RAPID RISK ASSESSMENT

Outbreak of Ebola virus disease in Bas Uele province, Democratic Republic of the Congo

17 May 2017

Main conclusions and options for response

This is the eighth outbreak of Ebola Virus Disease (EVD) in the Democratic Republic of the Congo (DRC) since the discovery of the virus in 1976. Therefore, DRC has experience in responding to such outbreaks. Investigations in DRC are ongoing to assess the extent of the outbreak. World Health Organization (WHO) and its Global Outbreak Alert and Response Network (GOARN) partners are supporting the national health authorities in the response.

Although the outbreak is occurring in a very remote area to date, the spread of the disease to neighbouring regions cannot be ruled out.

For European Union/European Economic Area (EU/EEA) citizens living in or travelling through DRC, the risk of exposure is negligible.

For people entering the affected area, such as healthcare workers supporting the response to the outbreak, the risk of infection remains very low, assuming that they follow the recommended precautions.

The risk of introduction into the EU would most probably be related to an infected traveller coming from the affected area. Although this is most unlikely, given the remote location of the outbreak, it cannot be excluded. The overall risk of the introduction and further spread of Ebola virus within the EU/EEA is therefore currently considered to be extremely low.

Source and date of request

ECDC internal decision, 15 May 2017.

Public health issue

This rapid risk assessment reviews the following risks:

- Risk of further spread of the outbreak in DRC;
- Risk to EU/EEA citizens living or travelling in DRC;
- Risk of introduction and further spread within the EU/EEA.

Consulted experts

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Disease background information

Infections with Ebola viruses originating from Africa cause a severe disease in humans called Ebola virus disease. There are five species of the genus *Ebolavirus* (Filoviridae family): *Zaire ebolavirus*, *Sudan ebolavirus*, *Reston ebolavirus*, *Tai Forest ebolavirus* and *Bundibugyo ebolavirus* [1-3].

Ebola viruses are biosafety level-4 pathogens (BSL-4; risk group 4) and require special containment measures and barrier protection, particularly for healthcare workers.

The incubation period is usually four to ten days but can be as short as two days and as long as 21 days. The case-fatality ratio for *Zaire ebolavirus* infections is estimated to be between 44% and 90% [4].

Ebola viruses are highly transmissible through direct contact with infected blood, secretions, tissues, organs and other bodily fluids from dead or living infected persons. Transmission via objects contaminated with infected bodily fluids (fomites) is possible. The principal mode of transmission in human outbreaks is person-to-person transmission through direct contact with a symptomatic or dead case. Airborne transmission has not been documented. The risk of transmission is considered low in the early phase of human disease. Burial ceremonies and the handling of dead bodies play an important role in transmission.

More information about EVD is available at:
http://ecdc.europa.eu/en/healthtopics/ebola_marburg_fevers/factsheet-for-health-professionals/Pages/factsheet_health_professionals.aspx

Event background information

On 9 May 2017, the health authorities in DRC declared an EVD outbreak in Likati Health Zone, Bas Uele province in the north of the country, bordering the Central African Republic. According to WHO, eleven cases, including three deaths, were identified. One sample tested positive for *Zaire ebolavirus* (ZEBOV) species using RT-PCR at the Institut National de Recherche Biomédicale (INRB) in Kinshasa [5] and a second case tested positive at INRB on 14 May 2017, as reported on PROMED [6]. Media are reporting 19 suspected cases in total [7].

The first case was a 45-year-old male who became ill on 22 April 2017l. He was transported by motorcycle taxi to the Litaki healthcare facility and was found dead on arrival. The driver fell ill and later died. A third person who cared for the first case became ill and has subsequently died. One hundred and twenty-five contacts of cases have been identified and are being traced.

This is the eighth outbreak of EVD in DRC since the discovery of the virus in 1976 in Yambuku, a village located around 200 km west of Likati [8].

On 10 May 2017, a multidisciplinary team was deployed, led by the Ministry of Health and supported by the World Health Organization and Global Outbreak Alert and Response Network (GOARN) partners. Personal protective equipment for healthcare workers was shipped to Kisangani on 12 May. Additional kits are being prepared and will be shipped.

The public health response includes the reactivation of the national committee against viral haemorrhagic fever; the strengthening of surveillance and investigation, including contact tracing; the deployment of WHO multidisciplinary teams; the activation of GOARN to provide additional support if required, and the assessment of the need and feasibility of potential EVD ring vaccination.

The last outbreak of EVD in DRC was recorded in the Equateur province in 2014 and involved 66 cases, including 49 deaths. Earlier outbreaks were reported in 2012, 2008—2009, 2007, 1995, 1977 and 1976. All outbreaks were due to the *Zaire ebolavirus* species, except the 2012 outbreak that was due to the *Bundibugyo ebolavirus* species [5].

Figure 1. Likati Health Zone, Bas Uele province, Democratic Republic of the Congo

ECDC threat assessment for the EU/EEA

Risk of spread of the outbreak in DRC

The outbreak is occurring in an extremely remote and hard-to-reach area that is not connected by roads and has a very low population density (seven inhabitants/km^2). WHO has highlighted the fact that the outbreak appears to be relatively limited geographically[5].

DRC national authorities are experienced in handling EVD outbreaks; however this is the first time the Likati Health Zone has been affected and the local authorities have little or no experience in managing an outbreak of this type.

Because of the remote location of the outbreak, patients have limited access to healthcare facilities, the capacity of the onsite laboratory is limited and surveillance is challenging.

Likati is situated on the migration route of refugees from the Central African Republic, which may pose a risk for the spread of the disease.

Patient isolation and care, contact tracing and case detection are the priority measures. Vaccination using the rVSV-ZEBOV candidate vaccine is being discussed but this would be extremely challenging to implement due to the remote location of the outbreak [9].

It is expected that additional cases will be identified as the contact tracing and case-finding activities are implemented in the affected area. In addition, it cannot be ruled out that a patient may report to Buta or Kisangani healthcare facilities to seek medical attention and possibly expose additional contacts there. This risk has been anticipated by the authorities, who have dispatched personal protective equipment to Kisangani health facilities.

At present, the spread of the disease to neighbouring regions cannot be ruled out.

Risk to EU/EEA citizens living or travelling in DRC

Given the location of the outbreak, it is unlikely that EU/EEA citizens living in or travelling through DRC would be exposed. The risk is therefore considered negligible.

For people entering the affected area, such as healthcare workers supporting the response to the outbreak, the risk of infection remains very low, provided that they follow the recommended precautions:

- avoid contact with symptomatic patients and their bodily fluids;
- avoid contact with corpses and/or bodily fluids from deceased patients; avoid contact with wild animals (including primates, monkeys, forest antelopes, rodents and bats), both alive and dead, and consumption of ‘bush meat’;
- wash hands regularly using soap or antiseptics.

In addition, they should follow the following generic precautions:

- wash and peel fruit and vegetables before consumption;
- practice 'safer sex';
- avoid habitats which might be populated by bats, such as caves, isolated shelters, or mining sites.

WHO does not recommend applying travel or trade restrictions to DRC.

Risk of introduction and further spread within the EU/EEA

The risk of introduction into the EU would most probably be related to an infected traveller coming from the affected area. Although this is most unlikely, given the remote location of the outbreak, it cannot be excluded.

In such a case:

- A traveller presenting with symptoms (e.g. fever >38°C) at an airport where temperature checks are enforced should not be allowed to board a flight.
- A passenger who develops symptom while on board a commercial flight should be isolated and his/her condition ascertained upon reaching the destination. Should the passenger be confirmed as having Ebola, contact tracing of fellow passengers should be initiated according to the recommendations for contact tracing in aircraft, set out in the RAGIDA guidelines [10].
- If an asymptomatic traveller develops EVD after arrival in an EU/EEA Member State, secondary transmission to caregivers in the family and at healthcare facilities cannot be ruled out, particularly if presenting with symptoms likely to result in the exposure of contacts to bodily fluids (bleeding, diarrhoea) before an EVD is suspected and if appropriate infection control measures are implemented.

There may also be a risk of introduction into the EU associated with an infected healthcare worker involved in responding to this outbreak returning to Europe. However, this risk is very low (see previous section) and should not result in subsequent exposure of contacts, given the symptom monitoring protocol implemented among healthcare workers involved in responding to Ebola outbreaks.

The overall risk of the introduction and further spread of Ebola virus within the EU/EEA is therefore currently considered to be extremely low.

References

1. Li Y, Chen S. Evolutionary history of Ebola virus. Epidemiology and infection, 2014. 142(06):1138-1145.
2. World Health Organization. Ebola haemorrhagic fever - Fact sheet [internet]. WHO Media Centre; 2017 [15 May 2017]. Available from: http://www.who.int/mediacentre/factsheets/fs103/en/
3. European Centre for Disease Prevention and Control. ECDC fact sheet: Ebola and Marburg fever. ECDC; 2015 [15 May 2017]. Available from: http://ecdc.europa.eu/en/healthtopics/ebola_marburg_fevers/factsheet-for-health-professionals/Pages/factsheet_health_professionals.aspx.
4. Bannister B. Viral haemorrhagic fevers imported into non-endemic countries: risk assessment and management. British Medical Bulletin, 2010. 95(1): 193-225.
5. World Health Organization. Emergencies preparedness, response. Ebola virus disease - Democratic Republic of the Congo. Disease outbreak news 13 May 2017. [15 May 2017]. Available from http://www.who.int/csr/don/13-may-2017-ebola-drc/en/.
6. ProMED-mail. Ebola update (20): Democratic Republic of Congo, News, Vaccine, Update. ProMED-mail 2017; 15 May: 20170515.5037761. <http://www.promedmail.org>. Accessed 16 May 2017.
7. U.S. News. WHO Confirms Second Ebola Case in Congo Outbreak. [15 May 2017]. Available from: https://www.usnews.com/news/top-news/articles/2017-05-14/who-confirms-second-ebola-case-in-congo-outbreak.
8. Rosello A, Mossoko M, Flasche S, Tamfum Muyembe JJ. Ebola virus disease in the Democratic Republic of the Congo, 1976-2014. Elife, 2015. 4: e09015.
9. Henao-Restrepo AM, Camacho A, Longini IM, Watson CH, Edmunds WJ, Egger M, et al. Efficacy and effectiveness of an rVSV-vectored vaccine in preventing Ebola virus disease: final results from the Guinea ring vaccination, open-label, cluster-randomised trial (Ebola Ça Suffit!). The Lancet, 2017. 389(10068): 505-518.
10. European Centre for Disease Prevention and Control. Risk assessment guidelines for diseases transmitted on aircraft. Part 2. Operational guidelines for assisting in the evaluation of risk for transmission by disease. Stockholm: ECDC; 2010. Available from: http://ecdc.europa.eu/en/publications/Publications/1012_GUI_RAGIDA_2.pdf