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Ebola Virus Disease in the Democratic Republic of Congo - 2018: A Case Study

Introduction: On May 8, 2018, the government of the Democratic Republic of Congo (DRC) declared an outbreak of Ebola Virus Disease (EVD) after two cases were detected in Bikoro in DRC's Equateur Province.¹ This was the country's ninth EVD outbreak since 1976.² By the end of the outbreak on July 24, 2018, 54 cases and 33 deaths had been reported in the DRC.³ This was the first time the virus had reached a major city in the DRC. This outbreak led to the deployment of an experimental rVSV-ZEBOV Ebola vaccine which was rolled out through a ring vaccination approach in health workers and contacts of Ebola patients to curb the spread of the virus.³

Facts of the Case:

On May 3, 2018, the Provincial Health Division of Equateur reported a cluster of undiagnosed illness in 21 individuals. Among the 21 individuals in this cluster, 17 ultimately died. Samples taken from five cases who were admitted to either the Ikoko-Impenge Health Center or the Bikoro General Hospital found that two of the cases were positive for EVD after testing was conducted at the Institut de Recherche Biomedicale (INRB) in Kinshasha. On May 8, 2018, the DRC government declared an EVD outbreak and started contact tracing. On May 17, 2018, the virus was reported to have spread to Mbandaka, which is an urban center and port city about 100 miles north of Bikoro. Mbandaka is densely populated and is located by the River Congo, connecting the DRC to many neighboring countries. In less than two weeks after the DRC declared the EVD outbreak, a vaccination campaign among health workers and contacts of Ebola patients began on May 21. By the time the outbreak ended, there were 54 confirmed cases, 33 deaths, and 3,481 people were vaccinated against EVD.³ The case fatality rate was 61%.² In total, \$63 million USD in funding was received by all partners for the response to this outbreak. WHO contributed \$36 million USD in funding to the EVD response after receiving support from provided Italy, the UN, Gavi, USAID, Wellcome Trust, UK-DFID, Germany, Norway, Canada, the World Bank, Japan, the EU, and other organizations.⁴

Epidemiological aspects of the event: The index case was never confirmed.³ One of the sources of bias in this data could be the lack of timely reporting of EVD due to stigma and fear. Therefore, determining the index case and the actual number of cases and deaths could have been impacted by this. A geospatial modelling study was conducted after the outbreak to determine the spatial dynamics of Ebola transmission and to assess the impact of vaccination found that early vaccination was crucial to curbing the spread of the virus helped to reduce the area at risk by 70.4% and reduced the level of risk by 70.1%.⁵

Management of the event: The event was managed by the DRC's Ministry of Public Health in coordination with several international health partners, including the World Health Organization (WHO), Médecins Sans Frontiers, UNICEF, Red Cross, Wellcome Trust, and other organizations Médecins Sans Frontiers stood up treatment centers in the DRC, while WHO, the Red Cross, and UNICEF sent technical experts to the DRC soon after the DRC government declared the outbreak.⁴ Merck donated thousands of experimental doses of vaccines to the DRC which were authorized for compassionate use. Three experimental therapeutics were sent to the DRC and were approved for compassionate use; however, they were not used. The vaccine doses were delivered to the DRC by WHO and GAVI international alliance assisted with vaccine operations. MSF and Red Cross organized safe burials for those who died of EVD.³

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Governments of neighboring countries also played a role in the management of this outbreak by instituting health screenings at their ports of entry due to the case reported in Mbandaka. Education on EVD was performed by UNICEF. CDC assisted with operational support, logistics, and transportation among other areas.³ The all-hands-on deck response from international and local partners was commendable. Though some countries did close their borders to reduce the risk of EVD spreading from the DRC, the timely initiation of contact tracing and the use of the ring vaccination strategy was effective.

Communications of the event: The DRC government declared an outbreak as soon as the samples were confirmed to be EVD on May 8, 2018. On May 11, 2018 WHO published a press release stating that WHO was working with DRC to contain the outbreak.¹ WHO DG Tedros visit Bikoro on May 13, which elevated the outbreak in the media. During the outbreak, UN Radio broadcasted EVD awareness information along with posters and leaflets to educate people on the virus. Situation reports were disseminated by the Ministry of Public Health.³ The outbreak was also reported in international news outlets such as CNN, BBC, and VOA. Communication was managed well. Situation reports were made publicly available by the DRC Ministry of Health. Having WHO publicize their involvement in the response was important in assuaging fears. At the end of the outbreak, the WHO and the DRC Ministry of Health declared that the outbreak had ended, which was widely reported in the media.⁶

Summary: The Ebola Virus Disease outbreak in the Equateur Province of the Democratic Republic of Congo, which emerged in May 2018, had the potential to spread and claim the lives of many in the DRC and beyond. Because the outbreak was well managed, the outbreak was successfully contained. The successful response to the outbreak can be attributed to a combination of factors, including the early deployment of an experimental vaccine through ring vaccination, the initiation of contact tracing, education about the virus, and a coordinated response by international entities, which helped to bring the Ebola outbreak in the Equateur province under control.

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