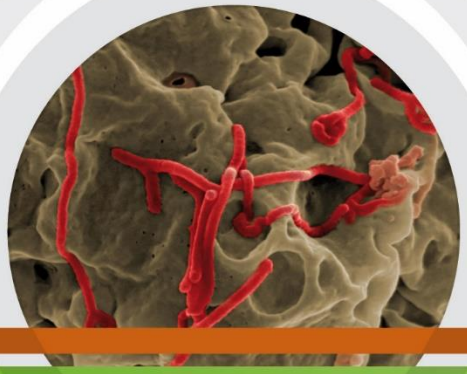

SURVEILLANCE REPORT

Annual Epidemiological Report for 2016

Ebola and Marburg fevers

Key facts

- For 2016, EU/EEA countries reported no cases of Ebola virus disease and Marburg haemorrhagic fever.

Methods

This report is based on data for 2016 retrieved from The European Surveillance System (TESSy) on 4 April 2018. TESSy is a system for the collection, analysis and dissemination of data on communicable diseases.

For a detailed description of methods used to produce this report, please refer to the *Methods* chapter [1].

An overview of the national surveillance systems is available online [2].

A subset of the data used for this report is available through ECDC's online *Surveillance atlas of infectious diseases* [3].

In 2016, 26 EU/EEA countries reported case-based data (Bulgaria, Germany, Liechtenstein, Malta and the Netherlands did not report). Eighteen countries used the EU case definition, four countries (the Czech Republic, Denmark, Italy and the United Kingdom) used an alternative case definition, and four countries (Belgium, Cyprus, Finland and France) did not specify the case definition used. Reporting is compulsory in 24 countries, 'not specified' in Cyprus and voluntary in the United Kingdom. Surveillance is mostly comprehensive ('not specified' in Cyprus) and passive ('not specified' in Cyprus). The Czech Republic, Portugal, Slovakia, and the United Kingdom conduct active disease surveillance.

Epidemiology

In 2016, no cases of Ebola viral haemorrhagic fever and Marburg haemorrhagic fever were reported in the EU/EEA. For 2015, Italy reported a case in a healthcare worker who developed symptoms three days after returning from Sierra Leone [4]. For 2014, a total of eight cases was reported: Germany (3 cases), Spain (3 cases), the UK (1 case) and Norway (1 case). One of the 2014 cases in Spain was a secondary case in a healthcare worker looking after two evacuated Ebola cases [5].

Suggested citation: European Centre for Disease Prevention and Control. Ebola and Marburg fevers. In: ECDC. Annual epidemiological report for 2016. Stockholm: ECDC; 2018.

Stockholm, December 2018

Outbreaks and other threats

Following the large outbreak of Zaire Ebola virus disease (EVD) in March 2014 in Guinea and the spread to Sierra Leone and Liberia, WHO declared a Public Health Emergency of International Concern on 8 August 2014 [6]. A total of 28 616 confirmed, probable and suspected cases were reported in Guinea, Liberia and Sierra Leone, with 11 310 deaths [7]. The number of cases in the most affected countries peaked in autumn 2014 and slowly decreased thereafter. Countries experienced small flare-ups later on, likely due to virus persistence in the fluids and tissues of some survivors [8]. Sierra Leone, Guinea and Liberia declared the end of the outbreak on 17 March, 1 June and 9 June 2016, respectively [7,9]. This was the first outbreak of Ebola virus in West Africa and the largest Ebola outbreak ever reported.

Discussion

For 2016, EU/EEA countries did not report any cases related to the Ebola outbreak in West Africa.

Quarantine of infected patients and other control measures have been shown to effectively stop the spread of the virus in previous outbreaks. Implementation of appropriate infection control measures in healthcare settings, including use of personal protective equipment, is effective in minimising the risk for transmission of filoviruses.

There is currently no licensed Ebola vaccine. However, potential new Ebola therapies and vaccines were reviewed during two WHO meetings in 2014 and further assessed by scientific review [10,11]. Among the candidate treatments under consideration, three experimental treatments were identified:

- ZMapp, a combination of three humanised monoclonal antibodies that block or neutralise the *Zaire ebolavirus*.
- TKM-Ebola, a combination of modified small interfering RNAs targeting the *Zaire ebolavirus* L-polymerase.
- Favipiravir, a viral RNA polymerase inhibitor with capacity to inhibit many RNA viruses and already authorised in Japan for novel influenza virus infections.

These candidate treatments have shown promise in non-human primate models. However, none of these drugs are licensed for treatment of EVD, and their availability is limited.

The first WHO consultation meeting also identified two vaccines in the advanced stages of development:

- A recombinant vesicular stomatitis virus (VSV) vaccine expressing a Zaire surface glycoprotein (rVSV-ZEBOV), which induces a *Zaire ebolavirus* specific immune response.
- A non-replicative chimpanzee adenovirus type-3 vaccine (cAd3-ZEBOV) also containing the gene for the *Zaire ebolavirus* surface glycoprotein.

Phase 1 and 2 trials for rVSV-ZEBOV have been initiated in the USA, in Africa and Europe, involving 16 000 volunteers, and have shown the vaccine to be safe for use in humans [12]. In addition, this vaccine was tested in Guinea in 7 500 adults in 2015; the trial demonstrated that the vaccine was safe and protective against Ebola virus infection [13].

Public health implications

The goal of outbreak control is to interrupt direct human-to-human transmission through early identification and isolation of cases, timely contact tracing, proper personal protection, safely conducted burials and improved community awareness about risk factors of viral infection.

According to the Strategic Advisory Group of Experts on Immunization (SAGE), the candidate vaccine rVSV-ZEBOV can promptly be deployed under the expanded access framework in case of an EVD Zaire outbreak; vaccine deployment will take place with informed consent and in compliance with Good Clinical Practice, an international quality standard for the conduct of clinical trials [12]. In an outbreak, the ring vaccination strategy would have to be adapted to the epidemiological context and the amount of vaccine available. Vaccination should include contacts and contacts of contacts of EVD cases, healthcare/front-line workers in affected areas, and healthcare/front-line workers in areas at risk of expansion of the outbreak; target groups for vaccination can be expanded if necessary [12].

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