

Briefing Note – 24 February 2016

BENIN

Lassa fever outbreak



Need for international assistance	Not required	Low	Moderate	Significant	Major
Expected impact	Very low	Low	Moderate	Significant	Major

Crisis overview

As of 19 February, 72 cases of Lassa fever and 27 deaths had been reported from eight departments. Most cases and deaths have occurred in Borgou, towards the northeast of the country.

Affected department	Population according to last census	No. of suspected and confirmed cases (as of 16 February)	No. of deaths (as of 16 February)
Borgou	724,171	52	16
Collines	535,923	13	4
Ouémé	730,772	2	1
Alibori	521,093	1	-
Atlantique	801,683	1	1
Kouffo	524,586	1	-
Littoral	665,100	1	-
Plateau	407,116	-	1
Total	4,910,444	71	23

Sources: WHO 19/02/2016; Government 2002

Key findings

Anticipated scope and scale Lassa fever is endemic to Benin, but this year's outbreak is more widespread, affecting eight out of 12 departments and including 72 cases (of which six are confirmed). The case fatality rate (CFR) is 33% (27 reported deaths).

Priorities for humanitarian intervention **WASH:** Hygiene promotion and provision of clean water and soap is needed to prevent further spread of the disease. Information on waste management should be provided to limit breeding grounds for rodents.

Health: Containment measures such as contact tracing and isolation of suspected cases, as well as capacity to treat patients. Training and protective equipment are required for health workers to limit the risk of infection within health facilities.

Humanitarian constraints No access constraints have been reported.

Limitations

There is limited information on the underlying vulnerabilities of the affected population, particularly figures of people in need of WASH and health.

Crisis impact

An outbreak of Lassa fever was detected on 21 January in Tchaourou district, Borgou department. As of 19 February, 72 cases (6 confirmed, 12 probable, and 54 suspected) have been reported from seven departments, and 27 people have died (UNICEF 23/02/2016). The case fatality rate is 33%, compared to 15% observed generally among hospitalised patients (WHO 19/02/2016; UNICEF 23/02/2016). By 16 February, 52 cases had been reported in Borgou, 13 in Collines, and two or less in Ouémé, Alibori, Atlantique, Kouffo, and Littoral. The 23 deaths recorded until 16 February came from the departments of Borgou (16), Collines (4), Atlantique (1), Ouémé (1) and Plateau (1) (WHO 19/02/2016).

Health workers: Seven of the reported cases (3 confirmed, 1 probable and 3 suspected), including 2 deaths (1 confirmed and 1 probable), were among health workers (WHO 19/02/2016). Additional proper personal protective equipment (PPE) should be provided to health care and laboratory workers along with training on their use in order to prevent infection in health facilities (CDC 2014).

Factors affecting efforts to control the outbreak

Poor WASH conditions, including a lack of hygienic practices such as hand washing and unsafe drinking water, complicate controlling the outbreak as they facilitate transmission of the disease (UNICEF 10/02/2016).

Quarantine units to treat victims while preventing the spread of the disease is a priority need. Contact tracing and monitoring are also important strategies to contain the outbreak (UNICEF 10/02/2016).

Confirmation of Lassa fever infection requires laboratory testing, which is currently not done in Benin, but in Lagos, Nigeria (WHO 19/02/2016).

Vulnerable groups

- Health workers are at risk if proper barrier nursing and infection control practices are not maintained (IFRC 04/02/2012).
- Pregnant women, nursing mothers and their babies are at a higher risk of dying of Lassa fever (local media 07/01/2016). Death rates for women in the third trimester of pregnancy are very high (local media 10/01/2016).

Potential aggravating factors

Sanitation infrastructure

Only 13% of the population of Benin has access to improved sanitation facilities. Poor sanitation can heavily contribute to the spread of Lassa fever (USAID 04/09/2015).

Waste management

The management and proper disposal of waste is a problem in Benin. One study in the city of Abomey in Zou department found that only 14.53% of household waste is collected (African Development Bank Group 30/11/2015; World Bank 01/01/2015). Uncollected waste serves as a breeding ground for rats that spread the disease (AFP 25/01/2016).

Population density

The disease may be more difficult to trace in densely populated areas, as it may be transmitted person to person and, if rodents are present, the number of cases may increase more rapidly. The national population density is 93.99 people per sq. km and population density is greater in urban areas (World Bank 2014).

Disproportionate Infection of Health Workers

The high rate of infection among health workers could hamper the response if it continues. During the outbreak in Nigeria, there were reports of health workers refusing to treat patients with symptoms related to Lassa fever due to fear of infection (All Africa 17/01/2016). The impact of a decrease in physicians willing to provide care could be especially potent given that physician density in Benin is already low (0.06 physicians to 1,000 people in 2008) (CIA World Factbook).

Presidential elections

Presidential elections are scheduled for 6 March, having been postponed from the previously scheduled date of 26 February due to delays in the distribution of voter cards. The current President Boni Yavi will be stepping down. These elections therefore represent the first time that Benin is electing a new president in ten years, and the winning candidate will be the third democratically elected president in Benin's history (Africanews 12/02/2016; Reuters 20/01/2016). Although there is no indication at this stage that the results will be contested, if there is a dispute, this could have a negative impact on the national response to the outbreak.

Contextual information

Transmission

Lassa fever is an acute viral haemorrhagic illness originating in West Africa. It is endemic in Benin, where it was first diagnosed in November 2014. Transmission shows peaks between December and February (WHO 19/02/2016).

The Lassa virus is carried in the urine and faeces of the multimammate rat. The virus can be transmitted to humans through contact with soiled objects or contaminated food, or through exposure to open cuts or sores. It can also be spread through inhalation of air contaminated with infected urine or faeces, which can occur during cleaning (CDC 2014).

Person-to-person transmission may occur after exposure to the virus in the blood, tissue, secretions, or excretions of a Lassa virus-infected person. Casual contact, such as skin-to-skin without exchange of body fluids, does not spread the virus (CDC 2014).

If there is a lack of proper personal protective equipment (PPE) during treatment or if contaminated medical equipment is present, such as used needle, there is a high risk of person-to-person transmission in a healthcare setting (CDC 2014).

Symptoms

Clinical diagnosis is often difficult because the symptoms of Lassa fever are varied and non-specific. Signs and symptoms develop 6–21 weeks after the patient comes into contact with the virus. Mild symptoms include slight fever, general malaise and weakness, and headache (WHO 2015; CDC 2014). Symptoms are mild and undiagnosed for around 80% of cases. However, 20% of cases experience more serious symptoms, including bleeding (from the gums, eyes, or nose, as examples), respiratory distress, repeated vomiting, facial swelling, pain in the chest, back and abdomen, and shock (CDC 2014). Neurological problems have also been described, including hearing loss, tremors, and encephalitis.

Overall case fatality is 1%, but it is 15% among hospitalised patients. A CFR of up to 50% has been recorded in previous epidemics (CDC 2014; WHO 2015). Death may occur within two weeks of symptom onset due to multi-organ failure. Deafness is the most common complication. It occurs to some degree in 25–33% of both mild and severe infections and is often permanent, though hearing partially returns after 1–3 months for 50% of cases. Spontaneous abortion is another serious complication, with an estimated 95% mortality in fetuses of infected pregnant women (CDC 2014; WHO 2015).

Treatment

The antiviral drug ribavirin is reported to be an effective treatment if given early in the course of clinical illness. There is no evidence that it can be used as a post-exposure prophylactic treatment. Early supportive care with rehydration and symptomatic treatment has also improved survival (WHO 2015; WHO 19/02/2016). There is currently no vaccine to protect against Lassa fever.

Previous outbreaks

In 2014–2015, 16 cases were reported and 9 people died during a four-month outbreak in Benin (UNICEF 10/02/2016).

Risk factors

Exposure to the multimammate rat is the key risk factor.

If protective measures and proper sterilisation methods are not used, hospital staff face risks (CDC 2014).

Key characteristics of population and area

Demographic profile: Population Benin: 10,600,000 (World Bank 2014) 44% urban (CIA World Factbook 2015)

Food security: As of March 2015, 1,041,000 people were estimated to be Stressed (IPC Phase 2) and 56,000 people were estimated to be in Crisis, Emergency or Catastrophe (IPC phases 3–5) (WFP 03/2015).

Nutrition: A nationwide survey in 2012 showed that 16% of children under five suffered from acute malnutrition, and 45% of children under five were chronically malnourished (WFP 2012).

Health: Under-five mortality rate: 99.5/1,000 live births (Worldbank 2015). Infant mortality rate: 55/1,000 live births (CIA World Factbook 2015) Maternal Mortality rate: 400/100,000 live births (UNICEF 2012).

WASH: Access to improved drinking water: 77.9% (urban: 85.2%; rural: 72.1%) (2015 est.). Access to improved sanitation facilities: 13% (USAID 04/09/2015).

Lighting and cooking: Population using solid fuels for cooking: 94%; wood: 72.2%; charcoal: 21.2%; gas: 3.7% (Cleancookstoves).

Literacy: 38.5% (Unesco 2015).

Response capacity

The Ministry of Health of Benin, with the support of WHO and partners, is coordinating the management of the outbreak. Control measures are being implemented and medicine and equipment is being distributed (WHO 19/02/2016; UNICEF 10/02/2016).

Information gaps and needs

There is limited information on the underlying vulnerabilities of the affected population, particularly the numbers of people in need of WASH and health assistance.

There is also a lack of information on the response capacity of local health infrastructure.

Lessons learned

- The last substantial outbreak of Lassa fever was in 2012 in Nigeria, infecting 1,723 people. It was reported to be contained effectively, but poor local laboratory capacity, inadequate protective materials, fear among health workers, and inadequate emergency preparedness were key challenges to the response (*International Journal of Infectious Diseases*, 19/07/2013).
- The last outbreak of Lassa fever in Benin began in October 2014, coinciding with the West Africa Ebola outbreak. The Lassa fever virus belongs to a family similar to the Ebola virus, therefore, once Ebola was excluded but analyses for Lassa tested positive, the health system started implemented the same measures designed for a potential Ebola outbreak. These preparedness and outbreak management measures, which include thorough contact tracing and monitoring as well as the use of highly protective equipment, proved to be highly effective in containing the spread of Lassa (WHO 03/2015; *New York Times* 16/03/2015; *The Guardian* 06/02/2016).
- Inadequate protection material is especially important because person-to-person transmission is common in healthcare settings where PPE is not available or not used, as well as when contaminated medical equipment is reused. The failure to ensure standards of infection prevention was attributed to the death of at least six health workers in the 2012 outbreak and fuels fear among health workers (CDC 2014).
- Community hygiene programmes can be effective. Discouraging rodents from entering homes, improving storage of grain and other foodstuffs in anti-rodent containers, encouraging the disposal of waste far from residential areas, maintaining clean homes, and keeping cats can help reduce the risk of transmission (WHO 2015).

Benin: Lassa Fever Outbreak (as of 16 Feb 2016)

