2016 - 2017

COMPENDIUM OF SHORT REPORTS ON SELECTED OUTBREAKS IN THE WHO AFRICAN REGION

OCT 2017

Credit : WHO/G. Tapper

World Health Organization
REGIONAL OFFICE FOR Africa

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INTRODUCTION

Sub-Saharan Africa experiences over 100 acute public health emergencies each year. Most of the events are outbreaks of infectious diseases. However, the region continuously faces ongoing humanitarian crises and frequent natural disasters. All 47 member states are at risk.

WHO is committed to saving lives and reducing suffering during times of crisis – whether caused by conflict, disease outbreak or a disaster. The WHO Health Emergencies Programme is mandated to undertake WHO's functions and responsibilities during health emergencies. The vision of this programme is to protect health and save lives during outbreaks and emergencies. Our mission is to help countries and to coordinate international actions, to prevent, prepare for, detect, rapidly respond to, and recover from outbreaks and other emergencies. The priorities of this programme include:

- Supporting the assessment of country health emergency preparedness and development of national plans to address critical capacity gaps
- Developing strategies and capacities to prevent and control high-threat infectious hazards
- Monitoring of new and ongoing public health events to assess, communicate and recommend actions for public health risks
- Ensuring readiness to diminish public health risks in countries with high vulnerability
- Providing life-saving health services to affected populations in countries with ongoing emergencies.

Specific programme areas that fall under this global programme include:

- Country Health Emergency Preparedness and the International Health Regulations (CPI)
- Emergency Operations (EMO)
- Health Emergency Information and Risk Assessments (HIM)
- Infectious Hazards Management (IHM)
- Management and Administration (MGA).

In March 2017, the WHO Health Emergencies Programme in the Regional Office for Africa started the Weekly Bulletin on Outbreaks and Other Emergencies, which is a summary of new and ongoing events, put together using reports from country offices. This is sent out to over 900 recipients each week and has been extremely well received.

This collection of reports complements the weekly bulletin and is put together to reflect the response of the WHO Health Emergencies Programme to outbreaks and emergencies in the WHO African Region. This brief compilation introduces the concept of regular reports around specific outbreaks and emergencies. Its purpose is to illustrate how short reports can contribute to sharing information and approaches to different public health events, emergencies and outbreaks.

Each report has a similar structure, with a summary of the event, which highlights key features, the evolution of the event with a brief epidemiological description, public health actions, any gaps in action and a discussion of the situation.

The reports are presented in a way that makes them accessible to a wide audience – epidemiologists, policy makers, strategists and anyone working in the area of emergency responses.

THE REPORTS

Map of the outbreaks in WHO AFRO Q3 2016 to Q2 2017

Democratic Republic of the Congo

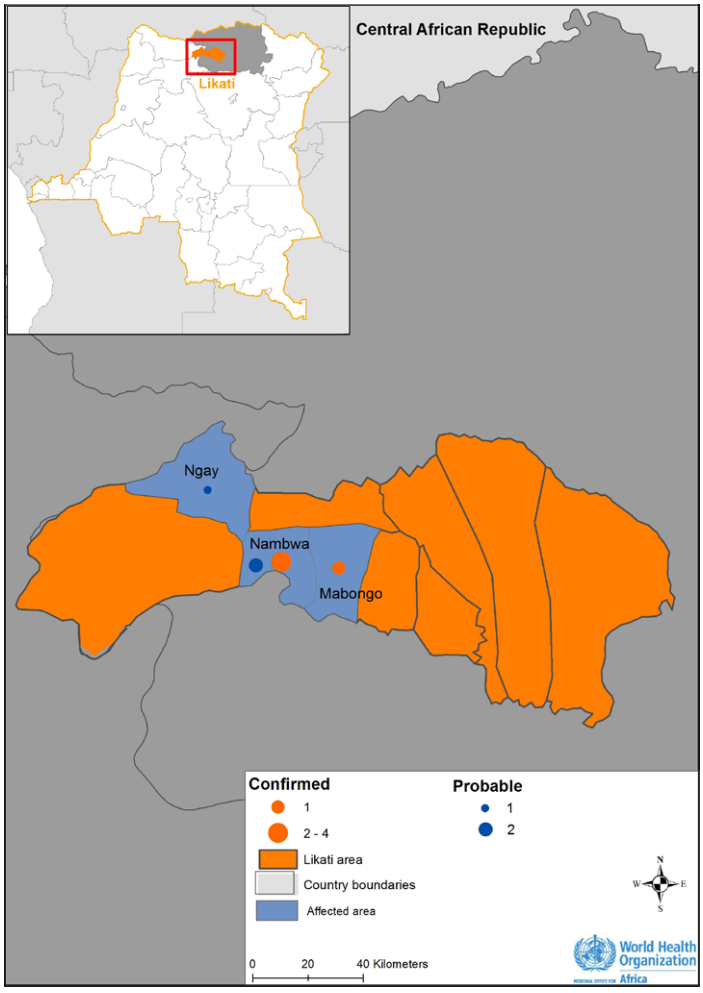
Ebola virus disease

Democratic Republic of the Congo
Ebola virus disease

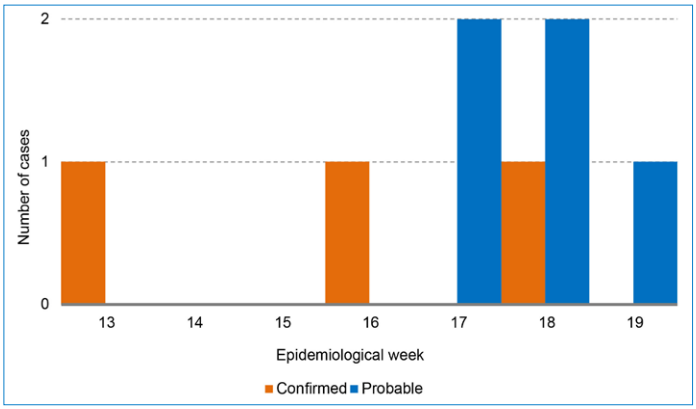
SUMMARY

- An outbreak of Ebola virus disease was notified to WHO on 11 May 2017 by the Ministry of Health of the Democratic Republic of the Congo in the remote Likati Health Zone in Bas-Uele Province.
- The notification followed a cluster of illnesses and deaths in late April 2017.
- The outbreak evolved during May 2017 with further transmission and deaths.
- There was an immediate coordinated response by WHO and partners, including deployment of interagency rapid response teams, who investigated the outbreak and established key pillars of the response at the epicentre.
- Two samples, out of five collected from the original cases, were analysed at the Institut National de Recherche Biomédicale (INRB) laboratory in Kinshasa and tested positive for typical Zaire ebolavirus.
- Between 22 April 2017 and 8 June 2017, there were eight cases (three probable and five confirmed) and four deaths (case fatality rate 50%).
- The outbreak was effectively controlled and declared over on 2 July 2017.

Geographic location of the Ebola virus disease outbreak in the Democratic Republic of the Congo



Epidemic curve of Ebola virus disease outbreak in the Democratic Republic of the Congo, 27 March - 24 May 2017



EVENT DESCRIPTION

The index case was a man, aged 39, who reported to the local health facility on 22 April 2017 with fever, weakness, vomiting, bloody diarrhoea, bloody urine, nose bleeds, and extreme fatigue. He was immediately referred to the Likati health facility, but died in transit. On 24 April 2017, a motorcycle rider and another person who assisted in the transportation of the first patient, developed an acute febrile illness. The motorcycle rider died on 26 April 2017.

Samples were collected from these individuals and sent to the Institut national de Recherche Biomédicale (National Institute of Biomedical Research) (INRB) laboratory in Kinshasa; two out of the five samples collected from the original cases tested positive for typical Zaire ebolavirus.

The confirmed and probable cases were reported from the Nambwa (four confirmed and two probable), Ngay (one probable) and Mabongo (one confirmed) health areas in the Likati Health Zone. The last confirmed case was isolated on 17 May 2017, and tested negative for Ebola virus disease (EVD) by polymerase chain reaction (PCR) for the second time on 21 May 2017. By the end of the outbreak, 375 contacts had completed 21 days of follow-up.

PUBLIC HEALTH RESPONSE

WHO held weekly 3-level teleconferences during the outbreak, with the active participation of senior managers of the Organization. The first national coordination meeting was held on 11 May 2017, with the participation of WHO and partners. Together with partners, WHO coordinated international technical support for the outbreak with the help of the Global Outbreak Alert and Response Network (GOARN) and the Dangerous Pathogens Laboratory Network. Other key partners who supported the Government of the Democratic Republic of the Congo in their response included the Africa Centres for Disease Control and Prevention, the Alliance for International Medical Action (ALIMA), the European Union (EU), the Government of the People's Republic of China, the International Federation of Red Cross and Red Crescent Societies (IFRC), the International Organization for Migration (IOM), the Japan International Cooperation Agency (JICA), Médecins sans Frontières (MSF), the Red Cross of the Democratic Republic of the Congo, UNICEF, the United States Agency for International Development (USAID), the United States Centers for Disease Control and Prevention (CDC), the United Kingdom Department for International Development (DFID), the University of Québec, and the World Food Programme (WFP). Coordination at regional level was strengthened, and daily meetings were held during the outbreak.

- Dr M R Moeti, the WHO Regional Director for Africa, travelled to the Democratic Republic of the Congo on 13 May 2017 and met with national authorities. She reiterated the availability and commitment of the Organization to work with the Ministry of Health and other sectors to rapidly contain the outbreak and avoid unnecessary interference with travel and trade. She also held a meeting with in-country partners to enhance partnership and strengthen coordination of the response to this dangerous disease;
- Early technical guidance was given to the Democratic Republic of the Congo; it included the involvement of anthropologists and risk communication experts; a global expert roster was also activated;
- The regional and global laboratories network was activated for confirmation of suspected cases;
- The first field investigation was conducted by the local health team on 5 May 2017; the team collected the five blood samples that were used to confirm the outbreak;
- A national multidisciplinary investigation team of 10 experts was deployed on 13 May 2017; it undertook active case searches, reviewed health facility records, and initiated community-based surveillance;
- Contact identification and follow-up started immediately, and communities were briefed and trained in safe burial practices; the homes of those affected were disinfected; and personal protective equipment (PPE) was issued to health workers;
- Social mobilization and community engagement activities were conducted throughout the outbreak; they included awareness-raising events early in the outbreak; these were held in four schools, with 592 attendees; broadcasts of awareness and prevention messages were made through mobile phone providers;
- The WFP/Logistics Cluster and UNICEF supported warehousing capacity in Buta and Likati; the United Nations Humanitarian Air Service (UNHAS) set up a base for air operations from Buta, while the United Nations Organization Stabilization Mission in the Democratic Republic of the Congo (MONUSCO) helped to transport response teams and urgently-needed supplies to the affected zone;
- The Democratic Republic of the Congo provincial government mobilized the initial funds for immediate operational field activities, and the WHO Country Office finalized a country response plan, along with a budget of US$ 1 449 338.

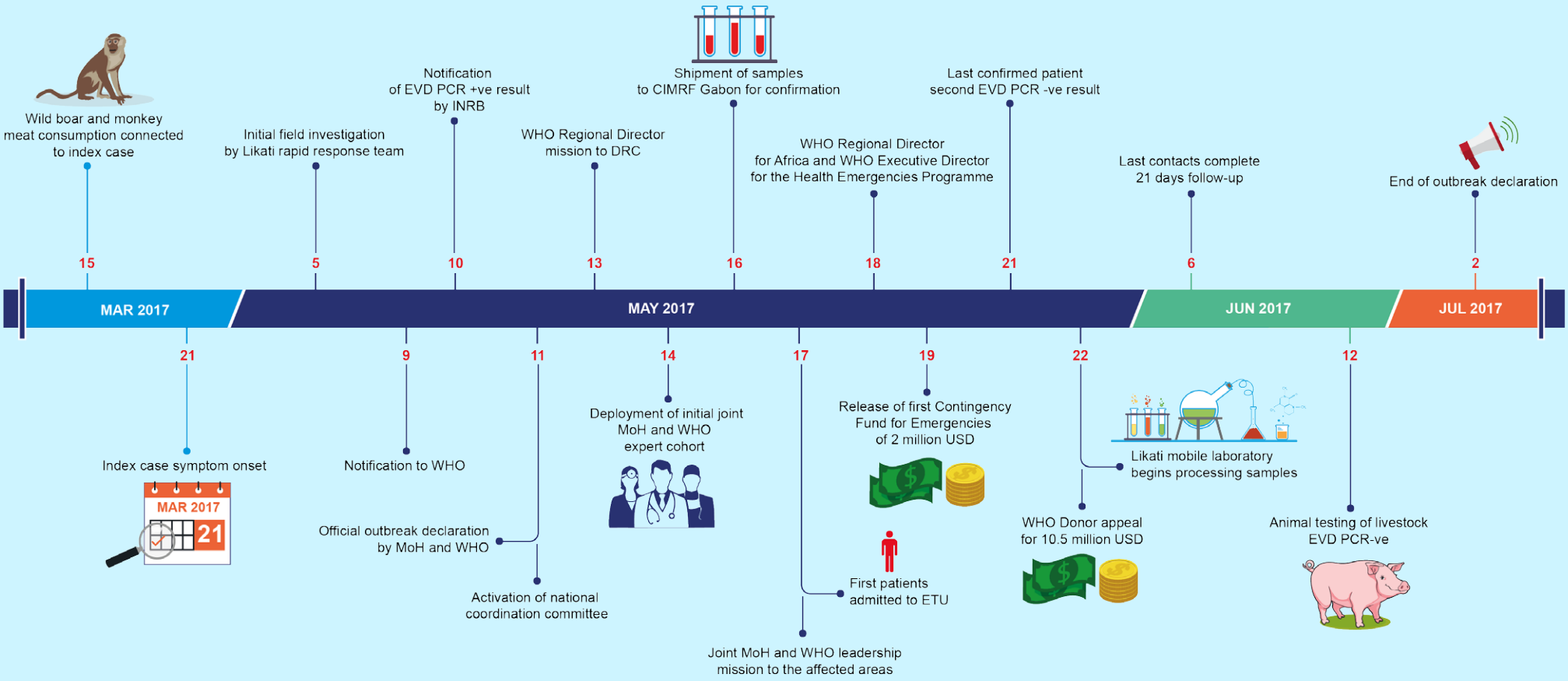
DISCUSSION

This was the eighth outbreak of EVD in the Democratic Republic of the Congo since the discovery of the virus in the country in 1976. The last outbreak in 2014 involved 66 people, with 49 deaths (case fatality rate: 74.2%). Several healthcare workers were exposed to EVD as a result of local customs and rituals associated with death. Consequently, the virus rapidly spread to many other people. However, after the extensive outbreak in west Africa starting in 2014 that quickly spread across national borders, with excessive morbidity and mortality, the speed of the international response to this small outbreak was commendable. This was also understandable since the response was comprehensive and involved all available partners, thereby limiting the geographical and epidemiological extent of the outbreak.

At the same time, the 2017 outbreak highlighted the challenges of providing health services and disease surveillance in remote areas. During the present event, WHO and partners were vigilant; they increased surveillance, investigated alerts, and tested suspected cases – all of which were critical actions that prevented EVD flare-ups.

Interventions to strengthen not only infection prevention and control (IPC) but also WASH (water, sanitation and hygiene) also need to be continued and maintained beyond the end of the outbreak, as does the strengthening of the Likati health system. As a result of the outbreak, there has been a general increase in use of the health facility. Additional healthcare workers have also been trained, and need to continue to be employed. The regular supply of medicines and other commodities remains a challenge in this remote area. WHO has asked that, in the immediate aftermath of the outbreak, partners should consider maintaining technical and financial support to the Ministry of Health of the Democratic Republic of the Congo. This should ensure continued control of the outbreak, and should upgrade healthcare facilities, not only in Likati Health Zone but also in the rest of the country.

TIMELINE OF REPORTED EVENTS DURING THE EBOLA VIRUS DISEASE OUTBREAK IN DEMOCRATIC REPUBLIC OF THE CONGO,15 MARCH - 2 JULY 2017



Liberia

Meningococcal septicaemia

Liberia

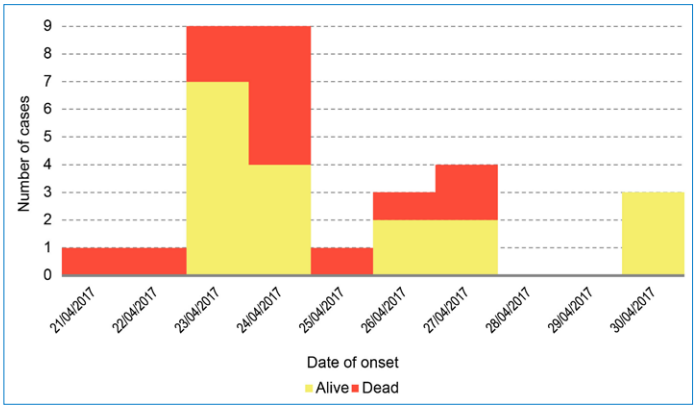
Meningococcal septicaemia

SUMMARY

- On 25 April 2017, the Ministry of Health of Liberia notified WHO of a cluster of 14 cases of acute illness, involving eight sudden deaths; the illness, in Greenville District, Sinoe County, Southern Region, was of unknown etiology;
- Of the 14 cases, 95% were linked to the funeral of a religious leader who had died of known causes;
- Rapid, effective response from the Government of Liberia, the Ministry of Health, and strong collaboration between WHO, Centers for Disease Control (CDC), Atlanta, USA, and other partners, confirmed the pathogen to be *Neisseria meningitidis* serogroup C;
- Between 23 April 2017 and 7 May 2017, a total of 31 cases and 13 deaths (case fatality rate: 41.9%) were reported;
- The last case was reported on 7 May 2017.

Geographic location of meningococcal septicaemia outbreaK in Liberia

Epidemic curve of the meningococcal septicaemia outbreak in Liberia, 22 April 2017 - 11 May 2017



EVENT DESCRIPTION

The event, linked to a funeral celebration, started on 23 April 2017 when the index case – an 11-year-old girl from Teah Town, Greenville District – presented to F J Grante Hospital with acute onset of diarrhoea, vomiting, and mental confusion. The girl died within one hour of admission. On 24 April 2017 (the second day), the second case – a 51-year-old woman from Teah Town, Greenville – developed sudden onset of vomiting, abdominal pain and confusion. She was admitted to F J Grante Hospital on 25 April 2017, and died the same day. On 25 April 2017 (the third day), a cluster of 13 case-patients from five communities in Greenville, developed similar acute illness. Seven died the same day. The last case was reported on 7 May 2017, and the last death occurred on 2 May 2017.

Between 23 April and 7 May 2017, a total of 31 cases involving 13 deaths (case fatality rate: 41.9%) were reported. Most (95%) of the cases participated in the funeral rites of a religious leader who had died of known causes, and whose funeral took place from 21 to 22 April 2017 in Greenville, Sinoe County. This locality was the epicenter of the outbreak, with 87% (27/31) of the cases and 78% (10/13) of the deaths. Montserrado County had two cases and two deaths, while Grand Bassa County had two cases and one death. The ages of the affected persons ranged from 10 to 62 years, and 55% of the cases were female.

Analyses of biological samples conducted at the National Reference Laboratory (NRL) in Liberia and in CDC-Atlanta confirmed *Neisseria meningitidis* serogroup C as the etiological agent by polymerase chain reaction (PCR) in 13 out of 24 samples analysed. Among the five cases that manifested the typical clinical features of meningococcal septicaemia, [purpura fulminans (seen in four cases), ecchymosis (two cases), petechial rashes (four cases), and abdominal pain (four cases)], *N. meningitidis* was confirmed in four of these cases.

PUBLIC HEALTH RESPONSE

- The Government of Liberia and the Ministry of Health, with strong support and collaboration from WHO, CDC-Atlanta and other partners (National Public Health Institute of Liberia (NPHIL), Liberia Field Epidemiology Training Programme, the African Field Epidemiology Network (AFENET), etc.), mounted a rapid and effective response that led to the containment of the event;
- National and county epidemic preparedness and response committees (NEPRC/CEPRC) were activated to coordinate response to the event;
- A multidisciplinary national rapid response team was deployed to Sinoe to conduct a detailed outbreak investigation and to support lower-level outbreak response;
- Surveillance was heightened at the health facility and community levels in all counties; active case searches were conducted among those who attended the funeral celebrations and their contacts in the affected and surrounding communities; contacts were systematically identified, line-listed and followed up; at least 214 close contacts were identified and followed up from the three counties; of these, 110 people had attended the funeral function;
- Infection prevention and control interventions, including hand hygiene practices, testing of water points, and safe burial procedures were enhanced in the other affected counties;
- Social mobilization, public health education and community engagement were undertaken using various approaches and channels; this was aimed at encouraging early healthcare-seeking behaviour and promoting disease prevention practices.

DISCUSSION

The occurrence of an outbreak of a disease with a high case fatality rate and haemorrhagic symptoms in a region that had just been seriously affected by the Ebola virus disease outbreaks of 2014-2016 led to a rapid and effective response by the Government of Liberia, and to strong collaboration between WHO, CDC-Atlanta and other partners. This response included relatively early identification of the causal pathogen as *N. meningitidis* serogroup C (as the origin of meningococcal septicaemia). This is distinct from meningococcal meningitis (common in west, central and east Africa). Meningococcal septicaemia is less frequently seen.

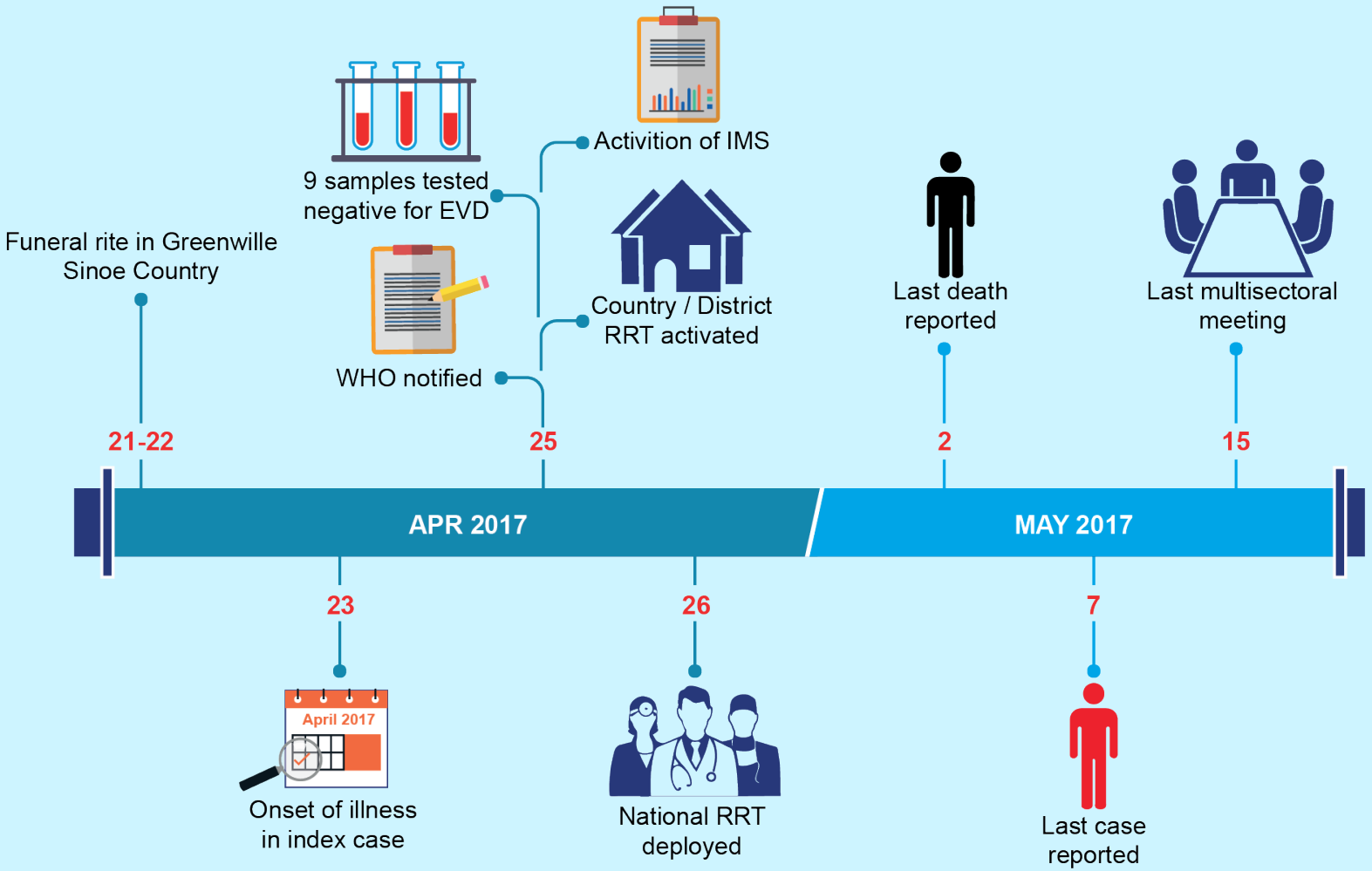
The rapid response to this outbreak demonstrated clearly that the measures put in place during and after the Ebola outbreak in west Africa have strengthened the country's ability to respond effectively to the threat of infectious diseases. The close collaboration between WHO and other partners was also possible because of these measures.

However, the occurrence of this uncommon form of meningococcal disease in the Region, and the initial difficulties encountered in making the diagnosis, emphasizes the need to strengthen laboratory diagnostic capacity and available technology in Liberia in particular, and the African Region generally. In the meantime, intensified surveillance should continue in all counties in order to ensure that any emerging cases – or indeed other diseases – are promptly detected and managed.

Neisseria meningitidis bacteria.

iLexx / iStock

TIMELINE OF REPORTED EVENTS DURING THE MENINGOCOCCAL SEPTICAEMIA OUTBREAK IN LIBERIA, 21 APRIL 2017 TO 15 MAY 2017



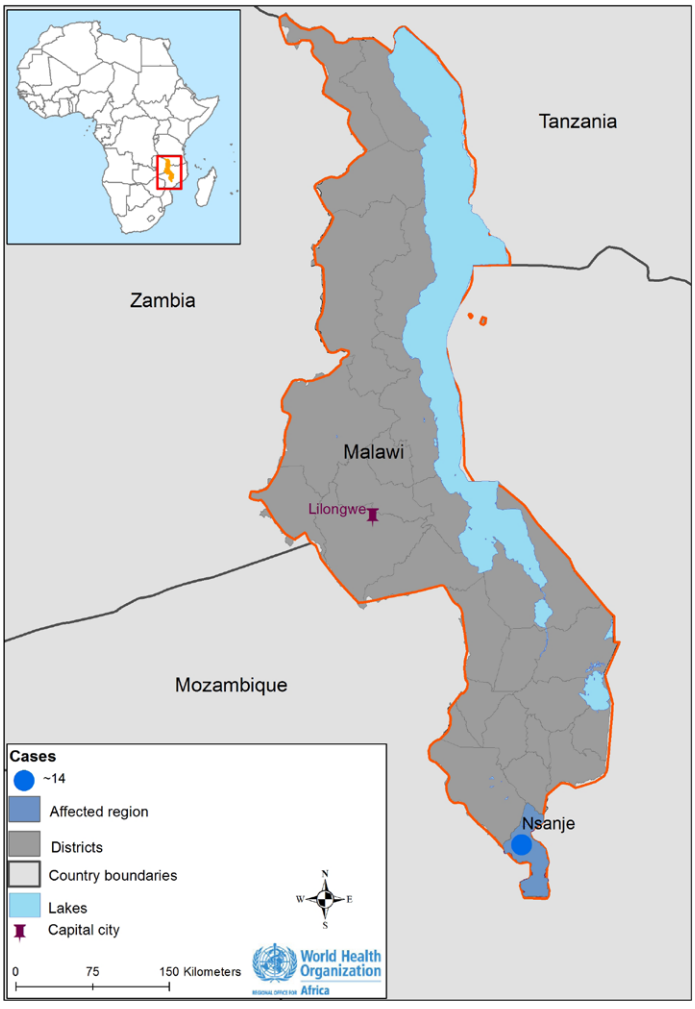
Malawi
Cholera

Malawi
Cholera

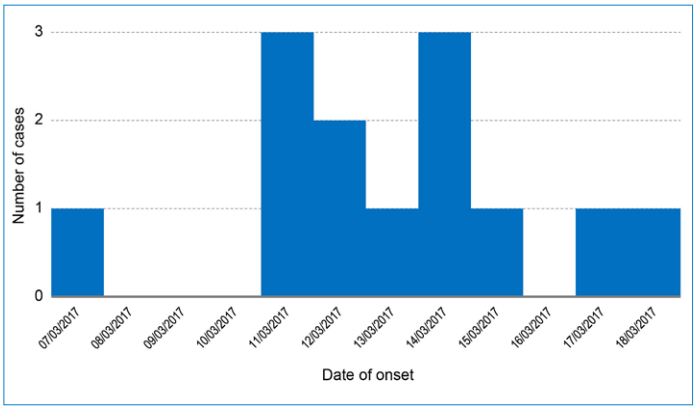
SUMMARY

- On 12 March 2017, two suspected cholera cases were reported to the district health authorities in Ndamara, Malawi;
- The District Rapid Response Team was mobilized the same day; rapid diagnostic testing confirmed the cases as cholera;
- From 11 to 19 March 2017, 14 cases were registered, with no deaths;
- No new cases were reported after 19 March 2017.

Geographic location of the cholera outbreak in Malawi



Epidemic curve of the cholera outbreak in Malawi, 7 - 21 March 2017



EVENT DESCRIPTION

On 12 March 2017, a case of suspected cholera was reported to district health authorities by Ndamera Health Centre, which is on the Mozambican border. The District Rapid Response Team (DRRT) was mobilized immediately; the outbreak was investigated the same day, and the case was confirmed as cholera. The index case, a 31-year-old woman from Bitilinyu Village, Ndamara, presented with vomiting, diarrhoea, weakness, dehydration and leg pain, which had started on 11 March 2017. She was admitted to the cholera tent.

On the same day, a 50-year-old man was admitted to the holding room at Ndamera Health Centre, with symptoms suggestive of cholera. The DRRT established that this patient frequently visited and provided care for his sister, who was also admitted to the holding room of the clinic with diarrhoea.

The DRRT also visited Bitilinyu Village, which is where all the cases had originated. All households in the village have pit latrines and drink water from the same borehole; the borehole is close to the households.

Nsanje District shares borders with Mozambique. The initial cluster of cases was found to have epidemiological linkage with Villa Nova, Tete Province, in Mozambique; Villa Nova had an ongoing cholera outbreak.

From 11 to 19 March 2017, 14 cases were registered, with no deaths. Specimens were collected from these patients; rapid diagnostic testing of the specimens for cholera was positive. Samples were sent to the national laboratory for confirmation. The outbreak was eventually confirmed by the Community Health Sciences Unit (CHSU) Reference Laboratory on 15 March 2017, after *Vibrio cholerae* O1 Ogawa was isolated from cultures. No new cases were reported after 19 March 2017.

PUBLIC HEALTH RESPONSE

The small outbreak of cholera was quickly contained thanks to the following:

- The DRRT was mobilized early; a rapid assessment of the situation, including a site visit to the patient's village, was made to determine risk factors and priorities;
- The transmission pathway was established early;
- Rapid diagnostic testing established the pathogen before definitive laboratory testing, making appropriate response measures possible;
- Immediate cholera awareness campaigns were conducted; village health committees were called in and briefed on cholera prevention and control, including emphasis on food hygiene;
- A water treatment chemical (1% stock chlorine solution) was distributed to village households;
- Médecins sans Frontières (MSF) provided infection prevention and control (IPC) materials to the Cholera Treatment Centre; MSF also supported case management;
- The Malawi Red Cross Society constructed a pit latrine and bath shelter for the Cholera Treatment Centre, as patients were using health centre facilities.

DISCUSSION

Malawi has been experiencing recurrent outbreaks of cholera, especially in the Southern Region. This Region is prone either to floods or drought (both conditions favour the spread of cholera infection).

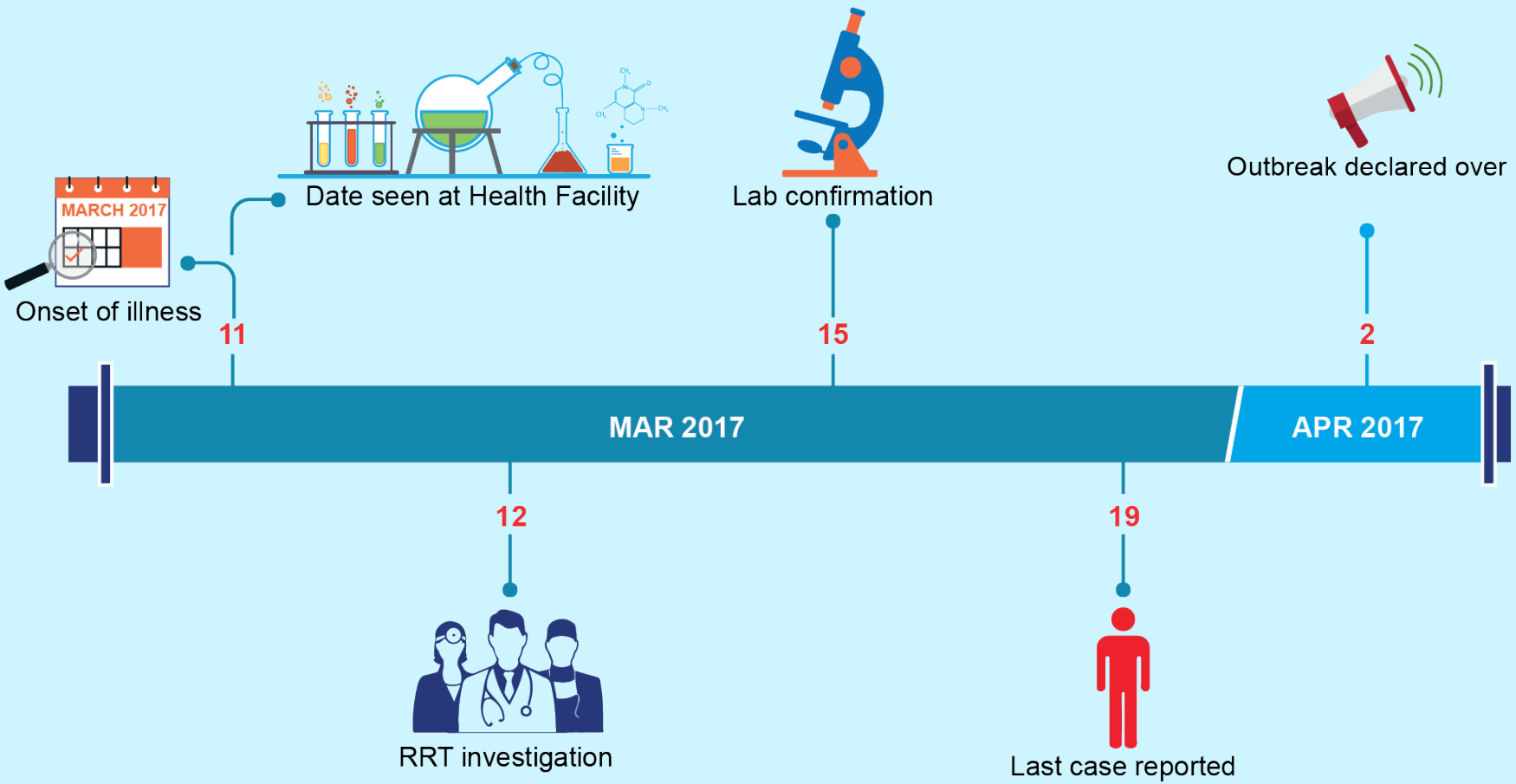
The poor sanitation and hygiene practices in these communities are some of the factors contributing to cholera transmission. In addition, continuous cross-border movements of people between Malawi and Mozambique (reported to have ongoing cholera outbreaks) has the potential to lead to subsequent trans-border transmission of cholera, escalating the public health risks associated with these events.

The response to the cholera outbreak in Malawi brought together several partners, including UNICEF, the Red Cross, Malawi College of Medicine, MSF, DFID, and WHO. This coordinated, multi-partner and multi-sector response contained the outbreak. Rapid and effective action by the DRRT prevented a potentially far larger outbreak, and showed that emergency response systems in place in Malawi are working well.

Oral Cholera Vaccination Campaign in Southern Malawi, 2015

WHO/L. Pezzoli

TIMELINE OF REPORTED EVENTS DURING THE CHOLERA OUTBREAK IN MALAWI, 11 MARCH 2017 - 2 APRIL 2017



Credit : Pauline Ajello WHO Nigeria

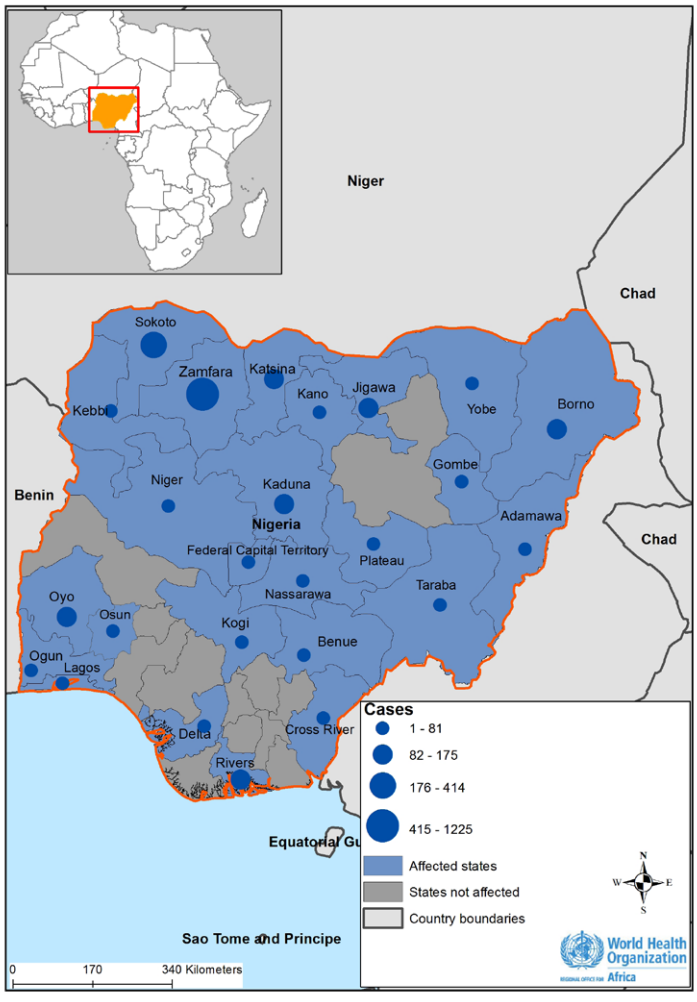
Nigeria
Meningitis

Nigeria
Meningitis

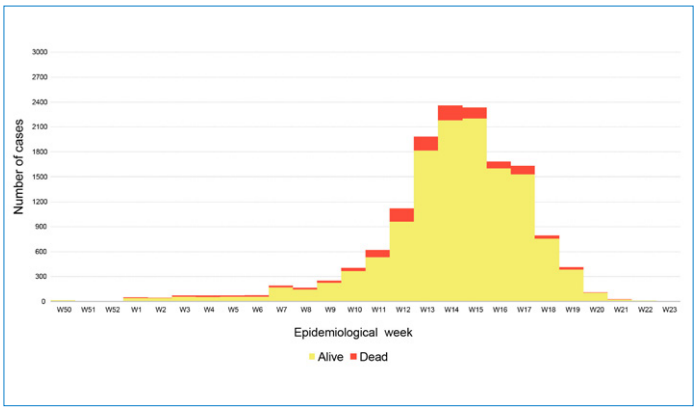
SUMMARY

- Suspected meningitis cases reached epidemic proportions in week 50 of 2016 (the week ending on 18 December 2016) in Zamfara State, Nigeria, and subsequently spread to other states;
- The Federal Ministry of Health of Nigeria notified WHO of the outbreak on 22 February 2017;
- From the onset of the outbreak, 14 518 suspected or confirmed cases of meningitis were reported from 25 states, with 1 166 deaths (case fatality rate: 8%);
- After multi-sectoral response efforts, the situation started improving in the week 15 of 2017;
- The outbreak was declared over by the Federal Ministry of Health on 23 June 2017.

Geographic locations of the meningitis outbreaks in Nigeria



Epidemic curve of the meningitis outbreaks in Nigeria, December 2016 - June 2017



EVENT DESCRIPTION

Zamfara State in Nigeria experienced a gradual increase in the number of suspected meningitis cases, reaching epidemic proportions in week 50 of 2016 (the week ending on 18 December 2016). The situation quickly evolved in subsequent weeks, with the number of new cases and deaths increasing exponentially, and the disease spreading to other states. The Federal Ministry of Health notified WHO of the outbreak on 22 February 2017. Following concerted multi-sectoral response efforts, the meningitis outbreak started to improve gradually by week 15 of 2017. On 23 June 2017, the Federal Ministry of Health of Nigeria officially declared the end of the 2016/2017 meningitis outbreak in the country. This declaration came 4 weeks after the number of new meningitis cases reported each week fell below the epidemic and alert thresholds in all local government areas (LGAs).

From the onset of the outbreak in December 2016, a total of 14 518 suspected or confirmed cases of meningitis were reported in 25 states, with 1 166 deaths, giving a case fatality rate of 8%. Of the reported cases, 901 cerebrospinal fluid samples were collected and analysed at the National Reference Laboratory. Forty-seven percent of the samples (421/901) isolated *Neisseria meningitidis* as the causative pathogen, with *N. meningitidus* serogroup C the predominant strain, accounting for 72.7% of the bacterial meningitis pathogens identified. The age group 5–14 years was the most affected, accounting for 46.8% of the total caseload. While 25 states reported meningitis cases during the outbreak, 97% of the reported cases came from six states, namely, Zamfara, Sokoto, Katsina, Yobe, Kebbi, and Kano. A total of 34 LGAs reached epidemic levels at any one point during the course of the outbreak.

PUBLIC HEALTH RESPONSE

The overall outbreak response was conducted within the framework of the national Emergency Operations Centre (EOC), coordinated by the Nigeria Centre for Disease Control (NCDC). WHO and partners such as UNICEF, CDC, University of Maryland, Nigeria Field Epidemiology and Laboratory Training Programme (NFELTP), eHealth Africa, Médecins sans Frontières (MSF), and Rotary International provided technical, logistical and financial support. The following activities were undertaken by the various response components:

- Enhanced active surveillance in the affected states; mobilization and training by the Ministry of Health and WHO of 400 community informants to support surveillance activities at the community level in Sokoto and Zamfara states; deployment of experts at state level to strengthen surveillance and support the response; strengthening and daily collation, cleaning and harmonization of outbreak data to enable monitoring of trends and the impact of response activities;
- Deployment by WHO of 50 health workers in 10 teams to Sokoto and Zamfara States; printing of case management protocols and distribution of the same to health facilities in the most affected states; procurement of 20 000 doses of ceftriaxone and distribution of the same to the affected states; distribution of lumbar puncture kits, Pastorex and other laboratory reagents and supplies in order to strengthen diagnostic capacity. The rate of lumbar puncture among new cases increased to 81% in Zamfara;
- Successful conduct of reactive vaccination campaigns, led by the NPHCDA, in Zamfara, Sokoto, Yobe and Katsina states; state governments were fully engaged in conducting these campaigns to ensure that the vaccines reached the most at-risk populations. About 2 million people were eventually vaccinated during the outbreak;
- Deployment of a technical mission from the Medical Research Council (MRC) of Gambia, with the support of WHO, to strengthen laboratory diagnostic capacity; the team conducted training in methods of celebrospinal fluid (CSF) sample collection, and immediate processing of these samples, including performance of the Pastorex test on site; the team also supported the reference laboratory in Zamfara State.

DISCUSSION

Nigeria lies in the meningitis belt, where the risk of meningitis outbreaks remains high. Recurrent outbreaks are common. There was a meningitis outbreak in 2015 in the same areas that were affected in 2016/2017. The 2015 outbreak (as well as the current ones) was mainly caused by *N. meningitidis* serogroup C. Since implementation of the large-scale mass immunization campaign with meningitis A vaccine in the African Region, subsequent outbreaks reported have been caused mainly by new serotypes, including *N. meningitidis* serotypes C and W135. This phenomenon has also been reported in other countries, including Togo (in 2016 and 2017) and Niger (in 2015 and 2017).

While large-scale interventions show the efficacy of mass immunization campaigns in the prevention and control of meningitis, paradoxically, this intervention has resulted in the dominance of serotypes that are unaffected by the current vaccines. The recurrence of meningitis outbreaks in Nigeria is probably due to the low immunity of the population to the new dominant serotypes. The age group most affected (5-14 years) has not experienced infections due to these new serotypes in the last decades, which makes them particularly susceptible to meningitis serotypes C and W135.

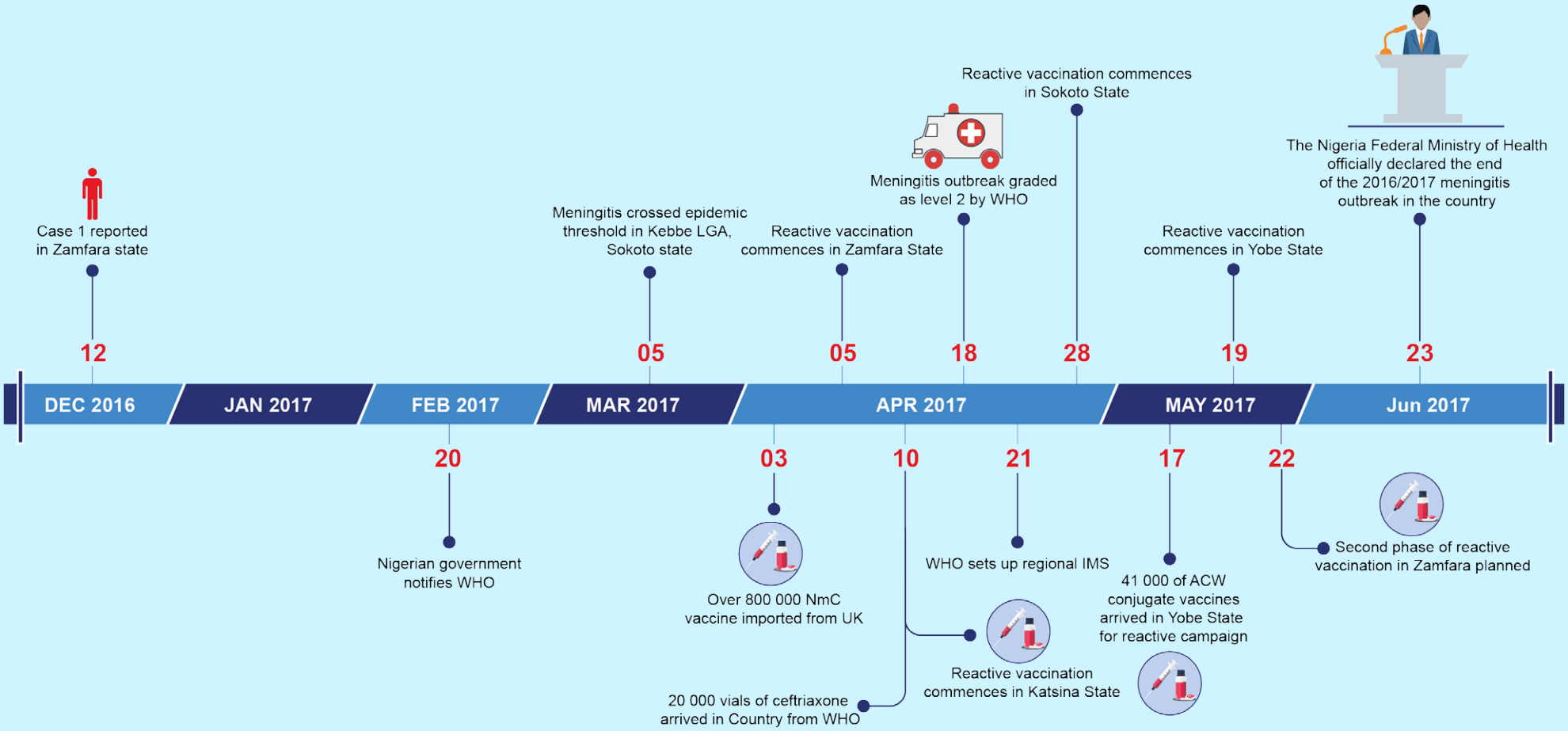
The most common strain of the bacteria in this outbreak was *N. meningitidis* serotype C, for which there is a serious vaccine deficit. In addition, the vaccine against *N. meningitidis* serotype C is expensive at US$ 50 per dose. This, and lack of availability of vaccine stocks, hampered the initial responses to the outbreak.

The meningitis outbreak situation in Nigeria improved as control measures were scaled up considerably. The epidemic peaked in weeks 14 and 15, and started a steady decline from week 16.

The outbreak rapidly deteriorated in spite of the country's past experience in managing meningitis outbreaks. The factors postulated for the rapid spread of the outbreak include the high number of vulnerable persons unprotected from *N. meningitidis* C, delays in conducting reactive vaccinations, and inadequate supply of medicines and laboratory commodities. The quantity of vaccines initially received in the country from the International Coordinating Group (ICG) was insufficient to control this outbreak pending arrival in the country of approved vaccines and supplies. In addition, the healthcare workforce available to manage the outbreak was inadequate, especially in the worst affected states.

The other critical challenges experienced in the response include (a) the low rate of sample collection, and the limited threshold of laboratory confirmations required for vaccines approval; (b) weak coordination of response activities at the state level and below; and (c) limited funding to support the activities of the national Emergency Operations Centre.

TIMELINE OF REPORTED EVENTS DURING THE MENINGITIS OUTBREAK IN NIGERIA, 12 DECEMBER 2016 - 23 JUNE 2017



Namibia

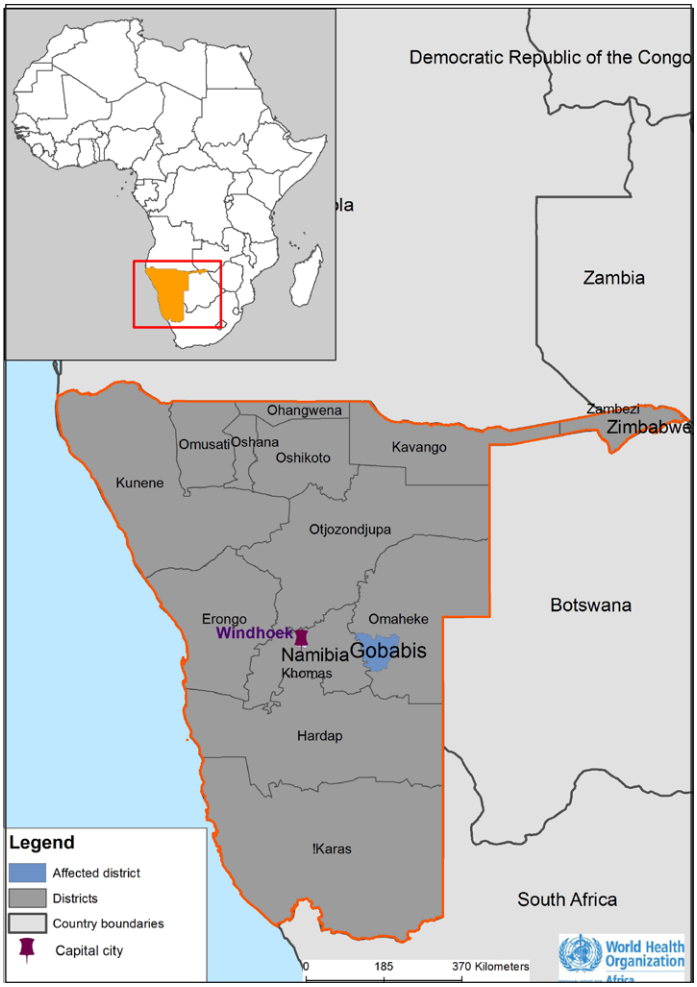
Crimean-Congo haemorrhagic fever

Namibia
Crimean-Congo haemorrhagic fever

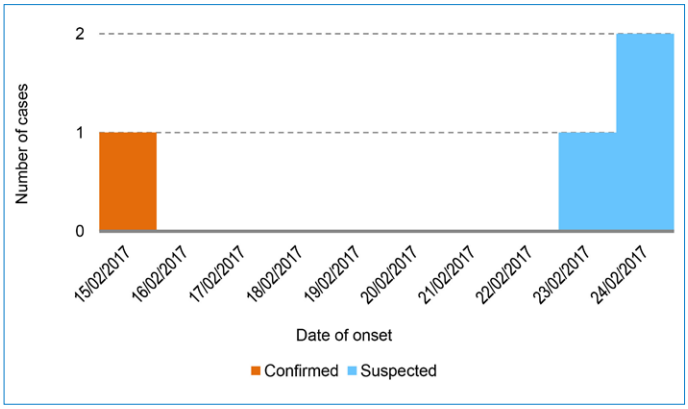
SUMMARY

- Crimean-Congo haemorrhagic fever (CCHF) was confirmed on 23 February 2017 in a patient from the Gobabis City area in eastern Namibia;
- A second, unrelated case was confirmed on 9 March 2017;
- The cases were not linked as they were geographically separate;
- No further cases arose from contacts of the two patients.

Geographic location of the Crimean-Congo haemorrhagic fever outbreak in namibia



Epidemic curve of the Crimean-Congo haemorrhagic fever outbreak in Namibia, 15 - 24 February 2017



EVENT DESCRIPTION

The index patient was a 20-year-old man from a commercial cattle farm 40 km from Gobabis City, eastern Namibia, who presented with flu-like symptoms and headache on 18 February 2017, after a tick bite on 15 February 2017. He was treated as an outpatient and discharged. He returned on 20 February 2017 vomiting blood, and with bloody stools and jaundice. He was immediately admitted and isolated. A blood sample was sent to the National Institute for Communicable Diseases (NICD) in South Africa for identification and confirmation of CCHF; CCHF was confirmed on 23 February 2017.

He died and was buried on 23 February 2017, with full precautions, under the supervision of environmental health officers. The 48 contacts linked to this case were identified and monitored for 14 days and released.

The second case was a 19-year-old male from Okongous Village, 250 km from Gobabis, who reported a tick bite on 1 March 2017, and presented on 3 March 2017 with fever, headache, and backache, along with vomiting and diarrhoea. He was transferred to Gobabis on 6 March 2017. Laboratory results showed severe thrombocytopenia, deranged liver enzymes, and a deranged clotting profile. He was transferred to Windhoek Central Hospital on 8 March 2017. On 9 March 2017, the laboratory test (also sent to the NICD, South Africa) came back CCHF-positive. This case was not linked to the index case because there was no history of travel outside the farm in the 3 weeks before onset of illness. This patient also had no contact with animal blood or body fluids in the weeks before the onset of illness. Contacts (16) were traced, monitored, followed up for 14 days, and released. The patient survived the illness.

PUBLIC HEALTH RESPONSE

The potential outbreak was contained quickly and effectively through a combination of good communication and transparency, in the presence of efficient health services in Namibia. This rapid containment was achieved because:

- The case-patients were isolated early;
- There was a high index of suspicion for CCHF and a sample was sent early to NICD in South Africa for diagnosis;
- There was immediate action – the event was reported to the Ministry of Health and Social Services within 24 hours of first diagnosis;
- There was a coordinated response;
- Rapid response teams (RRTs) and health workers were available;
- The outbreak was immediately investigated;
- There was early technical support from the WHO Country Office, the Regional Office, and headquarters;
- There was contact tracing and follow-up;
- The animal sector team – FAO and the Ministry of Agriculture – were involved in the field response, and animal samples were taken from three farms.

AREAS THAT NEED IMPROVEMENT

- Samples are always sent to South Africa for testing, thereby causing a potential delay in receiving results. It would be worthwhile providing the local laboratory with the capacity to detect the virus and other dangerous pathogens;
- There is a lack of capacity to determine the extent and distribution of infected animals in known areas of endemicity;
- The main hospital in Gobabis and the surrounding area lacks an isolation room that meets infection prevention and control (IPC) standards. Again, considering that this particular haemorrhagic fever is endemic to the area, it would be worthwhile scaling up capacity in the main hospital.

DISCUSSION

CCHF is endemic in certain areas of Namibia. There is free movement of both livestock and wild animals, which cannot be controlled. From published records on CCHF and in Namibia, the first CCHF case was reported in 1986. The infections mainly occur in five regions in the eastern part of the country: Grootfontein (Otjozondjupa Region); Windhoek (Khomas Region); Gobabis (Omaheke Region); Karasburg (Karas Region); and the Mangetti area (Kavango Region). So far, there were three cases in 1986, one in 1998, two in 2001, one in 2002 and three in 2010. Gobabis (Omaheke Region), the epicentre of the current outbreak, recorded the last case in 2001 – that of a well-known farmer from a game farm that rehabilitates wild cats. He died of CCHF following a tick bite while transporting cattle to his guest lodge.

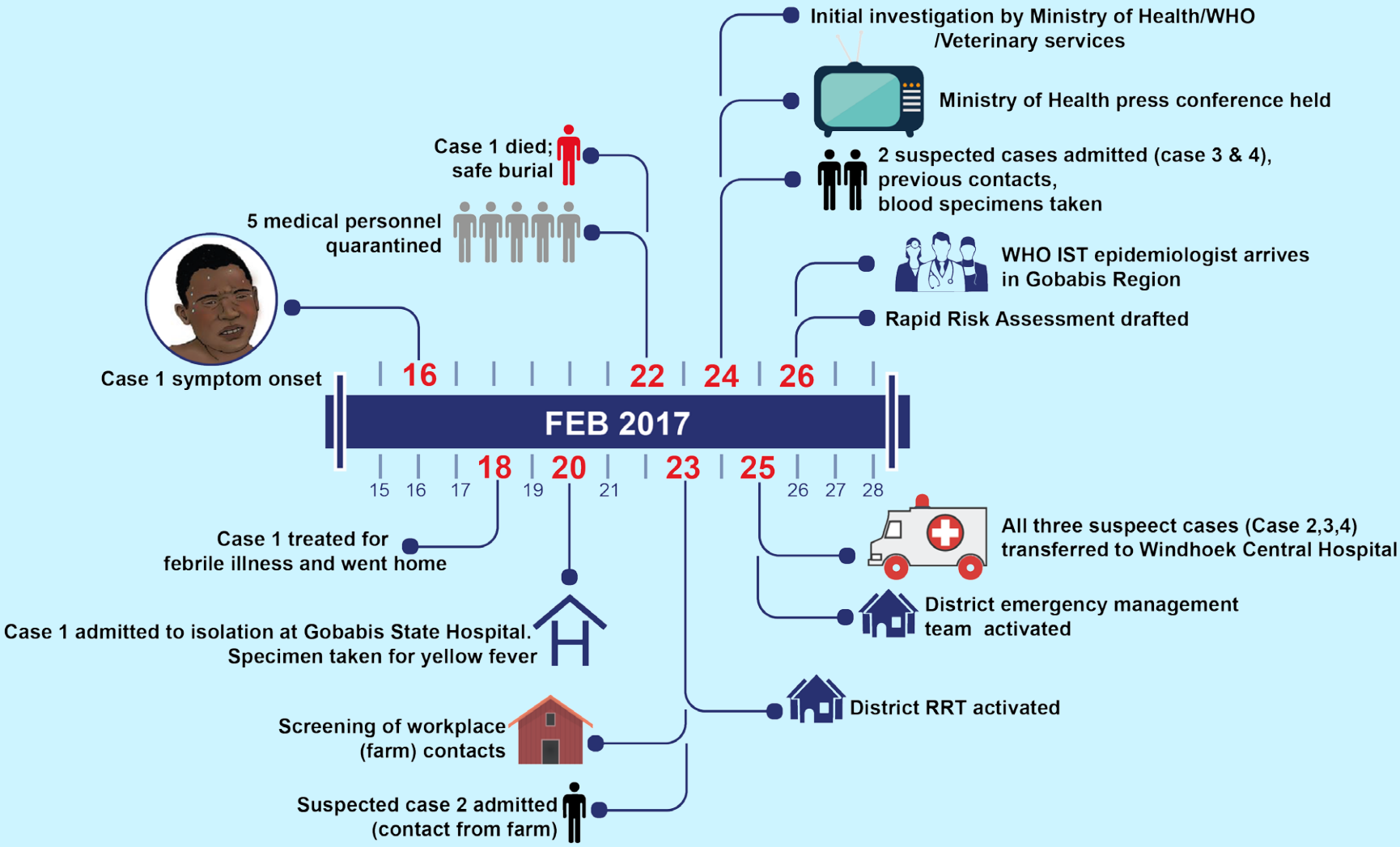
Gobabis is the chief town of Omaheke Region, the fifth largest region in the country, and covers an area of 84 612 km^2. Its estimated total population is 72 306. The main economic activity in the area is cattle farming. The Region has one district and seven constituencies, with one hospital, 13 clinics, and one health centre. The estimated population of the affected farm and the neighbouring area is about 40 people. The catchment population (Okongoua Village) of the Corridor Clinic is 2 080 people.

The two isolated events were quickly controlled because of good communication, prompt action by healthcare staff (isolating the patient and sending samples for definitive diagnosis), rapid response of the WHO Health Emergencies team, and the response of local health and agriculture agencies.

Long-term control strategies in such settings hinge on raising community awareness about the disease, and changing behaviours to prevent transmission. Such behaviours include wearing protective clothing, using repellents when working in the fields to prevent tick bites, and avoiding direct contact with infected animal tissues and body fluids. In addition, reducing the population of the *Hyalomma* tick, through various vector control strategies, is critical.

More effective would be a much higher index of suspicion among local health workers. Any case presenting with a history of tick bites and flu-like symptoms should immediately be tested for CCHF. This would depend on education and budget.

TIMELINE OF REPORTED EVENTS DURING THE CRIMEAN-CONGO HAEMORRHAGIC FEVER OUTBREAK IN NAMIBIA, FEBRUARY 2017



Niger

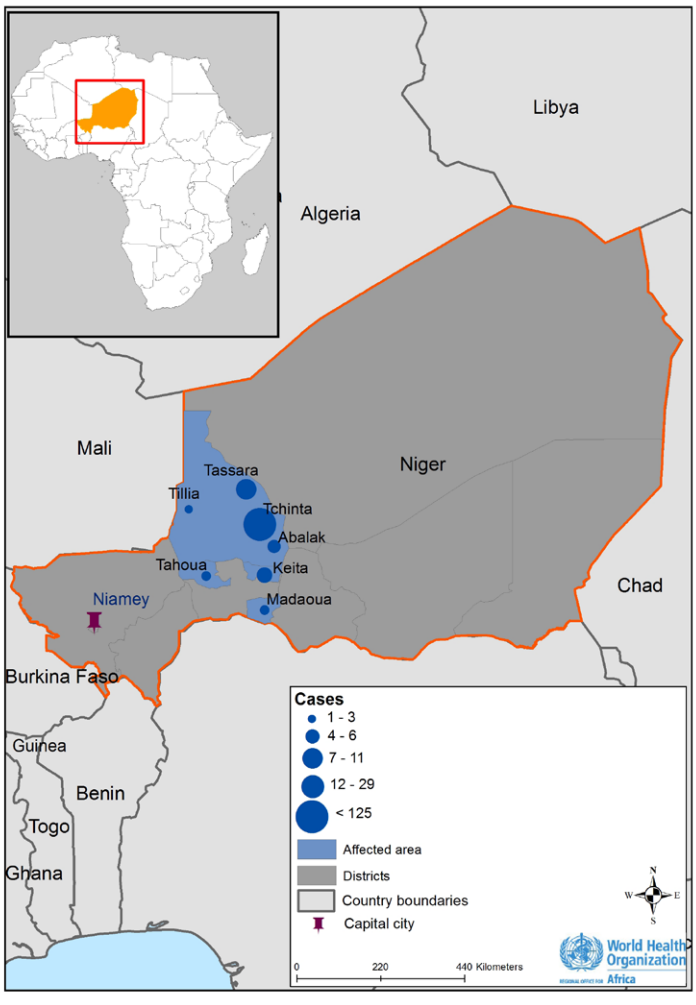
Rift Valley fever

Niger
Rift Valley fever

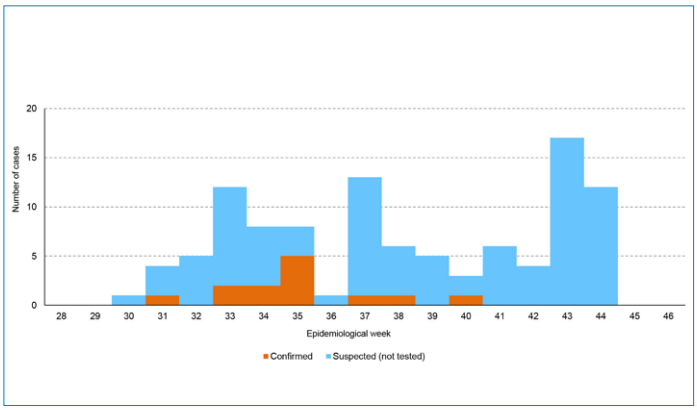
SUMMARY

- On 2 August 2016, the Ministry of Health of the Republic of Niger, notified WHO of an outbreak of Rift Valley fever (RVF) in the country; the outbreak was declared on 21 September 2016;
- WHO classified the outbreak as a Grade 2 health emergency, establishing a multi-sectoral rapid response team in the country;
- During the epidemic, there were 399 cases (suspected, probable and confirmed), with 33 deaths, for a case fatality rate of 8.3%;
- The last confirmed positive case was reported on 22 November 2016; the outbreak was declared over by the Government of Niger on 14 February 2017.

Geographic location of the Rift Valley fever outbreak in niger



Epidemic curve of the Rift Valley fever outbreak in Niger, 2 August 2016 - 25 September 2016



EVENT DESCRIPTION

On 30 August 2016, the Ministry of Health of the Republic of Niger notified WHO of an outbreak of Rift Valley fever (RVF) among stockbreeders in the Tchintabaraden Health District in Tahoua Region. At the same time, abortion events were reported among livestock in the same areas. The first cases of fever and haemorrhagic jaundice were noted on 2 August 2016. Cases were later reported in the Tassara, Abalak and Banibangou health districts in Tahoua Region. Most of the cases (66%) were male, and mainly farmers and animal breeders. There were 66 confirmed and probable cases, and 27 deaths (case fatality rate: 41%) from 2 August 2016 to 5 December 2016. Prompt classification of the outbreak as a Grade 2 health emergency by WHO allowed effective response by a multi-sectoral rapid response team that brought the outbreak to a close within 3 months. The last confirmed positive case of RVF

was reported on 22 November 2016. The outbreak was declared over on 14 February 2017. During the epidemic, there were 399 cases (suspected, probable and confirmed), with 33 deaths (case fatality rate: 8.3%).

Samples were collected and sent to the Pasteur Institute in Dakar; they tested positive for RVF. Six out of 13 human samples, and three out of six animal samples, tested positive.

PUBLIC HEALTH RESPONSE

- The cases were notified to WHO on 30 August 2016;
- WHO promptly classified the outbreak as a Grade 2 health emergency, and established a multi-sectoral rapid response team at country level;
- WHO deployed more than 20 experts with specialties in surveillance, entomology, laboratory investigation, communication and logistics;
- Capacity was strengthened with the training of 60 health workers and 428 community workers;
- All partners collaborated with the animal health system and veterinarians.

DISCUSSION

During the last week of September every year, nomadic stockbreeders from neighbouring countries gather with their herds in the In-gall area of Niger to celebrate Cure Salée, which is an annual festival to mark the end of the rainy season. Approximately 2 million cattle and many more small ruminants are in the area during that time. Following the end of the rainy season, nomads move their livestock to other southern sub-Saharan countries and irrigation systems along the Niger River, where pastures are still available. Infected animals are usually in close proximity to their herders, providing fertile ground for transmission of disease by carriers.

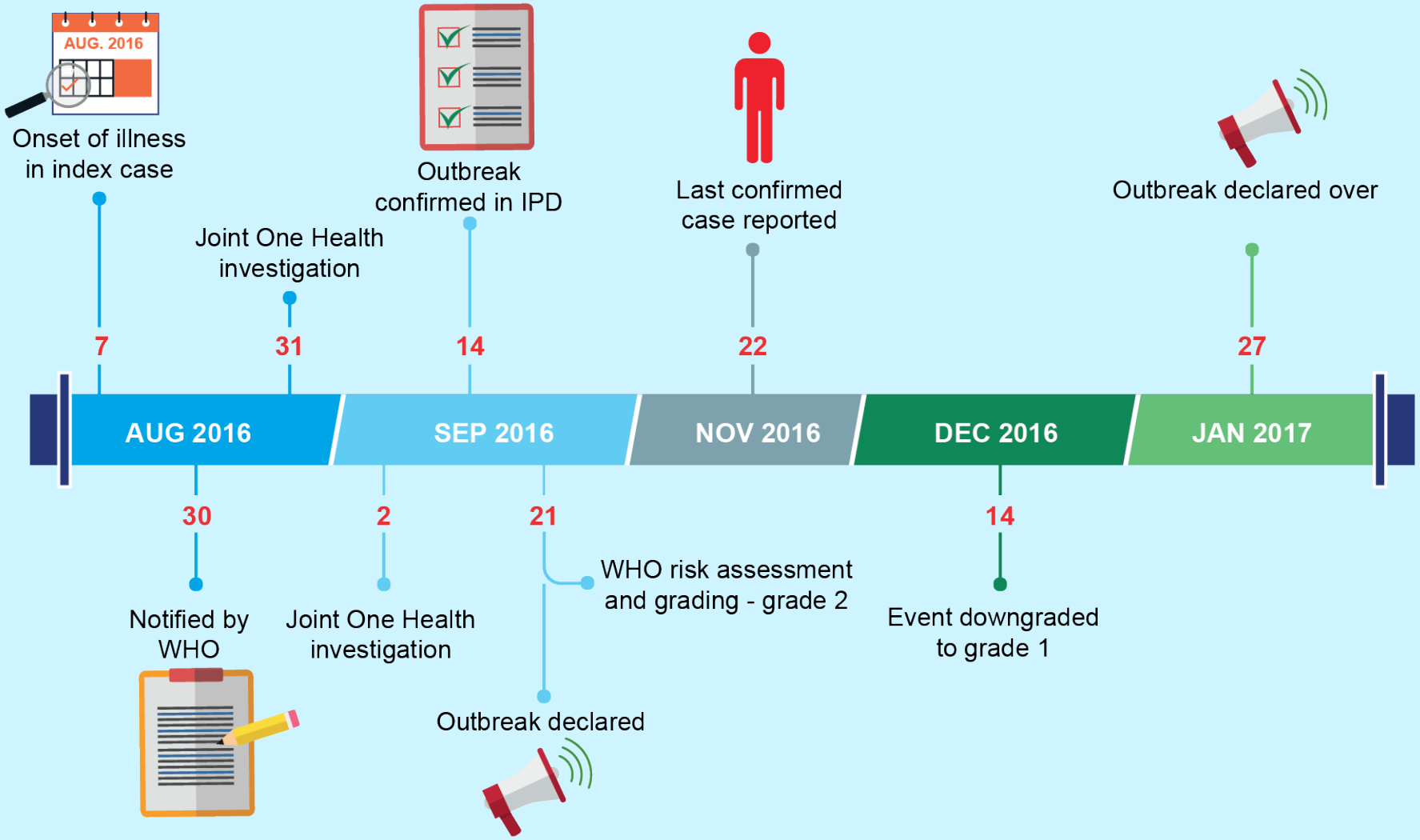
Most humans infected with RVF are asymptomatic, or show relatively mild symptoms. The overall case fatality rate is usually below 1%, although about 3% to 4% of patients develop more severe forms of the disease. In this outbreak, the case fatality rate was high, probably because of poor access to health services within the area of the outbreak, and possibly because the strain of the virus was particularly virulent.

RVF has the potential to impact public health seriously, to lead to major economic losses, and to cause social disruption. It is on the list of diseases to which Annex 2 of the International Health Regulations (2005) should be systematically applied.

Control of this outbreak within 3 months was a good example of the efficacy of a collaborative One Health approach to a zoonotic disease.

WHO/P. Formenty

TIMELINE OF REPORTED EVENTS DURING THE RIFT VALLEY FEVER OUTBREAK IN NIGER, AUGUST 2016 - JANUARY 2017



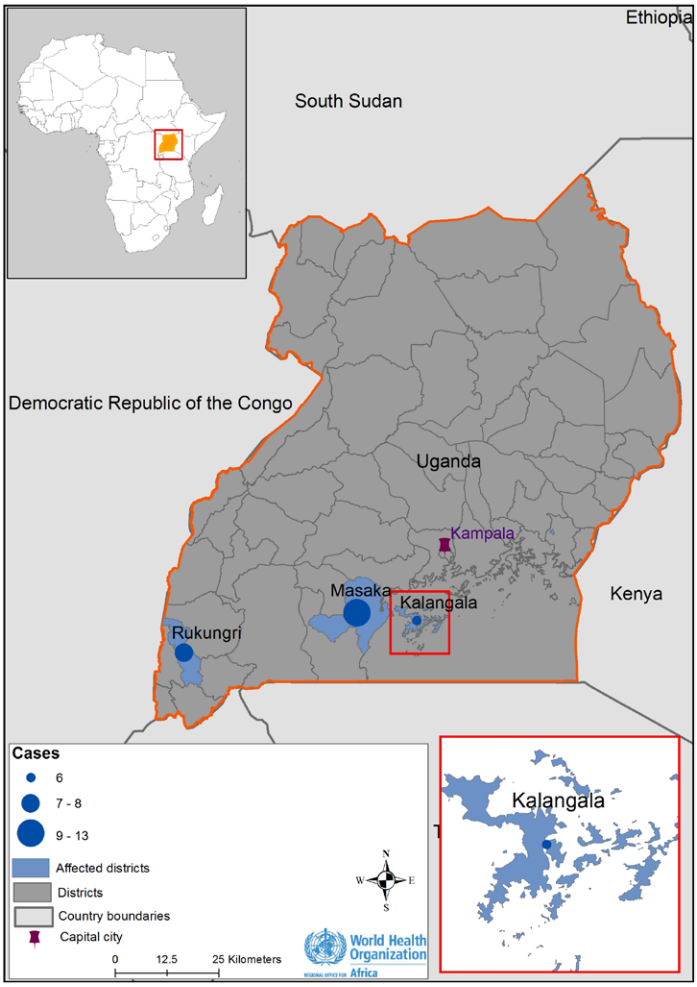
Uganda
Yellow fever

Uganda
Yellow fever

SUMMARY

- Suspected viral haemorrhagic fever (VHF) was reported to the Ministry of Health, Uganda, on 24 March 2016;
- On 7 April 2016, yellow fever was confirmed in three samples by the Uganda Virus Research Institute (UVRI); it was re-confirmed on 21 April by CDC, Fort Collins (WHO collaborating centre for yellow fever);
- Between 24 March and 4 May 2016, there were 65 suspected cases of yellow fever reported, seven of which were confirmed; there were three deaths among the confirmed cases (case fatality rate: 4.6%);
- A reactive vaccination campaign was carried out in all the three affected districts from 19 May to 7 June 2016;
- The outbreak was declared over by the Ministry of Health by 30 June 2016.

Geographic location of the yellow fever outbreak in uganda



EVENT DESCRIPTION

Three cases from one family presented to the Masaka Regional Referral Hospital with high-grade fever, convulsions and loss of consciousness; they were unresponsive to anti-malarial treatment. Since the patients presented with both haemorrhagic and neurological signs, the Ministry of Health deployed a rapid response team (RRT) on 28 March 2016 to work with the Masaka District Health Office to further investigate and respond to a suspected outbreak of VHF. As a result, a treatment centre was set up at the Masaka Regional Referral Hospital. Active community case finding followed, and more samples were collected and sent to the UVRI for testing. Most cases were male, with an average age of 23 years, and no history of travel outside Uganda.

Yellow fever was confirmed in three samples by UVRI on 7 April 2016. This diagnosis was re-confirmed on 21 April 2016 by CDC, Fort Collins (WHO collaborating centre for yellow fever).

After intensification of surveillance activities, yellow fever was also confirmed in Rukungiri and Kalangala districts on 13 April 2016 and 4 May 2016 respectively. Between 24 March 2016 and 4 May 2016, 65 suspected cases of yellow fever were reported, with seven confirmed (five from Masaka, and one each from Rukungiri and Kalangala). Three of the confirmed cases died.

A reactive vaccination campaign was carried out in all the three districts from 19 May to 7 June 2016, achieving overall coverage of 94%. Following this successful campaign, no new cases were confirmed. Between 1 and 30 June 2016, there was no further evidence of yellow fever transmission. The outbreak was, therefore, declared over by the Ministry of Health.

PUBLIC HEALTH RESPONSE

- The Ministry of Health deployed a RRT on 28 March 2016 to work with the Masaka District Health Team to further investigate and respond to this suspected outbreak of VHF;
- Once yellow fever was confirmed, WHO and its partners (CDC, ICG, GAVI and UNICEF) supported the Ministry of Health in conducting reactive yellow fever vaccination in the three districts in which yellow fever had been confirmed;
- This vaccination campaign targeted all residents of Masaka, Rukungiri and Kalangala, and was implemented from 19 to 22 May 2016 in Masaka and Rukingiri and from 4 to 7 June 2016 in Kalangala District;
- A total of 627 706 people aged 6 months and above were vaccinated – 273 447 in Masaka, 304 605 in Rukungiri and 49 654 in Kalangala districts;
- Overall vaccination coverage of 94% (above the WHO recommendation of 90%) was achieved in the three districts – 91% in Masaka, 97% in Rukungiri and 95% in Kalangala;
- The PHEOC coordinated one month of enhanced yellow fever surveillance in the 17 districts that surround the districts in which there had been confirmed cases (Bukomansimbi, Kalungu, Lwengo, Rakai, Lyantonde, Sembabule, Kiuhura, Mbarara, Mitooma, Sheema, Bushenyi, Rubirizi, Ntungamo, Buhweju, Isingiro, Kabale and Kanungu).

DISCUSSION

Uganda is situated in the 'yellow fever belt' of Africa, and is considered a country at risk of yellow fever virus transmission. The present outbreak occurred in the context of international export of yellow fever cases from Angola to China, the Democratic Republic of the Congo, and Kenya. The affected districts were in south-western Uganda, close to the borders of the Democratic Republic of the Congo, Rwanda and Tanzania. There is substantial movement of people across these borders, facilitating transmission of the virus.

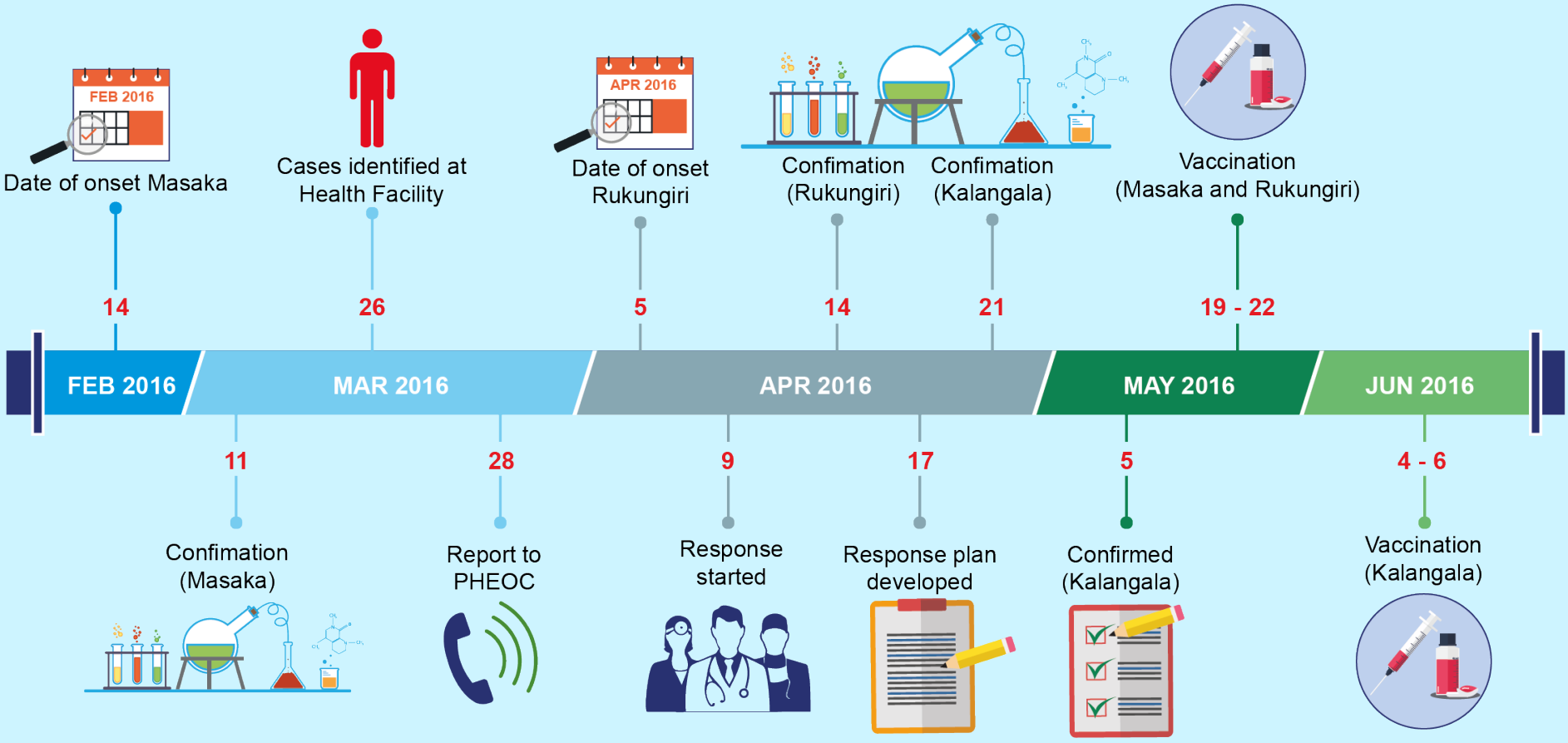
Successful containment of the outbreak can be attributed to prompt action by national and local health authorities. This involved early deployment of an RRT, speedy laboratory confirmation of yellow fever, active case finding and surveillance, and the early initiation of a mass reactive vaccination campaign.

Disease surveillance is ongoing, and there are continuing efforts to ensure that the risk of re-introduction of yellow fever by international travellers is minimized, with the recommendation of mandatory vaccination of people travelling from high-risk countries into Uganda.

The Angolan military administers yellow fever vaccines at a market in Luanda, the capital city.

Credit: EPA

TIMELINE OF REPORTED EVENTS DURING THE YELLOW FEVER OUTBREAK IN UGANDA, FEBRUARY - JUNE 2016



GENERAL DISCUSSION

This group of reports highlighting outbreaks that were successfully managed and declared over show a number of patterns in the Region. There are many common transmissible diseases with a range of etiologies. Ebola virus disease, for example, is linked to consumption of game (not discussed in these reports), and we know that the virus itself originates in fruit bats across west and central Africa. This zoonosis is easily transmitted from human to human, and can consequently cause large and potentially deadly outbreaks and significant morbidity and mortality. Other zoonoses, such as Rift Valley fever (RVF) and Crimean-Congo haemorrhagic fever (CCHF), are far less readily transmitted between humans, relying more on intermediate vectors. This means that their spread is less rapid, but can still cause major morbidity and mortality. The recent outbreak of RVF had a high case fatality rate of 8.3%. However, morbidity and mortality is rarely of the scale that was seen in Ebola virus disease in 2014, for example. Control of zoonoses relies on the One Health approach that involves both human and veterinary medical surveillance. In the case of RVF, control requires the collaboration of agricultural authorities as well. However, controlling the consumption of game and the movement of nomadic herders and their livestock will remain a major challenge across the Region.

What each outbreak has shown is the generally suboptimal health infrastructure available throughout the Region. This is also often compounded by security concerns caused by conflicts and large-scale movements of people escaping them. The poor infrastructure ranges from lack of healthcare facilities and personnel, to inadequate laboratory facilities within countries, and the absence of routine vaccination coverage. Indeed, the fact that there are no articles covering diseases such as measles, shows that these outbreaks are widespread and ongoing across the Region. And, while they may be controlled at a very local level, they are a constant threat, as malaria outbreaks have shown. Poor sanitation, poor hygiene, and lack of potable water go hand-in-hand with these inadequate facilities. Consequently, cholera outbreaks are seldom controlled as quickly as was the recent case in Malawi.

Although climate change is not specifically mentioned in any of the reports, it is impossible to look at patterns of disease, at movements of people, and indeed, at conflicts in general, without some mention of this major global factor, which is affecting Africa particularly severely. With drought, unseasonal rainfall patterns, and temperature anomalies come famine as a result of crop failure, changes in movement of livestock, and increased conflict over ever-more-difficult-to-access resources, leading to mass movements of people. Changes in the distribution of vectors, such as the mosquitoes that transmit yellow fever and other diseases, will also result from climate change.

However, what each disease outbreak covered has also shown is that various partners in humanitarian action, guided and coordinated by WHO, are able to mount rapid and effective responses to these diseases, reducing their spread, and containing morbidity and mortality in the affected areas.

CONCLUSION

This Compendium of Short Reports on Selected Outbreaks in the WHO Africa Region (2016-2017) covers seven outbreaks, all of which were successfully contained. The spectrum of disease varied widely, from Ebola virus in Democratic Republic of the Congo to meningitis in Nigeria and included an unsual instance of meningococcal septicaemia in Liberia. The compendium is intended to highlight the response of the WHO Health Emergencies Programme in a few selected situations. The common features of the outbreaks were that they were of known epidemic-prone diseases, the relevent authorities promptly recognised a potential outbreak situation and appropriate responses were initiated, in some cases even before a definitive diagnosis of the disease was made. This allowed the necessary steps for outbreak control to take place.

A systematic approach to documenting the presentation, evolution, epidemiology and public health responses to outbreaks that have been successfully controlled – even if over a relatively long period of time – will allow an archive of best practice to build up, for reference in similar situations. While it is understood that emergency responses are, by their very nature, reactive, systematic documentation provides a proactive background against which to plan for future events.

World Health Organization
REGIONAL OFFICE FOR Africa