value may be ranging between 0 and 1 and is dimensionless.

$$\text{Cumulative Incidence (CI)} = \frac{\text{Number of individuals that become diseased during a particular period}}{\text{Number of healthy individuals in the population at the beginning of that period}}$$

Example: If 20 cattle develop FMD during a week in a herd of 80 healthy cattle at the beginning of the week,

CI= 20/80= 0.25

b. Incidence measurement as a rate (Incidence Rate): Incidence rate (I) measures the rapidity with which new cases of disease develop over a specified time.

$$\text{Incidence Rate} = \frac{\text{Number of new cases of disease that occur in a particular period of time}}{\text{Sum of the period for each animal at risk (Animal years at risk or Time at risk)}}$$

Once the animal is diseased, it may not contribute to the '**time at risk**'. Unlike Cumulative incidence, incidence rate has a dimension; it is calculated as **per animal- week** or **per animal-month** or **per animal – year**.

Example:

In a group of 5 animals, the date of onset of disease as well as the time at risk for each animal is different as shown in the figure;

Animal	Total Years at risk						Time at risk
	2010	2011	2012	2013	2014	2015	
A			★				3.0
B				★			3.0
C							6.0
D			★				2.0
E							4.0

■ Time followed
★ Onset of disease

18.0

Incidence Rate= 3/18=0.166 per animal- year