
West Africa Threat Assessment: Ebola Virus Disease



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Executive summary

- The World Health Organisation (WHO) reports a total of 2,453 confirmed fatalities since the outbreak was officially declared on 22 March 2014
- The outbreak is largely concentrated in Guinea, Liberia and Sierra Leone, with further cases recorded in Nigeria and Senegal
- Current outbreak has an estimated fatality rate of 55-60%
- On 08 August the WHO declared the outbreak a 'public health emergency of international concern'; temporary measures include movement restrictions and enhanced healthcare capacity
- 3,000 US troops deployed to the region to assist in the relief effort
- The risk to foreign nationals not involved in the relief effort is very low even in affected areas
- While some airlines have suspended flights, the WHO does not recommend restricting trade or travel
- In Nigeria the virus has been contained in Lagos and Port Harcourt
- Unless further cases are reported, trade and transport disruption should not affect Nigeria

Key sources of information

- World Health Organisation – Leading the international response. Most reliable source of information. Regularly updated map showing locations of confirmed cases.
<http://www.who.int/csr/don/en/>
- US Centres for Disease Control and Prevention – Provides detailed advice to travellers and those in affected countries. Alternative map showing affected areas.
<http://www.cdc.gov/vhf/ebola/outbreaks/guinea/index.html>
- Medecins Sans Frontiers / Doctors Without Borders – Global aid agency delivering medical aid to people affected by conflict, epidemics, disasters or exclusion from healthcare
<http://www.msf.org.uk/ebola?qclid=CKibwozp6MACFesBwwodq6gALg#crisisinfo>

Upfront CAVEAT

The information contained in this report has been gathered from open source material and should be viewed as accurate at the time of publication. The situation is developing quickly across the region and further cases and response measures are being announced on a regular basis. The key sources listed should therefore be consulted on a daily basis to maintain the most up-to-date information.

Overview

The current outbreak of Ebola virus disease (EVD) has not been contained and remains a significant threat across the West Africa region. It is the largest outbreak ever recorded by number of confirmed infections: as of 16 September the WHO has reported totals of 4,963 probable, confirmed or suspected cases, with 2,453 confirmed fatalities in West Africa. Multiple cases have been confirmed in three capital cities and in Lagos, the most populous city in Africa. On 17 September Medecins Sans Frontier (MSF) confirmed one of its workers, a French national, had contracted EVD in Liberia. Following initial concerns, the death of a Saudi national on 06 August in Jeddah has since been found to be unrelated to EVD. Tests on suspected cases in Hong Kong and Canada also returned negative

results. The current outbreak is largely concentrated in Guinea, Liberia and Sierra Leone. As of 11 September, the US Centres for Disease Control and Prevention reported 21 suspected and confirmed cases in Nigeria, with seven suspected and confirmed deaths. On 16 September the UN estimated that USD1 billion is required to contain the current outbreak; while the WHO anticipates the number of cases could rise to 20,000.

Between 02 and 09 September there were 31 cases of EVD in the Democratic Republic of Congo (DRC), increasing the total number of cases to 62, with 35 reported fatalities. The outbreak in the DRC is a different strain of the virus and has occurred independently from the one in West Africa.

On 11 August 2014 the Chinese Ambassador in Freetown, Sierra Leone announced that eight Chinese medical workers who treated Ebola-infected patients have been placed in quarantine.

Countries	Affected Areas
Guinea	Conakry, Coyah, Forecariah, Gueckedou, Kouroussa, Macenta, Siguiri, Pita, Nzerekore, Dubreka, Yomou, Kerouane
Liberia	Lofa, Montserrado, Margibi, Bomi, Bong, Grand Cape Mount, Nimba, Grand Bassa, Grand Bassa, Grand Gedah, RiverCess, River Gee, Sinoe, Gbarpolu
Nigeria	Port Harcourt, Lagos
Sierra Leone	Kailahun, Kenama, Kono, Kambia, Bombali, Tonkolili, Port Loko, Pejehun, Bo, Moyamba, Bonthe, Western area
Senegal	Dakar (Travel associated cases only)
DRC	Jeera county: Watsi Kengo, Lokolia, Watsikengo, Boende, Boende Moke

Background

Also known as Ebola haemorrhagic fever, EVD originates from a virus that is carried by primates and is occasionally transmitted to humans, usually through the preparation or consumption of infected bush meat. Once a human is infected and becomes sick with EVD, the virus is transmitted through contact with the bodily fluids or tissue of that person. An incubation period of 2 – 21 days means that infected people may not show signs of the disease for weeks. Even when symptoms start to appear, EVD may not be identified immediately due to the similarity of the symptoms with those for flu and malaria. This means that many cases are not treated appropriately at first, with a high chance of infected people coming into contact with others over the course of the illness.

Previous outbreaks recorded since 1976 have originated in Central Africa, tended to be more localised, and remained confined to remote areas. The origin and rapid dispersal of this outbreak is therefore significant, as is the fact that infected people have flown to other parts of the world before being taken ill and, in some cases, dying.

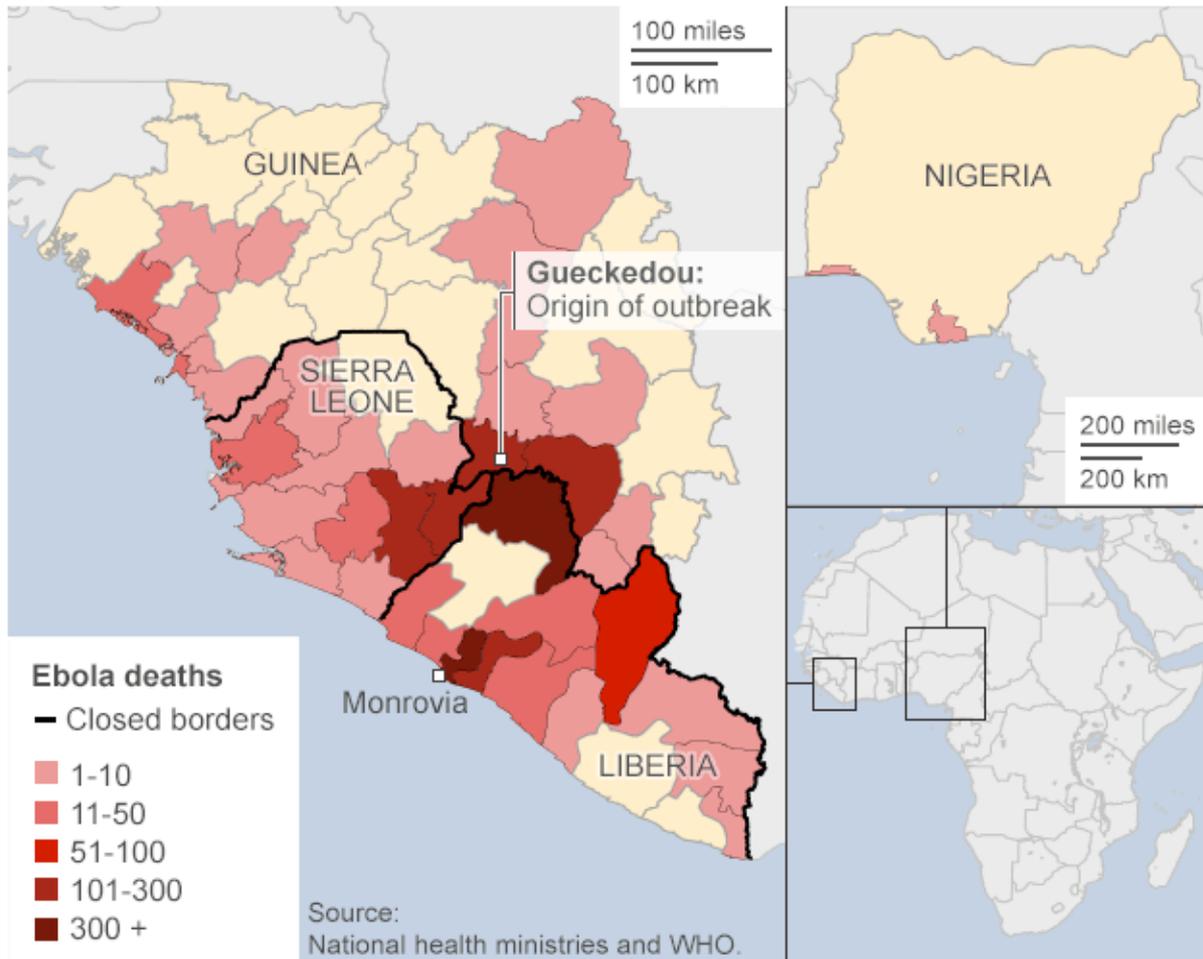
Regional situation

The current outbreak started in southern Guinea in December 2013, and has since spread across a vast area and to the capital cities of Guinea, Liberia and Sierra Leone. Transmission has frequently occurred while providing healthcare for the sick, either professionally in an isolation and treatment centre or in the community. Deep mistrust towards healthcare workers in some remote areas where EVD is particularly active has led to symptomatic people failing to seek medical attention and instead spreading the disease to family members who care for them. Close contact during burial rights have also been responsible for the spread among communities.

It is significant that cases have been confirmed in the capital cities Conakry, Freetown and Monrovia, the first capital cities ever to be affected by the disease. High population numbers and densities, as well as relatively efficient transport links, mean that a much larger number of people are at risk from viral contact than in any previous outbreak. The developed aviation and maritime connections convey people globally, and as international departures continue there is a possibility of further intercontinental transmission. Tom Frieden, head of the US Centres for Disease Control and

Prevention stated on 08 August, “we are all connected and inevitably there will be travellers, American citizens and others who go from these three countries”.

The fatality rate from EVD can vary vastly, depending on the strain encountered and whether early identification and treatment is available. The current outbreak is assessed to have a relatively moderate fatality rate following infection of around 55-60%, while previous cases of the same strain (Zaire) have had fatality rates of up to 90%. While there is no licensed vaccine or cure, treatment usually consists of ensuring good hydration and nutrition, as well as using an intravenous drip.



BBC map showing confirmed cases of EVD in Guinea, Liberia and Sierra Leone. The inset map indicates the areas affected in Nigeria.

A regional response operation is being lead by the WHO, with agencies including MSF, the Red Cross, the EU and those of national governments active. Measures include restricting movement and bolstering healthcare and contact tracing capabilities. Armed forces of affected countries have been used to provide security for aid services in some areas, and even to enforce quarantines in Sierra Leone. On 01 August, the WHO released their EVD Outbreak Response Plan for West Africa, detailing spending of USD100.5 million. The World Bank allocated USD200 million and the EU allocated a further USD15.9 million. This is much needed funding given the severely limited level of healthcare commonly available in the affected areas. The funding has allowed agencies with experience in EVD management to assist the affected countries.

According to OAG, an aviation information provider, of 590 monthly flights scheduled to Guinea, Liberia and Sierra Leone, the worst affected countries, 216 were cancelled before the end of August. On 28 August Air France announced a “temporary suspension” of services to Sierra Leone, leaving

Royal Air Morocco as the only carrier still servicing Sierra Leone and Liberia. Air France will continue to fly to Guinea and Nigeria. British Airways has suspended flights to Liberia and Sierra Leone until next year. African airliner Asky and Nigeria's Arik Air have suspended flights to and from Liberia and Sierra Leone, while Emirates has suspended flights to Guinea. Passenger flights to Ivory Coast have been halted from Liberia, Guinea and Sierra Leone. Other airlines have reduced their services to the countries but the majority continue to operate within Africa and to Europe and the Middle East. The WHO has not recommended limiting trade or travel other than local restrictions on movement. Many airports have introduced screening on exit and entry for symptoms such as fever; this precaution was proven only partly effective during the H1N1 (swine flu) and severe acute respiratory syndrome (SARS) outbreaks, where sick passengers were able to pass through undetected by taking fever-reducing medications. It is also possible for infected people to pass through undetected and only later start to show symptoms.

There is currently no licensed vaccine or cure for EVD, though both are being developed and are in the experimental stage. On 17 September the first volunteer candidate was given an experimental Ebola vaccine made by British pharmaceutical company GlaxoSmithKline. The vaccine has proved effective during animal trials for a period of up to five weeks. GSK are simultaneously developing 10,000 doses of the vaccine ready for distribution in West Africa should the trial prove successful. A drug called ZMapp, which has not been tested for safety in humans, has been used with apparent success on two US citizens who were evacuated after they became infected. The drug is in extremely limited supply and, according to reports by the manufacturer and the Liberian government, all remaining stocks have been sent to Liberia. It is important to note that treatment drugs are only intended to help those who already have the infection; they will not help stop the transmission of the virus. While treating the sick is useful in containing the outbreak, it is not the most important factor.

On 16 September President Obama authorised a USD500 million package of aid to contain the spread of EVD in West Africa, as well as the deployment of 3,000 military personnel to the region. As part of this package the US will dispatch 17 treatment centres with 100 beds each. The World Bank states that the outbreak will have a 'catastrophic impact' on the economies of Guinea, Sierra Leone and Liberia, with economic growth for next year reduced by 2.3%, 8.9% and 11.7% respectively.

Situation in Nigeria

EVD has been contained in Lagos and Port Harcourt, with 21 suspected and confirmed cases, and seven suspected and confirmed deaths. On 08 August the Nigerian government declared a national emergency over the EVD outbreak in Lagos. The first death was of a Liberian-US national, Patrick Sawyer, who showed symptoms on arrival at Lagos airport, having flown from Liberia's capital Monrovia. He was isolated and treated in a special unit in Lagos until his death on 25 July. The second confirmed death was of a nurse who was involved in the man's treatment; all the other cases are connected to the same patient, known as Nigeria's index case.

On 26 August the Federal Ministry of Education announced that all schools and colleges were to remain closed until 13 October as a preventative measure against the spread of EVD, though this may change to 22 September. Flights to and from Nigeria have not been affected. Nigerian authorities face a number of cultural challenges, with religious beliefs and attitudes towards the government and public services important factors. There is little trust in science, with people often relying instead on their religious beliefs. For example, there is a widespread belief that garcinia kola nuts, or bitter kola, provide a defence or cure for EVD due to its ability to boost the immune system. This may be based on favourable research announced in 1999 that indicated that compounds found in the nut slowed down the multiplication of the Ebola virus in laboratory conditions. No further research has shown evidence that suggest this will help to protect humans from EVD.

Lagos is Nigeria's largest city, with an estimated population of more than 20 million and one of the highest population densities in the world. Environmental conditions in Lagos and other large Nigerian cities such as Abuja and Kano are high-risk factors for the spread of EVD: a large number of people live in poverty and in cramped conditions with poor access to sanitation. Hospitals are poorly staffed and equipped and would be unable to deal with large numbers of infectious patients.

Many people in Nigeria hold a deep mistrust in public services, partly due to significant corruption at all levels and partly due to the ineffective responses to several state and nationwide incidents (such as the kidnapping of more than 200 school girls in April). This includes mistrust in the medical services, which has been made worse by a continuing national strike by doctors. A representative for the strikes has said that industrial action will not affect the EVD prevention effort. In the event of a wider outbreak among the Nigerian population, these factors are likely to have a similar effect as in Liberia, Guinea and Sierra Leone.

The response effort in Nigeria has focused on containing the effects of the original case and on preventing further infected individuals from entering the country undetected. Special isolation wards have been constructed in Lagos to deal with the current suspected and confirmed cases, with some spare capacity for further patients. Isolation facilities have also been set up at other international airports. Awareness campaigns are also an important part of the response, attempting to encourage positive behaviours.

Nigerian authorities have introduced enhanced screening measures for inbound travellers at international airports. The government is attempting to trace possible routes of transmission from the first known case. This is intended to avoid further transmission by identifying and isolating those who may have come into contact with the virus. The WHO identified Nigeria as one of four countries to receive additional clinical and management support to deal with the outbreak.

Outlook

There has been criticism from regional governments and aid agencies of the slow international response to the outbreak, most recently from Liberia's President Ellen Johnson Sirleaf. However, international aid and personnel arriving in the region should help to contain the virus from spreading throughout the region.

The WHO has recommended temporary measures to stop and reverse the spread of the disease and have allocated extensive additional resources to the relief effort. This is likely to be very effective in the rural areas where teams are already working, but in the highly populated areas it is difficult to predict how the infection might spread and therefore how effective current management techniques may be.

Despite advice issued by the WHO indicating that there should be no general ban on travel or trade with affected countries, increased disruption to both should be planned for as the outbreak continues to worsen in Guinea, Liberia and Sierra Leone.

Unless further cases are reported, trade and transport disruption should not affect Nigeria. On 16 September President Goodluck Jonathan claimed EVD had been effectively contained and that there were no current patients of the disease. Furthermore, preventative measures are now in place should there be a future outbreak, with protection at all seaports, airports and land border posts.

The WHO continues to monitor some 200 people in Nigeria for signs of EVD. Nigerian authorities must continue to ensure that screening is effective in identifying infected passengers and that medical services are able to deal with any cases that are suspected or confirmed. It is thought that a lack of equipment and improper procedures are partly to blame for the transmission of the disease to healthcare workers.

Threat of EVD in Nigeria

The following threat assessment takes into account current mitigation measures used to prevent further transmission. Changes in the measures that airlines, the Nigerian authorities and international agencies implement may significantly affect this assessment.

- Known cases have been relatively well contained
- It remains possible for further cases to arrive by air or sea without detection

- Dense populations and cramped living conditions mean that there is a possibility that the disease could be spread to a large number of people within days

Within Nigeria, known cases of EVD have been moderately well contained, with a small number of people being treated in purpose built facilities in Lagos. However, it remains possible that other people who had contact with the index case and their secondary contacts have been infected but not yet isolated, and that further cases may become apparent as these people begin to show symptoms. Detection routines at points of exit and entry will identify some of these cases, but it is possible, due to the long incubation period, that the disease will develop later in people who show no symptoms when screened.

The disease is present in cities with air routes into Lagos, a route of transmission that has already been effectual. It remains possible that further cases will be allowed to enter the country in this way, despite enhancements in the screening process. Somebody who is infected but not yet showing symptoms may travel through the airport and continue normally for 2 to 21 days, then coming into contact with a number of people as they start to show symptoms and become infectious. The risk of contamination to fellow passengers and crew is very low but contact tracing is recommended for isolation and treatment.

The Nigerian authorities' have demonstrated the capacity to manage the current crisis and prevent a major outbreak of EVD. Should there be a further outbreak Nigeria will depend to a large extent on the cooperation of international agencies that have the equipment and expertise that Nigerians do not hold domestically.

If there is a further outbreak of EVD in Nigeria, there are several factors that may affect the spread of the disease, as compared to outbreaks previously seen in Central Africa and the current one in Guinea, Liberia and Sierra Leone:

- Transport is regularly undertaken over long distances. Some of this travel is undertaken in cramped conditions, leading to close contact between people
- Most likely route of transmission is by air travel into one of the main cities. These are densely populated with many people living in poor sanitary conditions
- Large but under-resourced hospitals: infected persons may infect many others before EVD is suspected/diagnosed and the patient quarantined
- Protests by the Nigerian population are usually heated and can become violent; this is likely if the government's response is seen as insufficient or communities dislike the quarantine procedures

Threat of EVD to maritime operations in Nigeria

The risk of transmission between countries via shipping is low due to long voyage durations and clear WHO and Convention of Safety of Life at Sea (SOLAS) guidance on isolation and prevention, giving time for symptoms to show. However, if a crewmember or stowaway is infected and shows symptoms during a voyage, the close living conditions mean that the remaining crew or passengers are at risk of contracting the disease if action is not taken.

Traveller safety & advice

The following advice has been given by various sources and is aimed at travellers to the affected countries:

- Practice good hygiene: wash hands regularly; do not touch anything - such as shared towels - which could have become contaminated in a public place
- Avoid contact with the blood and body fluids of people who are ill with EVD
- Seek medical care immediately if you develop symptoms including fever, headache, achiness, sore throat, diarrhoea, vomiting, stomach pain, rash, or red eyes; those receiving early treatment have a higher chance of survival



Advice to corporations and organisations with expatriates deployed in Nigeria and in particular to Lagos, is to:

- Monitor the situation closely
- Make contingency plans to reduce exposure, as per the advice to travellers
- Consider business continuity and evacuation contingencies should the situation become more critical. This is not to suggest an evacuation is necessarily imminent, but precautionary planning is always prudent as potential threats emerge



Proprietary Information

This report is based on the information made available at the time of writing and the conditions then in existence. The submission of this document, which is issued without prejudice to liability, constitutes neither a warranty of results nor a surety against risks.

About NYA

NYA International is a specialist crisis prevention and response consultancy with 24 years' experience of helping organisations mitigate their exposure and respond to incidents of kidnap for ransom, extortion, marine piracy, illegal detention, emergency political evacuation and related global security incidents. We respond to 80 - 100 global incidents each year and have one of the largest and most experienced crisis response teams in the industry. www.nyainternational.com

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