

Ebola virus disease outbreak in North Kivu and Ituri Provinces, Democratic Republic of the Congo – fifth update

19 July 2019

Main conclusions

The Ebola outbreak in the Democratic Republic of the Congo (DRC) has been declared a Public Health Emergency of International Concern (PHEIC) by the Director General of the World Health Organization (WHO) following the recommendations of the International Health Regulations (IHR 2005) Emergency Committee on 17 July 2019. The Committee raised concerns about the possible expansion of the outbreak from its epicentre, which has been associated with the introduction of the virus into a number of other locations. The introduction of Ebola virus disease (EVD) is expected to continue. The Committee recognised the potential increase of national and regional risks and the need for intensified and coordinated action to manage these risks. According to WHO, the risk at national and regional level remains very high but is still low at global level.

It is expected that new EVD cases will be reported in the coming weeks and a wider geographical extension is still possible, given the context described below and the recent report of EVD having been introduced into new areas where EVD transmission had not been previously reported.

The probability that EU/EEA citizens living or travelling in EVD-affected areas of the DRC will be exposed to the virus is low, provided that they adhere to recommended precautionary measures. The overall risk of introduction and further spread of the Ebola virus within the EU/EEA remains very low. However, the risk can only be eliminated by stopping transmission at the local level in the DRC.

As of 16 July 2019, the Ministry of Health of the DRC had reported 2 522 EVD cases, including 2 428 confirmed and 94 probable cases. This epidemic in North Kivu and Ituri Provinces is the largest ever recorded in the DRC and the second largest worldwide. A total of 1 698 deaths have occurred during the reporting period, including 1 604 confirmed deaths. As of 16 July 2019, 136 healthcare workers had been reported among the confirmed cases, including 41 deaths.

Over the past three weeks (weeks 26–28 of 2019), 21 different health zones reported confirmed or probable EVD cases. While the majority of the cases have been reported in urban settings, cases have also been reported in rural health zones.

Since June 2019, six confirmed EVD cases have been reported in previously unaffected areas or countries. On 12 June 2019, the Ugandan Ministry of Health reported three imported confirmed EVD cases in the Kasese district of Uganda; two died in Uganda and one died following repatriation to DRC. On 30 June 2019, one confirmed EVD case, listed as a close contact in Beni, was reported in Ariwara Health Zone, which is close to the borders of Uganda and South Sudan. On 14 July 2019, a confirmed EVD case, infected in Butembo, was reported in Goma. The case was admitted to the Ebola Treatment Centre (ETC) in Goma and died during transfer back to an ETC in Butembo. On 11 July 2019, a Congolese trader, displaying symptoms consistent with Ebola, visited Uganda. The patient was symptomatic in Uganda, travelled back to Beni in DRC, tested positive for Ebola in an ETC in Beni and died there. To date, viral circulation in the community has been persistent in previously affected areas, but the epidemiological situation varies in the affected health zones. Since week 24 of 2019, successive introductions of the disease into previously unaffected health zones and neighbouring countries at a significant distance from the epicentre demonstrate the potential of the current EVD outbreak for regional spread.

EVD prevention and control activities continue in order to offer high-quality case management, perform ring vaccination campaigns, improve infection prevention and control (IPC) levels at healthcare facilities, provide the community with safe

and dignified burials, ensure points of entry screening and promote strategies to increase engagement and ownership in affected communities.

There are significant challenges to controlling this outbreak since it is occurring within a very densely-populated region, subject to a long-term humanitarian and security crisis, with limited prevention control practices at numerous health facilities and persistent reluctance in the community to accept EVD responses activities. The adverse impact of security incidents and the ongoing community reluctance are hindering the implementation of EVD prevention and control measures.

Options for response

EU/EEA visitors and residents of affected areas

EU/EEA visitors and residents in EVD-affected areas are at low risk of becoming infected in the community if they apply the following precautionary measures:

- avoid contact with symptomatic patients/their bodily fluids, bodies and/or bodily fluids from deceased patients;
- avoid consumption of bush meat and contact with wild animals, both alive and dead;
- wash and peel fruit and vegetables before consumption;
- wash hands regularly using soap or antiseptics; and
- ensure safe sexual practices.

Access of vaccine candidates in the EU/EEA

- Opportunities should be explored for EU/EEA Member States to streamline regulatory approval for procurement and use of EVD vaccine candidates.

Screening of travellers

To reduce the likelihood of EVD being introduced into the EU/EEA, the following options for response can be considered:

- Where exit screening is implemented at an airport, a traveller presenting with symptoms (e.g. fever >38°C) should not be allowed to board a flight.
- A passenger who develops EVD-compatible symptoms while on board a flight should be isolated and his/her condition ascertained upon arrival.
- Should the passenger be confirmed as having EVD, contact tracing of passengers should be initiated in accordance with the recommendations for aircraft contact tracing set out in the RAGIDA guidelines¹.
- Travellers who have stayed in a recently affected area should be made aware that if they develop symptoms compatible with EVD within the incubation period of 21 days after arrival in an EU/EEA Member State, they should self-isolate, contact health services and mention potential exposure to Ebola virus. Secondary transmission to caregivers in the family and in healthcare facilities cannot be ruled out if no measures are taken for infection prevention and control.

Options for information and communication

In order to minimise the time between onset of symptoms, isolation and diagnosis, people who return from EVD-affected areas should be informed about:

- the possibility of exposure to Ebola virus while in affected areas;
- the clinical presentation of the disease and the need to seek immediate medical care if symptoms develop;
- the need to immediately disclose their travel history when seeking medical care and to do so before arriving at a healthcare facility;
- the need to indicate possible contact with sick individuals or wild animals while in the EVD-affected country; and
- the procedure for contacting public health authorities if infection is suspected.

In addition, healthcare providers in the EU should be informed of and sensitised to:

- the possibility of EVD among travellers returning from affected areas;
- the clinical presentation of the disease and need to enquire about travel history and contacts with family and friends visiting from EVD-affected countries;
- the availability of protocols for the ascertainment of possible cases and procedures for referral to healthcare facilities; and
- the imperative need for strict implementation of barrier management, use of personal protective measures and equipment and disinfection procedures in accordance with specific guidelines and WHO infection control recommendations when providing care to EVD cases.

¹ECDC risk assessment guidelines for diseases transmitted on aircraft. Available at: <http://ecdc.europa.eu/en/infectious-diseases-public-health/travellers-health/infectious-diseases-aircraft>

Source and date of request

European Commission request, 17 July 2019.

Public health issue

This is the fifth update of a rapid risk assessment originally produced on 9 August 2018 [1]. This rapid risk assessment addresses the potential public health impact of Ebola virus disease for EU/EEA countries and assesses the likelihood of international expansion.

Consulted experts

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Disease background information

Infections with Ebola viruses cause a severe disease in humans called Ebola virus disease (EVD). Ebola viruses are highly transmissible through direct contact (e.g. through mucous membranes or broken skin) with organs, blood or other bodily fluids (e.g. saliva, urine, vomit) of living or dead infected persons or any surfaces and materials soiled by infectious fluids. The principal mode of transmission in outbreaks among humans is person-to-person, as a result of direct contact with symptomatic cases or the corpses of infected individuals, as well as indirect contact via their infectious body fluids.

Further information on EVD is available in the previous risk assessments [1-5], the ECDC factsheet on Ebola and Marburg virus diseases updated on 15 May 2019 [6] WHO's fact sheet [7], the ECDC technical report 'Investigation and public health management of people with possible Ebola virus disease infection', updated 19 July 2019 [8] (replacing the following ECDC technical reports: 'Public health management of persons having had contact with Ebola virus disease cases in the EU' [9] and 'Infection prevention and control measures for Ebola virus disease, management of healthcare workers returning from Ebola-affected areas' [10], both developed during the 2014–2016 EVD outbreak in West Africa). Additional information regarding therapy and vaccines can be found in the ECDC update on treatment and vaccines for Ebola virus disease and in WHO's FAQs on EVD vaccine [11-13]. On 7 May 2019, the Strategic Advisory Group of Experts (SAGE) revisited the possible vaccination strategies and concluded that ring vaccination currently remains the most effective strategy for this DRC Ebola outbreak [14] since it should cover high-risk groups, including the extended network of contacts and local and international healthcare and frontline workers [15]. No vaccine is currently available for tourists visiting the DRC [11].

Event background information

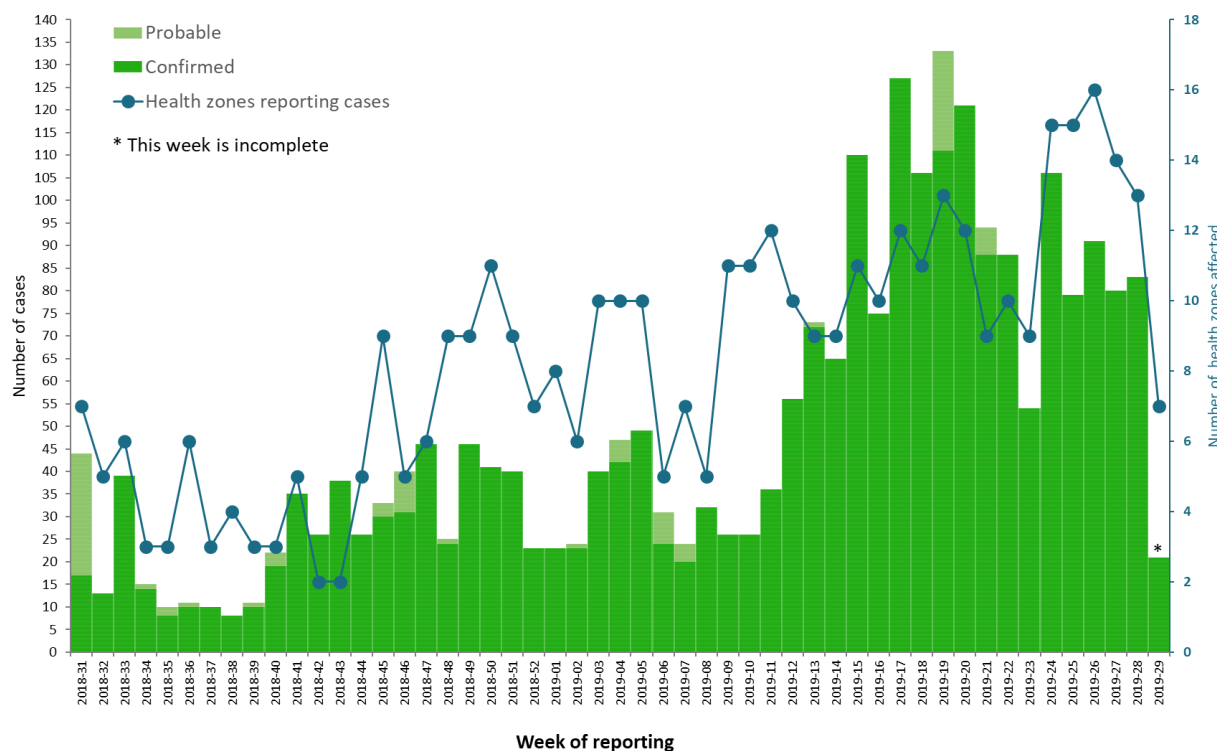
On 1 August 2018, the Ministry of Health of the Democratic Republic of the Congo (DRC) reported an EVD outbreak in North Kivu Province, with four laboratory-confirmed cases [16]. This report was triggered by the identification the previous week, on 28 July 2018, of a cluster of 26 cases of acute haemorrhagic fever (with 20 deaths) in Mabalako Health Zone in North Kivu. Further retrospective investigations identified sporadic cases and deaths compatible with EVD which had been occurring since May 2018 [17].

This is the tenth EVD outbreak in the DRC since the discovery of the virus in 1976. The results of the phylogenetic analysis of the causative Zaire ebolavirus species (ZEBOV) in the North Kivu outbreak revealed that there was no link between the current outbreak and the earlier outbreak in Équateur Province in 2018 [18,19].

The epidemic in North Kivu and Ituri Provinces is the largest ever recorded in DRC and the second largest worldwide. Since 11 May 2018 and as of 16 July 2019, the Ministry of Health of the DRC has reported 2 522 cases of EVD, including 2 428 confirmed and 94 probable [20]. Among the reported cases, 136 were healthcare workers, 41 of whom died [20]. A total of 1 698 deaths have occurred during the reporting period (overall case-fatality ratio of 67%). As of 9 July 2019, of the 2 437 cases with reported age and gender, 57% were female and 29% were under 18 years [21].

The epidemic curve of confirmed and probable EVD cases is presented by date of reporting in Figure 1. It shows cases reported until 16 July 2019. It is worth noting that data for week 29 of 2019 in Figure 1 are incomplete, which is probably why the number of reported cases appears to have decreased in the last week. Nevertheless, the epidemic curve by date of reporting, presented in Figure 1, shows an increase in the number of health zones affected after week 22.

Figure 1. Distribution of confirmed and probable EVD cases and health zones reporting cases, by week of reporting in North Kivu and Ituri Provinces, DRC, as of 16 July 2019



Note: As the Ministry of Health of the DRC is regularly curating data, these figures are likely to change in the coming days. Source: Adapted from the Ministry of Health of DRC [20].

Table 1 presents the number of EVD cases per health zone in the affected provinces. Since the start of the outbreak, 25 health zones in two provinces have reported confirmed or probable EVD cases: Alimbongo, Beni, Biena, Butembo, Goma, Kalunguta, Katwa, Kayna, Kyondo, Lubero, Mabalako, Manguredjipa, Masereka, Mutwanga, Musienene, Oicha and Vuhovi Health Zones in North Kivu Province and Ariwara, Bunia, Nyankunde, Komanda, Mambasa, Mandima, Rwampara and Tchomia Health Zones in Ituri Province (Table 1, Figure 2).

- On 12 June 2019, the Ugandan Ministry of Health reported three imported confirmed EVD cases in the Kasese district of Uganda. Onset of disease was 7–8 June and they crossed the border on 9 June and sought medical care on 10 June. Two cases died in Uganda and the third case died on repatriation to DRC. One hundred and eight contacts were followed up for 21-days, all of them were asymptomatic [22].
- On 30 June 2019, Ariwara Health Zone reported its first confirmed EVD case. This person had been listed as a close contact in Beni but travelled to visit a relative in Ariwara, where the diagnosis was made. Ariwara is a health zone located in the northern part of Ituri Province, close to the borders with Uganda and South Sudan.
- On 9 July 2019, Mambasa Health Zone reported its first confirmed EVD case. In December 2018, a confirmed EVD case was initially reported in Mambasa health zone, but was relocated to Mandima health zone.
- On 11 July 2019, a Congolese fishmonger displaying symptoms consistent with Ebola visited Uganda. The case was symptomatic while in Uganda, and travelled back to Beni, DRC, on 12 July, before being admitted to an ETC on 13 July. The case tested positive for Ebola and died in the ETC on 15 July. No formal points of entry were passed to cross the border with Uganda [23].
- On 14 July 2019, Goma Health Zone reported its first confirmed EVD case. The case was in close contact with EVD cases and was infected in Butembo and travelled by bus to Goma. The case was admitted to the Ebola Treatment Centre (ETC) in Goma but died during transfer to an ETC in Butembo.

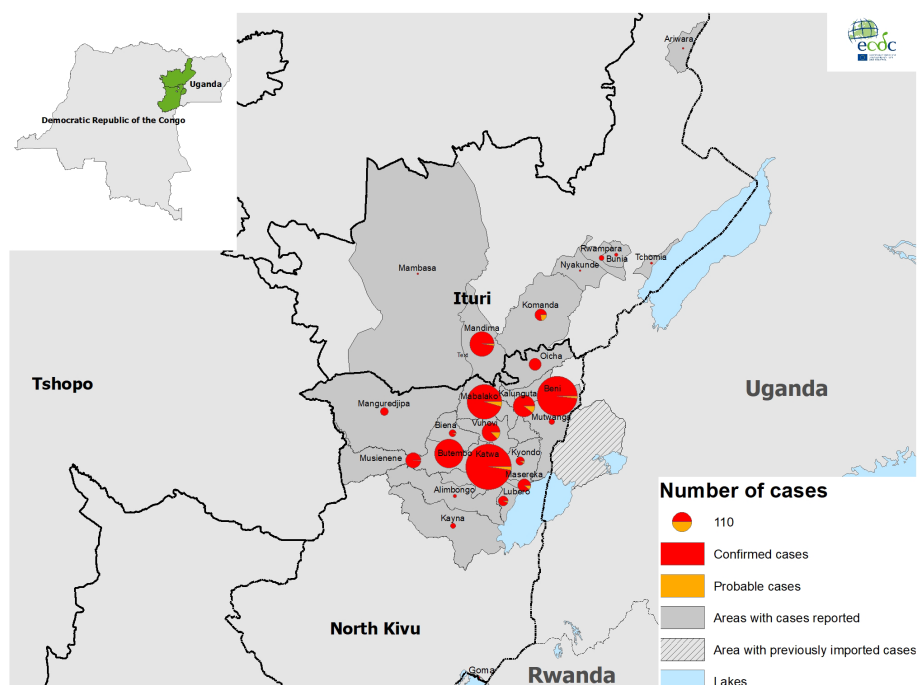
The most affected health zone since the beginning of the outbreak is Katwa, with 621 confirmed and 16 probable cases. In the last 21 days (26 June–16 July 2019), Beni, Mabalako and Katwa have reported the highest number of cases: 73% of the 245 confirmed cases reported. Within this same time period, Mandima reported 10 new confirmed cases and Butembo reported nine new confirmed cases. All previously affected health zones have reported new confirmed cases within the last 21 days apart from Kyondo and Musienene in North Kivu Province; and Bunia, Nyakunde and Tchomia in Ituri Province (Table 1 and Figures 2 and 3).

Table 1. Number of EVD cases by health zone, 11 May 2018–16 July 2019

Health zone	Number of confirmed cases	Number of probable cases	Confirmed and probable cases		Number of deaths	
			Sum	%	Sum	%
North Kivu	2 198	81	2 279	90.4	1 560	91.9
Katwa	621	16	637	25.3	444	26.1
Beni	481	9	490	19.4	316	18.6
Mabalako	349	16	365	14.5	257	15.1
Butembo	255	0	255	10.1	293	17.3
Kalunguta	128	15	143	5.7	69	4.1
Vuhovi	91	13	104	4.1	46	2.7
Musienene	71	1	72	2.9	30	1.8
Masereka	47	6	53	2.1	21	1.2
Oicha	45	0	45	1.8	24	1.4
Lubero	28	2	30	1.2	6	0.4
Kyondo	22	2	24	1.0	15	0.9
Manguredjipa	20	0	20	0.8	12	0.7
Biena	15	1	16	0.6	13	0.8
Mutwanga	11	0	11	0.4	6	0.4
Kayna	9	0	9	0.4	5	0.3
Alimbongo	4	0	4	0.2	2	0.1
Goma	1	0	1	0.0	1	0.1
Ituri	230	13	243	9.6	138	8.1
Mandima	181	4	185	7.3	104	6.1
Komanda	32	9	41	1.6	22	1.3
Rwampara	8	0	8	0.3	3	0.2
Bunia	4	0	4	0.2	4	0.2
Tchomia	2	0	2	0.1	2	0.1
Ariwara	1	0	1	0	1	0.1
Mambasa	1	0	1	0	1	0.1
Nyakunde	1	0	1	0	1	0.1
Total	2 428	94	2 522	100	1 698	100

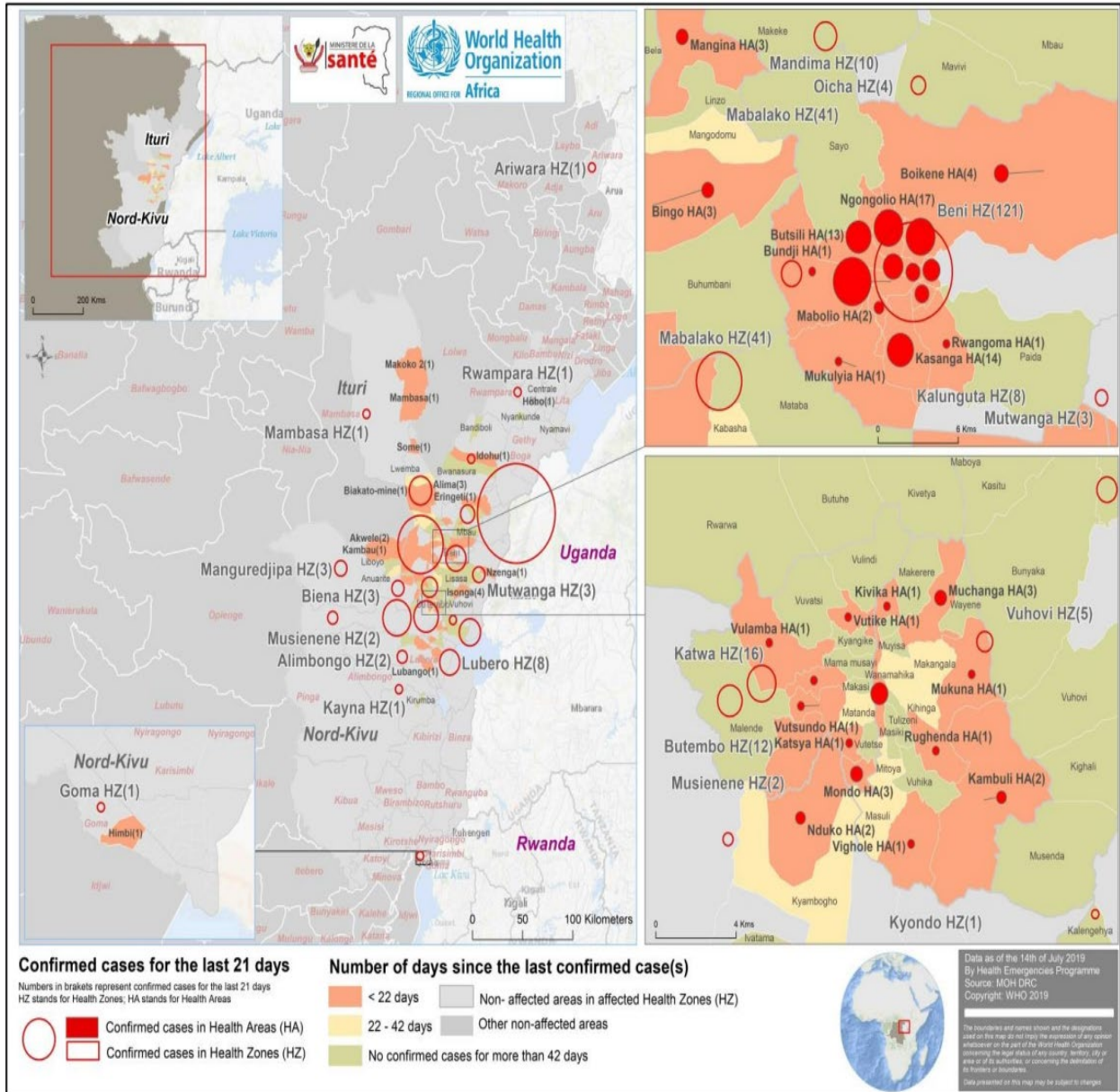
Source: Adapted from the Ministry of Health of the DRC [20].

Figure 2. Geographical distribution of EVD cases by health zone, North Kivu and Ituri Provinces, DRC, since the beginning of the outbreak, as of 16 July 2019



Source: Adapted from the Ministry of Health of the DRC [20].

Figure 3. Detailed map showing geographical distribution of EVD cases by health zone in the last 21 days, North Kivu and Ituri Provinces, DRC, as of 14 July 2019



Source: WHO External Situation Report 50 [24].

ECDC threat assessment for the EU

This is the first EVD outbreak of ZEBOV detected in North Kivu and Ituri Provinces. To date, this outbreak, which has now been going on for at least a year, is the largest outbreak of EVD ever recorded in the DRC and the second largest worldwide.

Since week 12 of 2019, the weekly number of cases has increased to over 50, ranging from 54–126 during that period, illustrating a persistence of viral circulation in both affected provinces (Figure 1). In the last 21 days (26 June–16 July), Katwa, Beni, Mabalako and Butembo Health Zones have been the main epicentres of the outbreak, with 20 different health zones reporting EVD cases. In that period, Beni Health Zone reported 50% of the 245 confirmed EVD cases (Figure 2). In weeks 26–28 of 2019, the weekly number of affected health zones in both rural and urban settings ranged from 13–16.

WHO and EVD response partners, under the coordination of the DRC government, are supporting the implementation of EVD prevention and control measures.

In 2018, WHO's Strategic Advisory Group of Experts (SAGE) approved the compassionate use of the vaccine for outbreaks of EBOV-Zaire in DRC. Under this framework, vaccination covers the following high-risk groups:

- contacts and contacts of contacts (i.e. ring vaccination),
- local and international healthcare and frontline workers in affected areas, and
- healthcare and frontline workers in areas at risk of outbreak expansion [15].

The vaccine is currently being offered for the DRC 2018–2019 outbreak under the Expanded Access framework, with informed consent and in compliance with good clinical practice [25]. From 8 August 2018–13 July 2019, the EVD ring vaccination campaign successfully managed to vaccinate around 161 400 people at risk, including 37 373 contacts and 67 756 contacts-of-contacts, despite challenges due to the security context, community resistance and vaccine hesitancy among the population of the affected areas [24].

On 7 May 2019, SAGE revisited the possible vaccination strategies and concluded that ring vaccination currently remains the most effective strategy in this DRC Ebola outbreak [14]. SAGE interim recommendations on vaccination against EVD propose the implementation of innovative operational vaccination strategies for the EVD outbreak in the DRC (such as pop-up vaccination, targeted geographical vaccination, enlarging ring vaccination to include a second and third barrier of immunised individuals around each EVD case, and alternative dosing schedules for the rVSV-ZEBOV-GP vaccine) [14]. The ring vaccination strategy has probably countered a wider spread of the disease in the community and remains a major asset for the control of this long-lasting EVD outbreak. Complete contact tracing, defined by WHO as the identification and follow-up of persons who may have come into contact with a person infected with the Ebola virus, is essential because it allows timely and comprehensive implementation of ring vaccination and early isolation of symptomatic individuals. However, the success of ring vaccination ultimately depends on vaccination coverage of the entire contact network and local healthcare workers.

Despite the mobilisation of EVD response actors, significant challenges remain due to the complex setting, marked by a long-term humanitarian crisis and unstable security context, both of which interfere with the EVD response activities. Further efforts for the EVD response include the early detection of cases and vaccination of contacts, safe and dignified burial, vaccination of healthcare workers, enhancement of the Points of Entry (PoE) programme, case management with investigational therapeutics, and heightening infection prevention and control implementation at local healthcare facility level [24]. Improvements in the ownership of outbreak control activities by affected communities and the need to gain the confidence of the community are included in the response activities.

The occurrence of EVD case clusters in conflict zones with limited healthcare infrastructure with a highly mobile population is still a major concern for the control of the EVD outbreak. Furthermore, other outbreak-prone diseases could potentially jeopardise the availability of resources for the prevention and control of the EVD epidemic (e.g. cholera outbreak).

It is expected that new EVD cases will continue to be reported in the coming months. A wider geographical extension is possible, given the prolonged humanitarian crisis in the region, intensive cross-border population flows to and from neighbouring provinces and countries, observed adverse impact of security incidents and community resistance which is interfering with the implementation of EVD prevention and control measures. The recently reported introduction of the virus into areas outside the outbreak epicentre demonstrates the challenge encountered by the PoE screening programme and the fact that the significant level of transmission observed in the epicentre could favour expansion of the epidemic into unaffected areas.

On 28 September 2018, WHO upgraded the assessment of the public health risk to very high at national and regional levels in relation to the security context and significant population movements within the region, including those between neighbouring countries. However, the global risk was assessed as low [26].

On 17 July 2019, the International Health Regulations (IHR 2005) Emergency Committee met for the fourth time since the outbreak was declared on 1 August 2018. The Ebola outbreak in the Democratic Republic of the Congo (DRC) was declared a Public Health Emergency of International Concern (PHEIC) by WHO's Director General following the recommendations of the International Health Regulations (IHR 2005) Emergency Committee [27].

The Committee raised concerns regarding the possible extension of the outbreak from its epicentre, which has been previously associated with the introduction of the virus into a number of other locations. The Committee recognised the potential increase of national and regional risks and the need for an intensified and coordinated action to manage these risks [27].

WHO still advises against any restriction on travel to and trade with the DRC based on the information currently available. WHO's risk assessment remains valid; the risk at national and regional level remains very high, while the global risk level remains low [21,27].

Risk to EU/EEA citizens living or travelling in DRC

To date, no travel-associated EVD cases have been reported among travellers returning to Europe from the DRC in 2018 and 2019. The probability that EU/EEA citizens living or travelling in EVD-affected areas of the DRC will be exposed to the virus remains low, provided that they adhere to the recommended precautionary measures outlined above in the section entitled 'Options for response'.

The risk may be reassessed if active chains of EVD transmission are reported in populated areas, given that there have been recent introductions of EVD into the urban centre of Goma in North Kivu and rural areas bordering Uganda in Ituri (with a recent EVD case travelling from Beni to Ariwara health zone in Ituri during week 26 of 2019).

Staff members of humanitarian, religious and other organisations, and particularly healthcare workers who are in direct contact with patients and/or local communities in the affected areas, are more likely to be exposed to the virus. EU/EEA citizens working for humanitarian aid organisations remain at low risk provided that they strictly adhere to recommended precautionary measures.

Training on occupational health and safety in EVD-affected areas can be found on the WHO ePROTECT web page and in ECDC's technical document 'Safe use of personal protective equipment in the treatment of infectious diseases of high consequence - A tutorial for trainers in healthcare settings', which aims to provide trainers with practical information on different options for the use of personal protective equipment in European healthcare settings [27-29].

Risk of introduction and spread within EU/EEA

The most likely route by which the Ebola virus could be introduced into the EU/EEA is through infected people from affected areas travelling to Europe. The risk of EVD-infected individuals arriving in the EU/EEA remains very low. Exit screening is reported to be in place at Goma airport and no active chain of transmission associated with the recent introduction of an EVD case in Goma has been reported to date. The prompt identification of contacts and subsequent vaccination of contacts around this EVD case reduced the likelihood of further transmission. Risk of further spread in Goma is mitigated by enhanced preparedness activities in the past months. However, any introduction of an EVD case in a large urban setting such as Goma, the provincial capital and a regional hub, is a new development to be closely monitored.

An EVD-infected medical evacuee arriving in the EU/EEA would pose a very low risk of further spread because the majority of the EU/EEA Member States have the capacity to manage EVD patients. In the event of an EVD-infected traveller arriving in the EU/EEA, the risk of further spread is very low if the case is promptly identified and isolated, and – if symptomatic – contacts are properly informed and followed up. However, the risk can only be eliminated by stopping transmission at the local level in the DRC.

During the substantially larger EVD outbreak in West Africa in 2014 (approximately 28 600 cases and 11 300 deaths), only one local transmission occurred in the EU/EEA (in Spain): a healthcare worker attending to an evacuated EVD-infected patient [31].

Specific risks related to transmission through substances of human origin

A full assessment of the risk of EVD transmission through substances of human origin was published in May 2018 [32,33].

Disclaimer

ECDC issues this risk assessment document based on an internal decision and in accordance with Article 10 of Decision No 1082/13/EC and Article 7.1 of Regulation (EC) No 851/2004 establishing a European Centre for Disease Prevention and Control (ECDC). In the framework of ECDC's mandate, the specific purpose of an ECDC risk assessment is to present different options on a certain matter. The responsibility on the choice of which option to pursue and action to take, including the adoption of mandatory rules or guidelines, lies exclusively with EU/EEA Member States. In its activities, ECDC strives to ensure its independence, high scientific quality, transparency and efficiency. This report was written with the coordination and assistance of an internal response team at ECDC. All data published in this risk assessment are correct to the best of ECDC's knowledge at the time of publication. Maps and figures published do not represent a statement on the part of ECDC or its partners on the legal or border status of the countries and territories shown.

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