PNEUMONIC PLAGUE OUTBREAK IN NORTHEAST INDIA

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2. Situational Report	Grade	Cases	Deaths	CRF
	2	190	37	20%

The Pneumonic plague outbreak in Himachal Pradesh, India is still ongoing. Since our previous report on 17 January 2020, there has been a single confirmed case within a period of ten days, which resulted in the death of the individual. Between the commencement of the outbreak, 12 October 2019 and 9 December 2019, a total of 190 cases have been reported (161 confirmed and 29 probable cases) including 37 deaths with a case fatality ratio of 19.5%. Of these 190 reported cases, 107 cases were females (56.3%) and 83 (43.7) were males. Of the 37 deaths, 18 (48.6%) were females and 19 (51.4%) were males.

Plague is a zoonotic disease caused by a bacteria found in rodents (1). Individuals who are infected with plague usually manifest symptoms after an incubation period of three to seven days. There are three main forms of the plague disease: bubonic, septicaemic and pneumonic (2).

Current risk assessment

The current outbreak began on the 12th of October 2019, with two confirmed cases being reported. One of the first two patients passed away on the 25th of October 2019, whilst the other one survived to date. Of the confirmed cases about 56% were females (Figure???). Mortality records showed no significant difference between females and males (18 females vs 19 males). The current data suggest that females are slightly more likely to get plague than males, yet both males and females have an equal chance of being killed by the plague. Looking at the age distribution (Figure??), it is evident that people from all age groups are susceptible to plague. However, people from the age groups: 35-40, 45-50 and 50-55 were the least infected. The best way to stop transmission is to treat people who have been exposed to infected people to prevent infection and to isolate people who are confirmed to be infected for the duration of the infection.

A strategic approach to the prevention, detection and control of plague

Case definition

Plague diagnosis is confirmed by laboratory diagnosis which can either be by the isolation of Y. pestis from a clinical specimen or a significant (fourfold or more) change in paired serum antibody titer to *Y. pestis* F1 antigen (4).

Symptoms

Symptoms of pneumonic plague include fever, headache, development of pneumonia within a short space of time, followed by shortness of breath, chest pain and cough. The patient may progress to respiratory failure and shock if not treated within 2 to 4 days. If not treated, pneumonic plague can be fatal (5).

Prevention

Currently, there is no vaccine for plague. People who came into direct contact with infectious people must take antibiotics for seven days to decrease the chances of being infected (5). Patients who suspect they might be infected with plague must wear surgical masks to prevent spreading the diseases. Plague is usually caused by rodents and fleas, as part of prevention, people are encouraged to reduce rodent habitats around them and to keep fleas off their pets (6).

Situation update

We report on the progression of the recent pneumonic plague outbreak in a community in northeast India which commenced on 12 October 2019. The community has a population of 302 people. Between the 12th of October 2019 and 29th of November 2019, there were 189 reported cases, 160 confirmed cases and 29 probable cases. The outbreak has caused 24 deaths to date.

The first case of the plague outbreak of India was detected on 11-Oct-19 and reached it's peak on 6-Nov-19 (figure 1). Majority 84.74% out of 190 cases were Lab confirmed.

Of the 190 cases, majority 56.32% were female. The first 3 cases of the plague occured in females (Figure below) and it was five days later, on the 17-October 2019, when the first case was recored in the males.

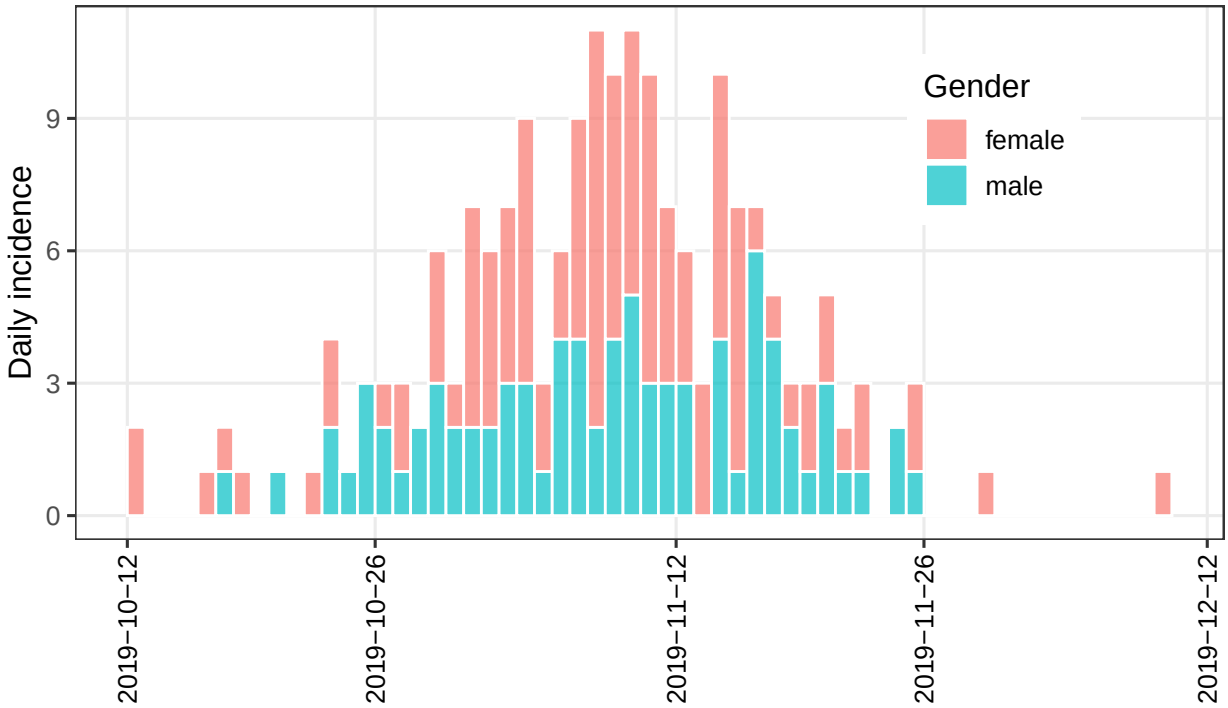

Figure 1: Gender distribution of the pneumonic plague outbreak in Northeast India 12 Oct - 09 Dec 2019

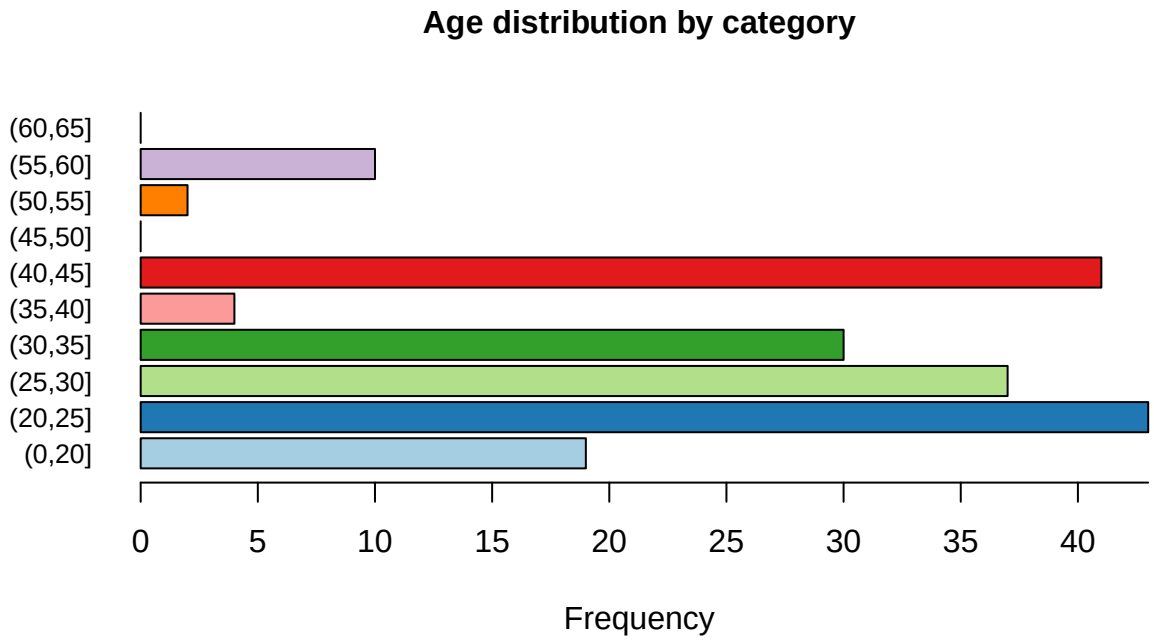

Figure 2: Age distribution of the pneumonic plague outbreak in Northeast India 12 Oct - 09 Dec 2019

There were no gender differences in mortality, i.e. 18 in females vs 19 in males (p.value=0.2472623). The highest number of deaths, i.e. 4 deaths, in a single day, reported occured on 2019-11-12 (figure 4).

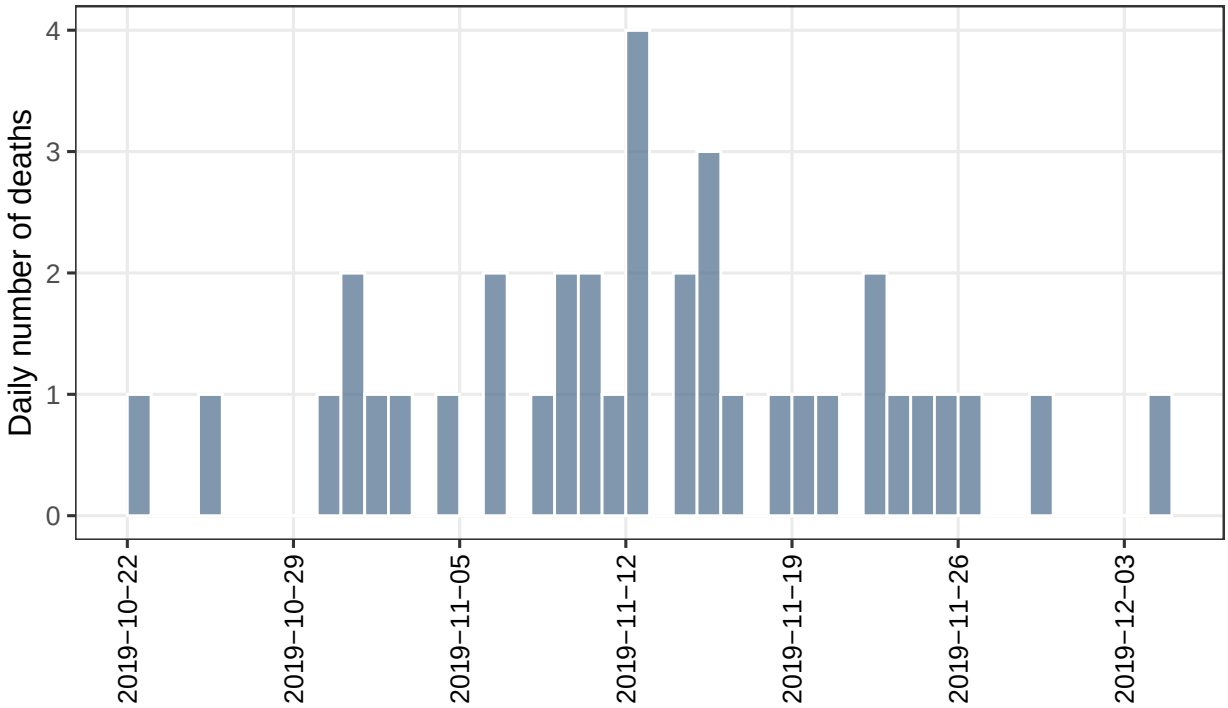

Figure 3: Mortality due to pneumonic plague outbreak in Northeast India 12 Oct - 09 Dec 2019

References

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