

b The current Lassa fever outbreak in Nigeria

The Lassa fever outbreak in West Africa continues to gather momentum. ProMED reported on 13 February 2016 that Nigeria has recorded 176 cases with 108 deaths - a case fatality rate of 61 percent. Of the total, 78 cases have been confirmed, amongst which 49 have died (63%). As of 13 February, 20 states are currently following up contacts, or have suspected or probable cases with laboratory results pending or laboratory confirmed cases. The states with the highest number of deaths include Niger, Taraba, Bauchi, Kano, Edo and Ondo. Cases have been detected in Abuja and Lagos.

Lassa fever is caused by an arenavirus, Lassa fever virus (LFV), and was first identified in humans after the death of two American missionary nurses in the town of Lassa in northern Nigeria in 1969. The main reservoir of LFV is the common African multimammate rat *Mastomys natalensis*. These rats associate closely with humans and are commonly found in and around rural households and food storage throughout the entire continent. The virus is shed in urine and faeces of infected rats for possibly the whole lifetime of the animal (2-3 years). Transmission to humans occurs easily by inhalation or ingestion of dried excreta (e.g. while sweeping), touching of infected excretions, urine or contaminated water, floors or other surfaces with hands, especially when having cuts or sores or with mouth, eyes or nose. Secondary person-to-person infection in the household and community and both hospital and laboratory transmission can also occur via contact of infected blood, saliva or urine (3-9 weeks)

The risk of Lassa fever correlates strongly with areas having 1 200-1 500mm rain per year, and seasonality. It is postulated that environmental conditions that favour the survival of the virus outside the vertebrate host promote acquisition of infection by rodents (in the moist, rainy season), and by humans (viral aerosol stability during the dry season). Outbreaks in humans peak from

November to March each year. Vegetation and temperature are less important ecological factors determining areas of risk. In geographical and political terms, areas of risk in West Africa are shown in Figure 6 and include Guinea (Kindia, Faranah and Nzerekore), Liberia (Lofa, Bong and Nimba), Nigeria (southern two-thirds of the country) and Sierra Leone (Kenema and Kailahun).

Lassa fever does not occur in South Africa, although the vertebrate host has a widespread distribution across Africa. It is postulated that several other arenaviruses that are not pathogenic in humans exploit the environmental niche in African multimammate rats elsewhere across the continent, thus preventing the spread of the disease. However, several cases of Lassa fever have been imported to South Africa in returning travellers. A public health physician involved in an immunisation campaign in Nigeria in 2007 became ill and was evacuated to Johannesburg. A diagnosis of Lassa was confirmed. A South African working in Sierra Leone died after contracting the virus in Makeni, northern Sierra Leone in 2010.

The incubation period of Lassa fever is 6-21 days. Onset is gradual with high fever, rigors, shivering, malaise, headache, myalgia and sore throat. Cough, chest pain, and cramping abdominal pains with nausea, vomiting, and diarrhea may also occur. Most deaths are the result of multi organ failure, usually 2 weeks after the onset of illness. Deafness is a common complication in one-third of infections in mild as well in severe cases and presents in various degrees and is often permanent. The differential diagnosis of Lassa fever includes malaria, typhoid, Ebola infections.

Source: Division of Public Health, Surveillance and Response, NICD-NHLS (outbreak@nicd.ac.za)

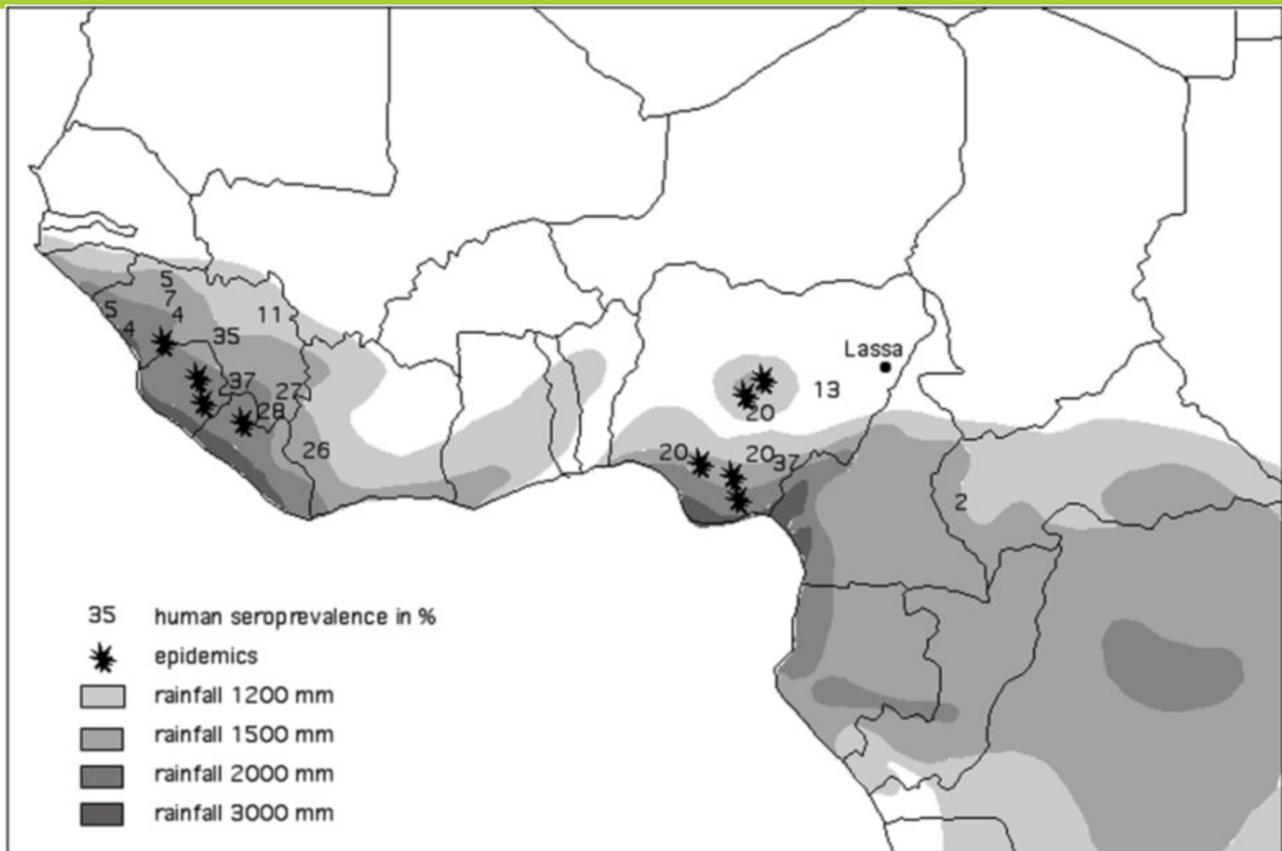


Figure 5. West and Central Africa mean annual rainfall (1951-1989), Lassa fever nosocomial outbreaks (stars) and human Lassa seroprevalence (numbers in %). From: Fichet-Calvet E, Rogers DJ. Risk maps of Lassa fever in West Africa. PLoS Neg Trop Dis. 2009. 3 (3):3388.