

# WEEKLY BULLETIN ON OUTBREAKS AND OTHER EMERGENCIES

Week 50: 10 - 15 December 2017  
Data as reported by 17:00; 15 December 2017



**2**

New events

**47**

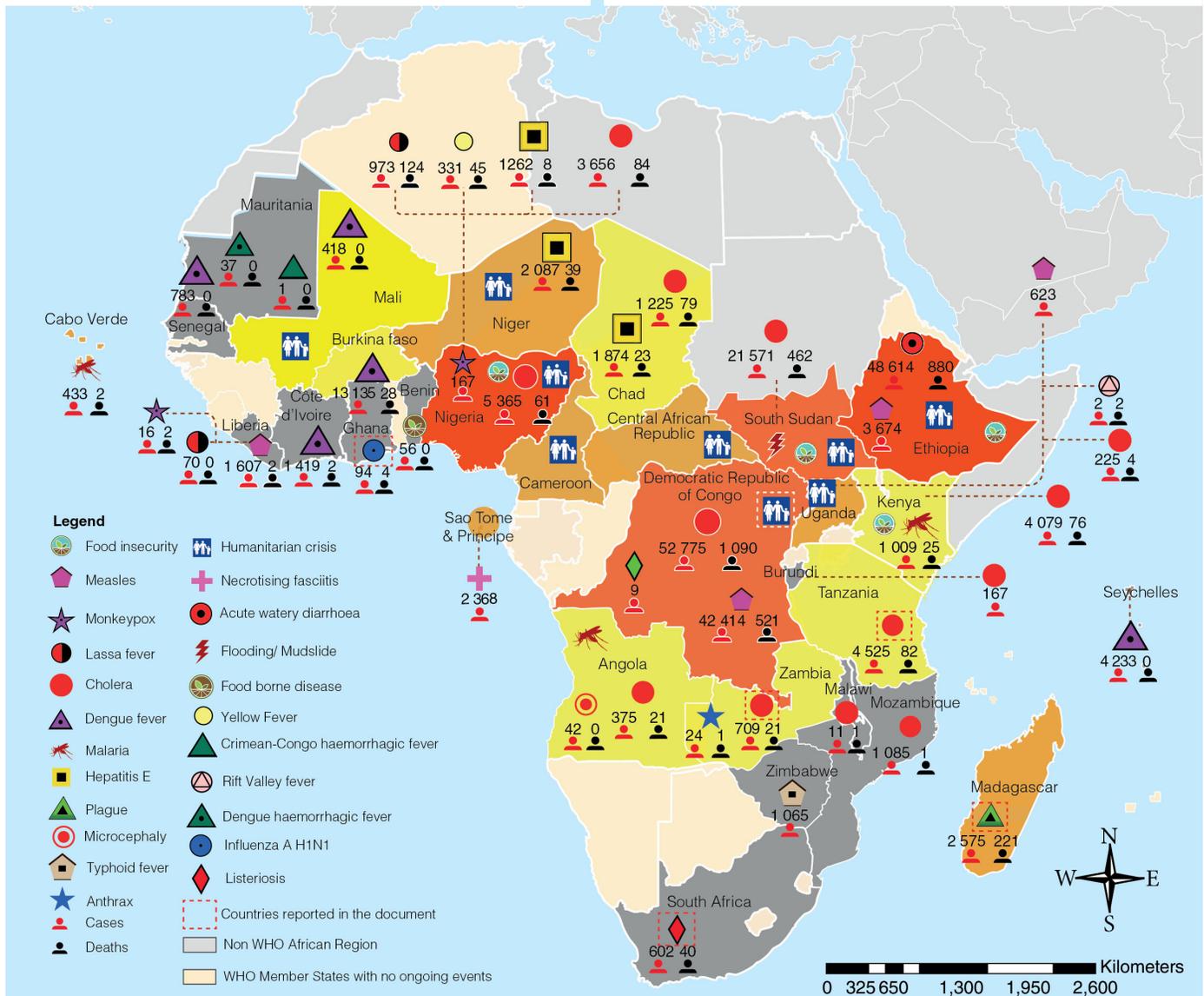
Ongoing events

**41**

Outbreaks

**8**

Humanitarian crises



**2**

Grade 3 events

**6**

Grade 2 events

**8**

Grade 1 events

**30**

Ungraded events

**2**

Protracted 3 events

**0**

Protracted 2 events

**1**

Protracted 1 event

# Overview

## Contents

- 1 Overview
- 2 - 7 Ongoing events
- 8 Summary of major challenges and proposed actions
- 9 All events currently being monitored

- This Weekly Bulletin focuses on selected acute public health emergencies occurring in the WHO African Region. The WHO Health Emergencies Programme is currently monitoring 49 events in the region. This week's edition covers key new and ongoing events, including:
  - Influenza A H1N1 pdm09 in Ghana
  - Listeriosis in South Africa
  - Plague in Madagascar
  - Cholera in Zambia
  - Cholera in Tanzania
  - Humanitarian crisis in the Democratic Republic of the Congo.
- For each of these events, a brief description followed by public health measures implemented and an interpretation of the situation is provided.
- A table is provided at the end of the bulletin with information on all new and ongoing public health events currently being monitored in the region, as well as events that have recently been closed.
- **Major challenges include:**
  - The flare-up of cholera in Zambia and the resurgence of the disease in Tanzania are concerning. Additionally, the high cholera case fatality rates being observed in Zambia, Tanzania and the Democratic Republic of the Congo require urgent attention.
  - The humanitarian crisis in the Democratic Republic of the Congo continues to deteriorate. The forecast for 2018 indicates that over 13 million people will require humanitarian assistance. This complex emergency requires concerted efforts by the international community to address the root cause of the conflict and alleviate the suffering of the people.

# Ongoing events

Influenza A H1N1

Ghana

94  
Cases

4  
Deaths

4.3%  
CFR

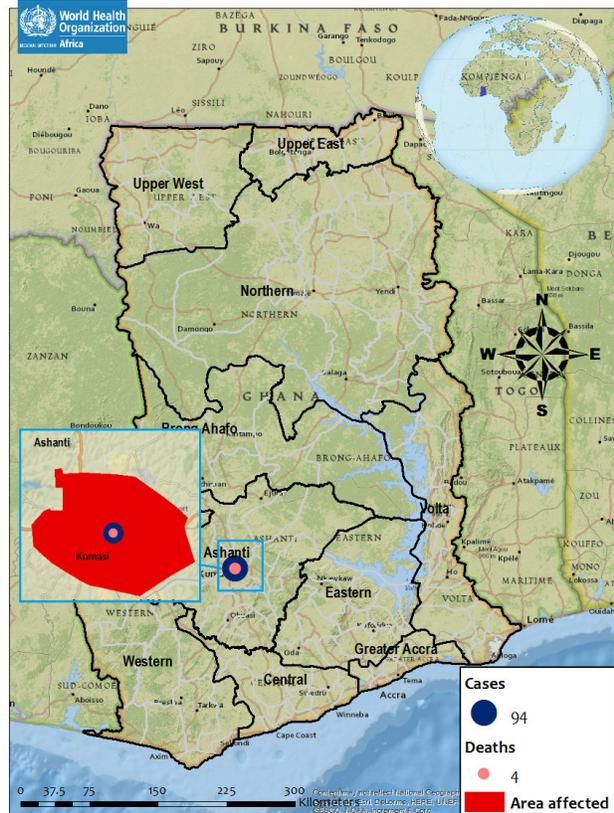
## EVENT DESCRIPTION

WHO is closely monitoring the institutional outbreak of influenza A H1N1 in Kumasi, Ghana's second largest city. Since our last report on 8 December 2017 (Weekly Bulletin 49), 17 additional cases have been reported. However, no new cases have been reported since 12 December 2017 and no new deaths have occurred since 5 December 2017. Between 29 November and 14 December 2017, a cumulative total of 94 cases with 4 deaths (case fatality rate 4.3%) have been reported. The last two cases on admission were discharged on 14 December 2017. Ninety-five percent of the reported cases are students, while three health staff and one member of the teaching staff have been affected. The ages of the affected people ranges from 13 to 35 years, with 99% between 13 and 20 years. The majority of the cases, 66%, are males.

The etiology of the cluster of acute febrile illness and the four fatal cases has been attributed to influenza A H1N1 pdm09, following positive test results in 12 (out of 19) throat swabs issued on 6 December 2017 by the National Influenza Centre, Noguchi Memorial Institute for Medical Research (NMIMR). Similar positive test results in 7 (out of 25) throat swabs were obtained from Kumasi Centre for Collaborative Research (KCCR) on 7 December 2017. Extensive investigations to definitively confirm the etiology of the outbreak, including characterisation of the influenza A H1N1 pdm09, are ongoing.

Previously, 26 blood specimens tested negative for Ebola, Marburg and Lassa fever viruses. Legionella urine antigen test was also negative. Tests for arboviruses, including yellow fever, dengue, chikungunya, and Zika viruses were all negative. Specimens analysed were also negative for meningitis and common causes of encephalitis (enterovirus, herpes simplex virus and varicella zoster). Pastorex rapid diagnostic tests were negative for *Neisseria meningitidis* types A/C/W, *Haemophilus influenzae* type B, *Escherichia coli*, *Streptococcus pneumoniae*, and *Streptococcus* group B. Cell counts, clinical chemistry, and blood and cerebrospinal fluid cultures were all negative.

Geographical distribution of influenza A H1N1 cases in Ghana, 29 November - 12 December 2017



## PUBLIC HEALTH ACTIONS

- ▶ On 14 December 2017, the WHO Director General held a meeting with the Minister of Health of Ghana to discuss the ongoing outbreak of influenza A H1N1 pdm09 in the country. Following the meeting, the Director General donated 5 000 treatment courses of Tamiflu, scheduled to arrive in the country on 16 December 2017. Additionally, the WHO Regional Office for Africa donated 10 000 doses of influenza vaccine.
- ▶ The Minister of Health and the WHO Representative held a press briefing to inform the public and provide updates on the outbreak.
- ▶ The National Technical Coordinating Committee and subcommittees (risk communication, case management, surveillance, etc.) have been activated to coordinate response to the outbreak.
- ▶ The Ministry of Health deployed a multi-disciplinary rapid response team to Kumasi to conduct the outbreak investigation and support response actions. WHO provided technical and logistical support to the investigation mission.
- ▶ Active surveillance has been enhanced: a case definition was developed and active case search is being done among students and staff at the school and the four healthcare facilities that treated the ill students. Suspected cases are being line listed.
- ▶ Four hospitals in Kumasi have been designated as isolation and treatment centres. Doctors have been assigned to the school Sick Bay to provide high level pre-referral care to students. WHO made available 200 sets of personal protective equipment (PPE) to support case management
- ▶ Public health education and community sensitization are ongoing. The Public Health Directorate has granted media interviews to provide updates on the outbreak and actions being taken.
- ▶ Simple messages on infection prevention and control have been developed for education at the school.

## SITUATION INTERPRETATION

The institutional outbreak of influenza A H1N1 pdm09 continues to raise public health and media attention. An additional concern is the fact that most of the students have dispersed to their various communities. Efforts to definitively validate the etiology of this event are ongoing, with the investigations taking an all-hazard approach.

[Go to overview](#)

[Go to map of the outbreaks](#)

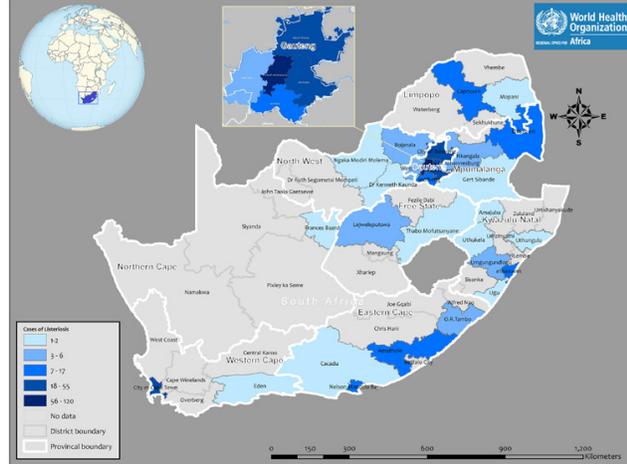
02

**EVENT DESCRIPTION**

The outbreak of listeriosis in South Africa continues to evolve. Since our last report on 8 December 2017 (Weekly Bulletin 49), 45 new confirmed cases and four deaths have been reported, as of 13 December 2017. Between 1 January and 14 December 2017, a total of 603 confirmed cases have been reported across all nine provinces in South Africa. Of 77 (13%) cases with known outcome, 40 (52%) have died, giving an overall case fatality rate of 6.6% (among confirmed cases). Gauteng Province remains the most affected, accounting for 61% (370) of the reported cases, followed by Western Cape (79, 13%) and KwaZulu-Natal (43, 7%). Where age was known (581 cases), the ages ranged from birth to 93 years, with a median of 26 years. Thirty-eight percent (219) of the cases are neonates aged 28 days and below, and over 50 cases were aged 65 years and above. Among the neonates, 96% (210) had early-onset disease (from birth to less than 6 days). Females account for 54% (316) of cases.

In the majority of cases (71%, 425), diagnosis was based on isolating *Listeria monocytogenes* in blood culture, followed by CSF (24%, 146). To date, whole genome sequencing has been performed on 206 clinical *L. monocytogenes* isolates. Fifteen sequence types (STs) have been identified; however, 74% (153) belong to a single ST (ST6). Isolates in this ST6 cluster are very closely related, showing fewer than 20 single nucleotide polymorphism (SNP) differences. Given the similarity of the WGS among clinical isolates, it is being hypothesized that most primary cases (i.e. excluding neonates) have been exposed to a widely available common food type/source.

Geographical distribution of listeriosis cases in South Africa, 1 January - 29 November 2017

**PUBLIC HEALTH ACTIONS**

- ▶ A national multisectoral response team has been put in place to investigate and respond to the outbreak, with a focus on identifying the source.
- ▶ The national authority in South Africa has made listeriosis a notifiable medical condition and this has been communicated to healthcare workers and practitioners to enhance case detection.
- ▶ Active surveillance has been enhanced, including line listing of cases. One call centre has been established for the public and another one for clinicians. New cases are being notified and investigated further. Retrospective investigations of historical cases are also ongoing. Health staff have been deployed to health facilities to follow up on the outcomes of all the recorded cases who tested positive for listeriosis.
- ▶ Epidemiological and environmental investigations to identify possible food type or sources to this outbreak are ongoing. Public and private laboratories have been requested to submit clinical isolates to the National Institute for Communicable Diseases (NICD). Environmental health practitioners are visiting homes to determine history of food intake of patients. In addition, food industry stakeholders have been requested to submit isolates to the NICD, along with details of *Listeria*-positive food/food processing environmental samples.
- ▶ Clinical management guidelines have been disseminated to all health practitioners.
- ▶ The National Department of Health and the NICD have conducted about 50 radio and television interviews on listeriosis, stressing the importance of food safety. There is a need for every province to disseminate the same public health education messages locally.

**SITUATION INTERPRETATION**

Efforts to identify the source of the listeriosis outbreak in South Africa are ongoing. Before this event, listeriosis was not a notifiable medical condition in South Africa and, therefore, limited epidemiological data are available on the disease. Additionally, limited food consumption history data is available from the cases. Historically, outbreaks or clusters of listeriosis have been linked to a wide variety of food items, including dairy products, ready-to-eat meat and seafood products, and vegetables and fruit, which are commonly consumed in South Africa. In this outbreak, no specific food item/s or food consumption patterns have yet been linked or identified. This means that the exposure source (or sources) may still be in the community and new cases associated with this outbreak may continue to occur. In which case, at-risk groups, primarily pregnant women, the elderly and immune-compromised people (for example people with acquired immune-deficiency syndrome and those on cancer therapy) are advised to avoid high risk foods such as dairy products made from unpasteurized milk, soft cheeses, deli meat products (ready-to-eat meat cuts, patés, etc.), ice creams, raw vegetables, raw seafood, crustaceans, and shellfish.

### EVENT DESCRIPTION

WHO continues to support the Ministry of Public Health and other national authorities in Madagascar to monitor and respond to the outbreak of plague. The number of new cases and hospitalizations of patients due to plague is declining. In week 49 (week ending 10 December 2017), 33 new cases and four deaths (case fatality rate 12%) were reported, compared to 89 cases and no deaths reported in week 48. The date of onset of the last confirmed bubonic case was 5 December 2017 and that of the last confirmed pneumonic case was 3 December 2017.

From 1 August to 10 December 2017, a total of 2 575 confirmed, probable and suspected cases of plague, including 221 deaths (case fatality rate 9%), have been reported from 58 of the 114 districts in the country. Of these, 1 985 (77%) were clinically classified as pulmonary plague, 377 (15%) were bubonic plague, one was septicaemic, and 212 were not yet classified (further classification of cases is in process). Of the 1 985 clinical cases of pneumonic plague, 393 (20%) have been confirmed, 626 (32%) are probable and 966 (49%) remain suspected (additional laboratory results are in process). Thirty-three isolates of *Yersinia pestis* have been cultured and are sensitive to antibiotics recommended by the National Plague Control Programme.

In epidemiological week 49, the Analamanga Region has been the most affected, with 82% (27/33) of reported cases. All 7 494 contacts identified since the beginning of the outbreak have completed their 7-day follow up and a course of prophylactic antibiotics.

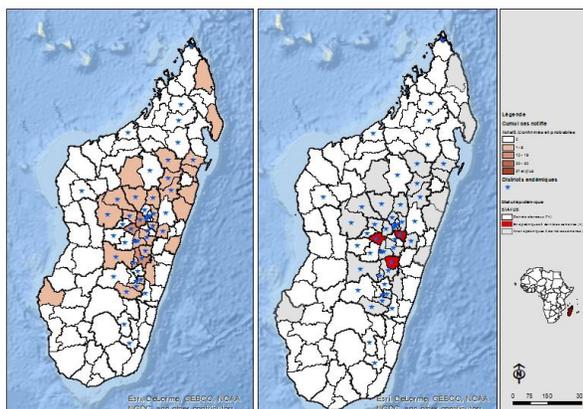
### PUBLIC HEALTH ACTIONS

- ▶ An interim review of the response to the plague outbreak was conducted from 10 to 12 December 2017. The review was organized by WHO, with participation from the Ministry of Public Health, UN agencies, and other partners who contributed to the response.
- ▶ Active surveillance is ongoing in a total of 260 public and private healthcare facilities in Analamanga region.
- ▶ An investigation of two probable plague cases that occurred in the district of Andramasina is ongoing.
- ▶ Sixty healthcare providers in Analamanga region were trained on infection prevention and control and prevention from 12 to 13 December 2017. Training of 29 trainers for Antsirabe, Fianarantsoa and Tamatave Regions is ongoing.
- ▶ The Ministry of Public Health is developing a memorandum regarding the maintenance of health screening measures at the points of entry to the country until the end of the plague season (in April 2018).

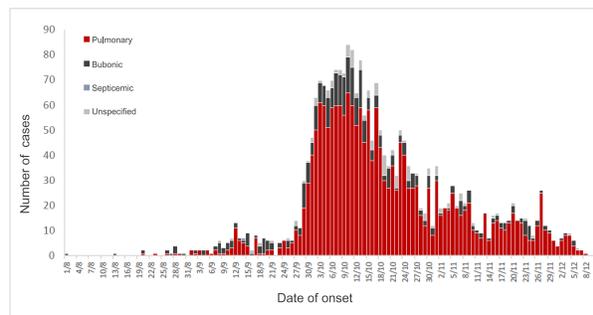
### SITUATION INTERPRETATION

The acute urban pneumonic plague outbreak has been contained, but vigilance must be maintained to prevent flare ups during the remainder of plague season in Madagascar. All stakeholders are urged to sustain the ongoing response operations until the end of the usual plague season in April 2018. WHO appreciates the collaboration of all partners and donors for their vital support to the plague response in Madagascar and for the contributions to the Contingency Fund for Emergencies, which facilitated efficient and timely joint response to the outbreak.

Geographical distribution of confirmed and probable pneumonic plague cases in Madagascar, 1 August through 10 December 2017



Epidemic curve of confirmed, probable, and suspected cases of plague in Madagascar 1 August – 10 December 2017



### EVENT DESCRIPTION

The cholera outbreak in Zambia continues to evolve, especially in Lusaka District where there is high transmission intensity. Since our last report on 8 December 2017 (Weekly Bulletin 49), a total of 162 new suspected cases, with five deaths (case fatality rate 3.1%), have been reported. On 12 December 2017, 38 new suspected cases were registered and there were 48 patients undergoing treatment at different cholera treatment centres (CTCs). As 12 December 2017, a cumulative total of 709 suspected cholera cases, including 21 deaths (case fatality rate 3%), were reported in the country, since the onset of the outbreak on 4 October 2017. Most, 99%, of the cases originate from 21 townships of Lusaka District. The cumulative number of cases and deaths from Lusaka District is 699 and 20, respectively (case fatality rate 2.9%), with an attack rate of 29/100 000 populations.

By 11 December 2017, a total of 362 biological samples and 420 environmental samples were received at the University Teaching Hospital (UTH) bacteriology laboratory and the Food and Drug Laboratory, respectively. Of the specimens tested at UTH, 84 were positive for *Vibrio cholerae*, four for *Salmonella* spp and five for *Shigella* spp. Of the samples tested at the Food and Drug Lab, 206 were positive for faecal coliforms and 42 were positive for *V. cholerae*.

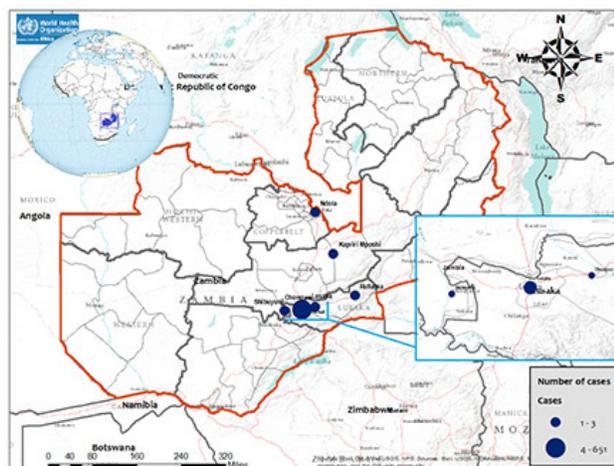
### PUBLIC HEALTH ACTIONS

- ▶ The Ministry of Health is collaborating with WHO and partners to respond to the cholera outbreak. Six local incident command posts are currently operational in Chawama, Chipata, Kanyama, Matero, Chelstone and Chilenje, each lead by a public health specialist.
- ▶ The Zambia National Public Health Institute (ZNPHI) is supporting investigations into circulating *V. cholerae* strains and clusters, resistance genes and isolates from water sources versus those from patients. In addition, ZNPHI is conducting analysis of transmission patterns among clusters of cases, conducting knowledge, attitude and practice (KAP) surveys, testing for residual chlorine in Chipata and Kanyama, mortality review of all deaths, and a case-control study in Chipata.
- ▶ As of 11 December 2017, Lusaka City Council has buried 40 shallow wells, emptied 64 septic tanks and collected 780 tonnes of waste. Inspection of premises is ongoing, along with disinfection of houses and toilets, and distribution of chlorine solution and soap.
- ▶ WHO has donated oral rehydration solution, intravenous fluids and giving sets, antibiotics, diagnostic kits, cadaver bags, and gloves to the CTCs.
- ▶ So far, there have been six press briefings and information is being communicated through radio broadcasts and by local drama groups. Door-to-door outreach is ongoing and information, education and communication (IEC) materials are being distributed.
- ▶ On 11 December 2017, a call centre was activated at the Disaster Management and Mitigation centre (DMMU) to facilitate provision of information.

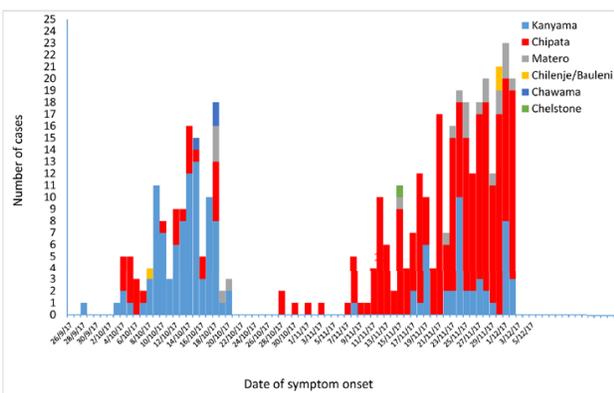
### SITUATION INTERPRETATION

The continuous propagation of cholera in Zambia, particularly in the suburbs of Lusaka District where transmission is intense, and the high case fatality rates are of concern. This is an indication that the ongoing control interventions are not adequate to interrupt transmissions of infections and reduce mortality. The current interventions need to be critically examined and refocused. Some of the risk factors for continuous propagation have been identified, including consumption of unsafe water from shallow wells. It is also known that communities have resisted capping of the shallow wells (which are deemed as sources of infection) because of a lack of alternative water supplies. The water, sanitation and hygiene issues at the centre of this outbreak need to be addressed swiftly in order to break the transmission chain. The challenges of insufficient staff and beds at the CTCs, particularly in Chipata, also need to be urgently addressed, as well as delay in seeking treatment by suspected cases. The national authorities and partners need to mobilize the required resources and implement appropriate control measures to ensure that the outbreak is brought to a speedy end.

Geographical distribution of cholera cases in Zambia,  
1 - 12 December 2017



Cholera epidemic curve by sub-district in Zambia,  
28 October - 3 December 2017

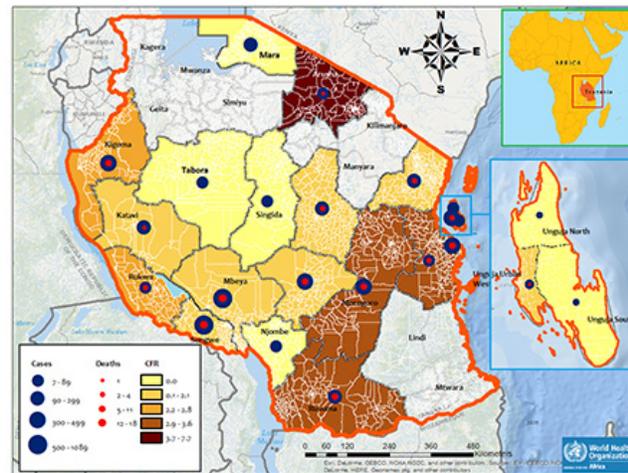


**EVENT DESCRIPTION**

The flare-up of cholera in Tanzania mainland continues, with new areas being affected. There has been resurgence of cholera in Dar es Salaam in week 47, after 20 weeks of zero reporting. In addition, Ruvuma Region has been affected in week 48 for the first time since the beginning of the outbreak. In week 49 (week ending 10 December 2017), a total of 217 new suspected cholera cases, including five deaths (case fatality rate 2.3%), were reported from eight (out of 26) regions in Tanzania mainland. Similarly, in weeks 48, 216 cases with eight deaths (case fatality rate 3.7%) were reported, compared to 117 cases and four deaths (case fatality rate 3.4%) reported in week 47. Ruvuma (87 cases) and Songwe (73 cases) Regions accounted for 74% of the caseload during the reporting week.

In 2017, a total of 4 525 cholera cases and 82 deaths (case fatality rate 1.8%) have been reported in the United Republic of Tanzania (Tanzania mainland 4 167 cases and 78 deaths; Zanzibar 358 cases and four deaths). Zanzibar continues to report zero cholera cases since its last documented case on 11 July 2017. However, high population movement from Tanzania mainland still poses a risk of spread to the island.

Geographical distribution of cholera cases in Tanzania,  
28 September - 10 December 2017

**PUBLIC HEALTH ACTION**

- ▶ WHO and partners (UNICEF and CDC) continue to support the Ministry of Health (MoH) in the implementation and monitoring of cholera control activities.
- ▶ The National Cholera Response Plan has been reviewed and validated by MoH and the stakeholders on 15 December 2017.
- ▶ The MoH deployed a national rapid response team to Ruvuma Region to support local response efforts.
- ▶ Community sensitization and awareness through local radio, television and social media is ongoing.
- ▶ UNICEF is supporting water, sanitation and hygiene (WASH) activities, including promotion and distribution of aqua tabs for household level water treatment in the affected communities.
- ▶ Zanzibar is progressing to develop a 10-year cholera elimination plan.

**SITUATION INTERPRETATION**

The continuous propagation and resurgence of cholera in Tanzania is concerning. The country remains vulnerable to further upsurge of cases and resurgence throughout the country. All pillars of cholera control interventions, including active surveillance, WASH, case management, and community engagement require strengthening. The closure of the fishing camps along Lake Rukwa on the Songwe border, forced the fishermen to move further south to Kyela District, which borders Malawi's Karonga District. Malawi recently reported a cholera outbreak in Karongo. Cross-border population movement between the two countries might further increase the risk of cholera transmission in Malawi.

## EVENT DESCRIPTION

The humanitarian crisis in the Democratic Republic of the Congo has dramatically deteriorated in recent months, as a result of intensified armed conflicts and intercommunal tensions in several parts of the country. On 7 December 2017, an operational base of the UN Stabilization Mission (MONUSCO) in Beni, North Kivu Province was attacked by armed elements, causing scores of deaths and injuries among UN peacekeepers. The crisis has deepened and spread, affecting people in areas previously considered stable, stretching the coping mechanisms of people in areas already impacted. The Kasai region, South and North Kivu and Tanganyika Provinces have been most affected in the latest spate of violence.

In 2017, more than 1.7 million people were forced to flee their homes, an average of 5 500 people per day. By October 2017, 4.1 million people were internally displaced, the highest number on the African continent. At least 8.5 million people are in need of humanitarian assistance and protection. Humanitarian partners estimate that 13.1 million Congolese will require humanitarian assistance and protection in 2018, as a result of heightened violence and the precarious food security situation. The most recent Integrated Food Security Phase Classification (IPC) analysis in June 2017 showed a serious deterioration in food and nutrition security, with 7.7 million people facing acute food insecurity and livelihood crisis (IPC 3 and 4), compared to 5.9 million at the same time in 2016. An estimated 1.9 million children will face severe acute malnutrition this year. Eighteen of the country's 26 provinces are affected to varying degrees by the impact of humanitarian crisis. A recent statement issued by UNICEF warned that more than 400 000 children are severely malnourished and could die within months without emergency intervention.

The cholera outbreak has been steadily declining since week 35, when the incidence peaked in excess of 2 000 cases per week. During week 48 (week ending 27 November - 3 December 2017), 1 137 new suspected cholera cases and 29 deaths (case fatality rate 2.6%) were reported, compared to 1 647 cases and 37 deaths (case fatality rate 2.0%) in week 47. However, increasing incidence was observed in Haut-Lomami, Ituri, Luluaba, and Maniema Provinces. Case fatality rates remain as high as 5% in Kasai, Kongo central, Sankuru, and Maniema Provinces. In 2017, a cumulative total of 52 775 cases, including 1 090 deaths (case fatality rate 2.1%) have been reported, as of 3 December 2017.

The measles outbreak continues, with 537 suspected cases and three deaths (case fatality rate 0.6%) reported in week 48, compared to 657 suspected cases and two deaths (case fatality rate 0.3%) in week 47. In 2017, a total of 42 377 measles cases, including 521 deaths (case fatality rate 1.2%) were registered in the country, as of 3 December 2017.

## PUBLIC HEALTH ACTIONS

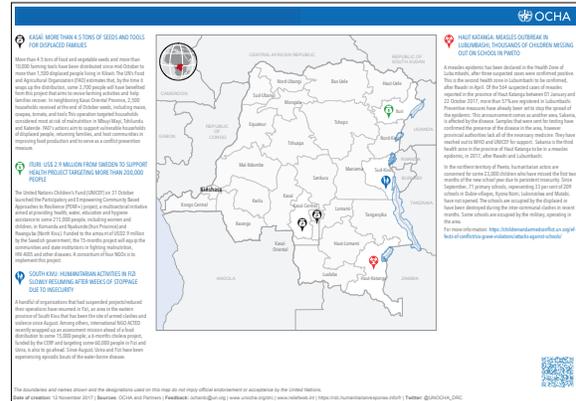
- ▶ WHO in the African Region has approved US\$ 328 000 from the African Public Health Emergency Fund (APHEF) to support strengthening response operations to the humanitarian crisis in the Democratic Republic of the Congo. The funding will go towards deploying over 500 community volunteers to conduct community interventions, enhancing supportive supervision of ongoing activities and provision of cholera kits and essential medicines.
- ▶ WHO has established its first Health Emergency Hub in Kananga, following activation of the UN-system-wide Level 3 emergency. Critical emergency response staff, including a hub coordinator, a health cluster coordinator, an information management officer, and a health operation expert, have been deployed to coordinate and support response operations.
- ▶ WHO is supporting establishment of a pilot community-based disease surveillance system in Kananga, aimed to facilitate early detection of suspected cases and enforce community interventions.
- ▶ WHO is scaling up its support to the cholera response, especially in the hotspots. WHO supported the Ministry of Health to mount a response in newly affected sites in two health zones in Lomami Province, three health zones in Kasai Province, and one health zone in Sankuru Province. The response operations are being handed over to health partners, namely MSF and ALIMA. Two health zones (Dekese and Bulape) are experiencing an increase in the number of suspected cholera cases and deaths. WHO is working the Division Provincial de la Santé to set up an appropriate response.
- ▶ WHO is continuously monitoring the national response to the measles outbreak. WHO and the health partners are supporting the Ministry of Health to plan for a measles vaccination campaign in the six health zones of South Kivu (Nyangezi, Nyantende, Walungu), targeting 255 513 children between 6 months and 15 years of age.
- ▶ In response to the humanitarian crisis in the Kasai region, WHO continues to support eight health zones in Kasai, Kasai central and Kasai oriental Provinces to provide free primary healthcare services to affected populations, including provision of medicines and operating costs of health facilities.

## SITUATION INTERPRETATION

The humanitarian situation in the Democratic Republic of the Congo has deteriorated in recent weeks, as fresh fighting erupts across the country, forcing thousands to flee. The forecast for 2018 is gloomy, with more than 13 million people expected to be in need of shelter, food, clean water, sanitation, and healthcare. There is an urgent need to scale up provision of life-saving interventions to the population in need. Additionally, aid actors and the donor community are called upon to provide the necessary funds in order to avert the predicted poor situation in the coming year.

While the cholera outbreak is declining, the case fatality rates remain very high and this needs to be urgently addressed. Scaling up of cholera control interventions, including improving access to case management facilities as well as strengthening response operations at community level is critical.

## humanitarian snapshot, Democratic Republic of the Congo, 06 - 12 November 2017



# Summary of major challenges and proposed actions

## Challenges

- ▶ The incidence of cholera in Zambia is rapidly increasing, particularly in Lusaka District where transmission is intense. In Tanzania, the cholera outbreak is spreading to new areas, including Dar es Salam and Ruvuma Region. Cholera case fatality rates have remained very high in both countries, as well as in the Democratic Republic of the Congo, ranging from 3 - 5% (exceeding the 1% mark set by WHO). On a positive note, the cholera trend in the Democratic Republic of the Congo is steadily declining. The ongoing cholera outbreaks in Zambia and Tanzania require specific attention from the national authorities and partners. Meanwhile, response efforts to the cholera outbreak in the Democratic Republic of the Congo need to be scale up and maintained.
- ▶ The humanitarian crisis in the Democratic Republic of the Congo continues to deteriorate. This week, UNICEF warned that more than 400 000 severely malnourished children could die within months unless emergency interventions are undertaken. The forecast for 2018 indicates that over 13 million people will require humanitarian assistance. Efforts of aid actors to provide the much needed humanitarian assistance are being impeded by restricted access to the people in need and direct violence against aid workers.

## Proposed actions

- ▶ The national authorities and partners in Zambia and Tanzania need to review strategies and ongoing control interventions. This exercise should lead to designing more targeted high-impact interventions, as well as mobilizing additional resources and invigorating the commitment and will to control these outbreaks. While there is a need to scale up cholera response in the Democratic Republic of the Congo, particular focus needs to be directed towards reducing the high case fatality rate.
- ▶ The complex humanitarian emergency in the Democratic Republic of the Congo requires urgent attention by the international community to address the root causes of the conflict and alleviate the suffering of the people. Meanwhile, the humanitarian partners are urged to step up provision of critical life-saving interventions, in spite of the difficult circumstances.

# All events currently being monitored by WHO AFRO

Country	Event	Grade†	WHO notified	Start of reporting period	End of reporting period	Total cases	Confirmed cases	Deaths	CFR	Comments
<b>New events</b>										
Malawi	Cholera	Ungraded	28-Nov-17	20-Nov-17	11-Dec-17	11	2	1	9.1%	During week 47, an outbreak of cholera was detected in Karonga district which borders Tanzania's Kyela district. The index case was reported on 24 November 2017 at Iponga Health Center. Tanzania is also experiencing a cholera outbreak.
Liberia	Suspected Monkeypox	Ungraded	14-Dec-17	1-Nov-16	14-Dec-17	16	0	2	12.5%	During weeks 48 and 49 of 2017, three suspected cases of Monkeypox were reported from Maryland and Rivercess counties. Since November 2016, a cumulative of 16 suspected cases and two deaths have been reported in Grand Cape Mount(4), Rivercess(11) and Maryland(1). No cases have been confirmed to date and laboratory confirmation is ongoing.
<b>Ongoing events</b>										
Angola	Cholera	G1	15-Dec-16	1-Jan-17	22-Oct-17	375	-	21	5.6%	From week 1-42 of 2017, cases have been reported from Cabinda (219), Zaire (151), Luanda (3) and Maquela de Zombo (2). Only one new case (from Maquela de Zombo) was reported in week 42. No new cases have been reported in Luanda since week 4, in Soyo Zaire since week 26, and in Cabinda since week 28.
Angola	Malaria	Ungraded	20-Nov-17	n/a	30-Sep-17	-	-	-	-	The outbreak is ongoing since the beginning of the year. In the province of Benguela, a total of 311 661 malaria cases were reported from January to September 2017 as compared to 244 381 reported in all of 2016. In the province of Huambo, 155 311 malaria cases were reported from January to September 2017, as compared to 82 138 cases during the same period in 2016. Epidemiological investigations are ongoing to better understand the outbreak in these two contiguous provinces.
Angola	Microcephaly - suspected Zika virus disease	Ungraded	10-Oct-17	End September	29-Nov-17	42	-	-	-	A cluster of microcephaly cases was detected in Luanda in late September 2017 and reported on 10 October 2017 by the provincial surveillance system. Of the 42 cases, three were stillbirths and 39 were live births. Suspected cases have been reported from Luanda province (39), Zaire province (1), Moxico province (1), and Benguela province (1).
Benin	Foodborne disease	Ungraded	29-Nov-17	27-Nov-17	1-Dec-17	56	-	0	0.0%	56 individuals residing in Sissèkpa became immediately ill with symptoms of vomiting after consuming a root vegetable locally known as "Léfé". Animals that were exposed to the vomit have reportedly died. The root vegetable has been collected for further analysis. Cases are currently under follow-up.
Burkina Faso	Dengue	G1	4-Oct-17	1-Jan-17	26-Nov-17	13 135	-	28	0.2%	Weekly case counts have decreased since week 44. The majority (61%) of cases were reported in the central region, notably in Ouagadougou (the capital). Dengue virus serotypes 1, 2, and 3 are circulating.
Burundi	Cholera	Ungraded	20-Aug-17	15-Aug-17	6-Dec-17	167	14	0	0.0%	As of 6 December 2017, a cumulative total of 167 cases and no deaths were reported from 6 districts; DS Nyanza lac 30 cases, DS Mpanda 31 cases, DS Cibitoke 35 cases, DS Isare 33 cases, DS Bubanza 31 cases, and DS B M Nord 6 cases.

Country	Event	Grade†	WHO notified	Start of reporting period	End of reporting period	Total cases	Confirmed cases	Deaths	CFR	Comments
Cameroon	Humanitarian crisis	G2	31-Dec-13	27-Jun-17	3-Nov-17	-	-	-	-	In the beginning of November 2017, the general security situation in the Far North Region became worse. Terrorist attacks and suicide bombings are continuing and causing continuous displacement. Almost 10% of the population of Cameroon, particularly in the Far North, North, Adamaoua, and East Regions, is in need of humanitarian assistance as a result of the insecurity. To date, more than 58 838 refugees from Nigeria are present in Minawao Camp, and more than 21 000 other refugees have been identified out off the camp. In addition around 238 000 internally displaced people have been registered.
Cape Verde	Malaria	G2	26-Jul-17	1-Jan-17	19-Nov-17	433	-	2	0.5%	As of 19 November 2017, a total of 433 cases have been reported including 419 indigenous and 18 imported cases. Overall there were two deaths (1 in an indigenous case and 1 in an imported case). The outbreak has been contained to the city of Praia. Cases reported from other areas/islands likely acquired the infection during travel to Praia or overseas, and there is currently no evidence of indigenous transmission outside of Praia.
Central African Republic	Humanitarian crisis	G2	11-Dec-13	11-Dec-13	31-Oct-17	-	-	-	-	The security situation in the Central African Republic has deteriorated in recent weeks, marked by widespread armed clashes across the country. Over 10 communities have been attacked in the past weeks, reportedly resulting in over 100 deaths, mostly civilians. These security incidents continue to cause new internal displacements.
Chad	Hepatitis E	G1	20-Dec-16	1-Aug-16	3-Dec-17	1 874	98	23	1.2%	Outbreaks are ongoing with in the Salamat Region predominantly affecting North and South Am Timan, Amsiné, Mouraye, Foulonga and Aboudeia. The number of cases is decreasing since week 39. Of the 64 cases in pregnant women, five died (CFR: 7.8%) and 20 were hospitalized. Water chlorination activities were stopped at the end of September 2017 due to lack of partners and financial means. Monitoring and case management are continuing.
Chad	Cholera	G1	19-Aug-17	14-Aug-17	12-Nov-17	1 225	6	79	6.4%	The case incidence has been decreasing since week 42. In week 45, 9 new cases were reported in the Salamat region: Am-Timan (2), Mirer (5), Khachkhacha (1) and Mouraye (1). From week 37 to week 45, a total of 789 cases and 27 deaths occurred in Salamat region. No additional cases have been reported in the Sila Region since week 42.
Cote d'Ivoire	Dengue fever	Ungraded	3-May-17	22-Apr-17	26-Nov-17	1 419	322	2	0.1%	Abidjan city remains the epicentre of this outbreak, accounting for 95% of the total reported cases. Of the 272 confirmed cases with available information on serotypes, 181 were dengue virus serotype 2 (DENV-2), 78 were DENV-3 and 13 were DENV-1. In addition, 50 samples were confirmed IgM positive by serology.

Country	Event	Grade†	WHO notified	Start of reporting period	End of reporting period	Total cases	Confirmed cases	Deaths	CFR	Comments
Democratic Republic of the Congo	Humanitarian crisis	G3	20-Dec-16	17-Apr-17	3-Dec-17	-	-	-	-	Detailed update given above.
Democratic Republic of the Congo	Cholera		16-Jan-15	1-Jan-17	3-Dec-17	52 775	841	1,090	2.1%	The trend of the outbreak is improving. During week 48, a total of 1 137 suspected cases and 29 deaths (CFR: 2.6%) were reported, compared to 1 647 suspected cases and 47 deaths (CFR: 2.9%) during week 47. This week, the provinces of Ituri, Lualaba and Maniema experienced an increase in the number of cases compared to week 47.
Democratic Republic of the Congo	Measles		10-Jan-17	2-Jan-17	3-Dec-17	42 414	614	521	1.2%	The trend of the outbreak is improving. During week 48, 537 cases and three deaths (CFR: 0.6%) were reported compared to 657 cases and two deaths week 47 (CFR: 0.3%). The current humanitarian situation disrupted the routine vaccination services, however, vaccination campaigns were conducted early in 2017 and response activities are still ongoing in the affected regions.
Ethiopia	Humanitarian crisis	Protracted 3	15-Nov-15	n/a	3-Dec-17	-	-	-	-	This complex emergency includes outbreaks (acute watery diarrhoea, measles, and acute jaundice syndrome), severe drought across northern, eastern, and central Ethiopia, and high levels of food insecurity and malnutrition. An estimate of 8.5 million people are food-insecure and in need of humanitarian assistance. 6.3 million people are in need of health assistance and 0.4 million children are severely malnourished. Internally displaced persons are estimated to be between 660 000 and 900 000 and refugees are estimated to be over 889 071.
Ethiopia	Acute watery diarrhoea (AWD)		15-Nov-15	1-Jan-17	3-Dec-17	48 617	-	880	1.8%	The outbreak is showing a downward trend. Only 11 new cases have been reported this week from 4 regions: Amhara, Somali, Diridawa and B.Gumuz regions. As of now, 9 regions in Ethiopia have been affected, and 73.6% of the total cases are from Somali region.
Ethiopia	Measles		14-Jan-17	1-Jan-17	24-Nov-17	3 674	-	-	-	The outbreak of measles is still ongoing but continues to improve. During week 47, 37 cases were reported from Dollo zone and Jijiga City. Oromia Region remains the most affected region with approximately 46% of the total reported cases, followed by Amhara (21%), Addis Ababa (16%) and Somali (20%).
Ghana	Influenza A H1N1	Ungraded	6-Dec-17	30-Nov-17	14-Dec-17	94	0	4	4.2%	Detailed update given above.
Kenya	Cholera	G1	6-Mar-17	1-Jan-17	7-Dec-17	4 079	724	76	1.9%	The outbreak is still ongoing and 7 counties are actively reporting cases: Nairobi, Garissa, Mombasa, Wajir, Kwale, Embu, and Kirinyaga counties. Approximately 60% of the cases are reported from Nairobi county.
Kenya	Malaria	Ungraded	-	25-Sep-17	26-Oct-17	1 009	604	25	2.5%	The outbreak is affecting 3 wards in Marsabit, namely Durkana (598 cases), North Horr (236 cases) and Loiyangalani (175 cases) wards.
Liberia	Measles	Ungraded	24-Sep-17	6-Sep-17	3-Dec-17	1 607	255	2	0.1%	From week 1 to week 48, 1 607 cases were reported from 15 counties, including 225 laboratory confirmed, 336 clinically compatible and 199 epi-linked. Nimba county has had the greatest cumulative number of cases to date (235). Children between 1-4 years accounted for 49% of the cases.

Country	Event	Grade†	WHO notified	Start of reporting period	End of reporting period	Total cases	Confirmed cases	Deaths	CFR	Comments
Liberia	Lassa fever	Ungraded	14-Nov-17	3-Nov-17	24-Nov-17	70	28	-	-	On 10 November 2017, four suspected cases of Lassa fever were reported from Phebe Hospital in Suakoko district, Bong County. One of the cases tested positive by RT-PCR and the other three tested negative. Since the beginning of 2017, a total of 70 suspected Lassa fever cases including 21 deaths (CFR: 30%) have been reported from nine counties in Liberia.
Madagascar	Plague	G2	13-Sep-17	13-Sep-17	5-Dec-17	2 529	513	215	8.5%	Detailed update given above.
Mali	Dengue fever	Ungraded	4-Sep-17	1-Aug-17	19-Nov-17	418	33	0	0.0%	In week 46, 38 suspected cases were reported. No confirmed cases have been reported since week 41.
Mali	Humanitarian crisis	Protracted 1	n/a	n/a	19-Nov-17	-	-	-	-	The security situation remains volatile in the north and centre of the country. At the last update, incidents of violence had been perpetrated against civilians, humanitarian workers, and political-administrative authorities.
Mauritania	Crimean-Congo haemorrhagic fever (CCHF)	Ungraded	20-Nov-17	11-Nov-17	5-Dec-17	1	1	0	0.0%	On 20 November 2017 a confirmed case of Crimean-congo haemorrhagic fever (CCHF) was reported in Nouakchott. The case, a 48-year-old man, developed symptoms on 11 November 2017 and was hospitalized on 15 November 2017. A collected sample tested positive by PCR. Twenty contacts are currently listed for follow-up.
Mauritania	Dengue haemorrhagic fever	Ungraded	30-Nov-17	6-Dec-17	13-Dec-17	37	37	-	-	On 30 November 2017, the MoH notified 3 cases of dengue fever including one haemorrhagic case (Dengue virus type 2) with history of Dengue virus type 1 infection in 2016. Out of 100 samples collected at the Teyarett health centre, 83 cases tested positive for dengue on RDT. On 12 December 2017, the national reference laboratory confirmed the diagnosis of 37 out of 49 RDT positive samples collected between 16 November 2017 and 11 December 2017.
Mozambique	Cholera	Ungraded	27-Oct-17	12-Aug-17	7-Dec-17	1 085	-	1	0.1%	The cholera outbreak is ongoing. Cases have been reported from three districts (Memba, Erati and Nacaroa) in Namapula province. The outbreak started in mid-August 2017 from Memba district. Erati district reported cases in week 41, Nacoroa reported cases in week 42.
Niger	Humanitarian crisis	G2	1-Feb-15	1-Feb-15	11-Aug-17	-	-	-	-	The security situation remains precarious and unpredictable. On 28 June 2017, 16 000 people were displaced after a suicide attack on an internally displaced persons camp in Kablewa. In another attack on 2 July 2017, 39 people from Ngalewa village, many of them children, were abducted. The onset of the rainy season is impeding the movements of armed forces around the region.
Niger	Hepatitis E	Ungraded	2-Apr-17	2-Jan-17	19-Nov-17	2 078	439	39	1.9%	The outbreak continues to improve. The majority of cases have been reported from Diffa, N'Guigmi, and Bosso health districts. Case incidence continues to decline, 11 suspected cases have been reported in week 46. There are no cases reported since week 46 of 2017.

Country	Event	Grade†	WHO notified	Start of reporting period	End of reporting period	Total cases	Confirmed cases	Deaths	CFR	Comments
Nigeria	Humanitarian crisis	Protracted 3	10-Oct-16	n/a	30-Nov-17	-	-	-	-	The protracted conflict has resulted in widespread population displacement, restricted access to basic social services, including health-care and protection needs, and a deepening humanitarian crisis. An estimated 8.5 million people are in need of life-saving assistance, out of which 6.9 million require healthcare assistance.
Nigeria	Cholera (Borno State)		20-Aug-17	14-Aug-17	10-Dec-17	5 365	354	61	1.1%	The outbreak is active in two LGAs, as a total of 8 cases were reported from Guzamalla LGA(5) and Monguno LGA(3) during 4-10 December 2017. Out of the 431 samples tested using RDTs, 354 (82%) were positive while 175 (46%) of 381 samples were culture positive.
Nigeria	Cholera (nation wide)	Ungraded	7-Jun-17	1-Jan-17	24-Nov-17	3 656	42	84	2.3%	Between weeks 1 and 44, 3 656 cases were reported from 19 states compared to 714 suspected cases from 12 states during the same period in 2016. The cumulative total of cases and deaths in 2017 surpasses that observed during the same period in 2016 (560 suspected cases, 25 deaths).
Nigeria	Lassa fever	Ungraded	24-Mar-15	1-Dec-16	24-Nov-17	973	286	124	12.7%	The outbreak is currently active in five states: Ondo, Edo, Plateau, Bauchi, and Kaduna. In Week 47, two new confirmed cases were reported from Edo (1) and Plateau (1) states.
Nigeria	Hepatitis E	Ungraded	18-Jun-17	1-May-17	16-Nov-17	1 262	182	8	0.6%	Since the peak of the outbreak in Borno state in week 25 the number of cases has been re-increasing from week 42 to week 46, mainly due to the spread of the outbreak in Rann, Kala Balge. No case of acute jaundice was reported in Mobbar since week 35.
Nigeria	Yellow fever	Ungraded	14-Sep-17	7-Sep-17	28-Nov-17	331	30	45	13.6%	A total of 331 suspected cases have been reported from fifteen states: Abia, Borno, Kogi, Kwara, Kebbi, Plateau, Zamfara, Enugu, Oyo, Anambra, Edo, Lagos, Kano, Nasarawa, and Katsina States. Thirty cases have been laboratory-confirmed at IP Dakar (from Kano State, Kogi State, Kwara State and Zamfara State).
Nigeria	Monkeypox	Ungraded	26-Sep-17	24-Sep-17	4-Dec-17	167	59	0	0.0%	Suspected cases are geographically spread across 21 states and the Federal Capital Territory (FCT). Fifty-nine laboratory-confirmed cases have been reported from 12 states (Akwa Ibom, Bayelsa, Benue, Cross River, Delta, Edo, Ekiti, Enugu, Lagos, Rivers, Imo, and Nasarawa) and the FCT.
São Tomé and Príncipe	Necrotising cellulitis/fasciitis	G2	10-Jan-17	25-Sep-16	8-Dec-17	2 368	0	0	0.0%	Over the past 10 weeks the incidence of new cases remained stable with an average of 30 cases per week. In week 49, the number of reported cases dropped to 17 cases reported across five of the seven districts: Me-zochi (6), Agua Grande (5), Lobata (1), Cantagalo (4), Caue (1). Currently, 18 cases are receiving care in hospital and no deaths have been directly attributed to the infection.
Senegal	Dengue fever	Ungraded	30-10-2017	28-09-2017	10-Dec-17	783	137	0	-	Since 28 September, the date of confirmation of the first cases of dengue fever in the Louga region, 137 cases were confirmed from the Louga region (128), Fatick (2), Mbour (1), and Dakar (6). Analyses by Institut Pasteur Dakar have shown that Dengue virus type 1 (DENV-1) is the only serotype circulating. As of 10 December 2017, no severe cases and no deaths have been reported.
Seychelles	Dengue fever	Ungraded	20-Jul-17	18-Dec-15	28-Nov-17	4 233	1 429	-	-	As of 28 November, 4 233 cases have been reported from all regions of the three main islands (Mahé, Praslin and La Digue). The trend in the number of cases has been decreasing since week 23.

Country	Event	Grade†	WHO notified	Start of reporting period	End of reporting period	Total cases	Confirmed cases	Deaths	CFR	Comments
South Africa	Listeriosis	G1	6-Dec-16	4-Dec-16	13-Dec-17	602	602	40	6.6%	As of 13 December 2017, a total of 602 laboratory-confirmed listeriosis cases have been reported from all provinces across the country since 1 January 2017. Most cases have been reported from Gauteng Province (61%), followed by Western Cape (13%) and KwaZulu-Natal (7%) provinces.
South Sudan	Humanitarian crisis	G3	15-Aug-16	n/a	15-Dec-17	-	-	-	-	The situation remains volatile, fighting is ongoing on multiple fronts and displacement continues. The starting of the dry season is expected to improve humanitarian access to the most vulnerable population but at the same time communal conflicts are expected to be more frequent with subsequent injuries and deaths. Severe acute malnutrition, malaria, measles, kala-azar, and cholera are the top ranking public health risks affecting the already distressed populations.
South Sudan	Cholera	Ungraded	25-Aug-16	18-Jun-17	1-Dec-17	21 571	1 585	462	2.2%	Cholera transmission continues to decline nationally. A total of 6 cases were reported in week 48, as compared to over 1 700 cases per week at the height of the most recent wave of the epidemic in week 23. For the past four weeks, only two counties (Juba and Budi) continue to report cases.
Tanzania	Cholera	G1	20-Aug-15	1-Jan-17	10-Dec-17	4 525	-	82	1.8%	Detailed update given above.
Uganda	Humanitarian crisis - refugee	Ungraded	20-Jul-17	n/a	30-Aug-17	-	-	-	-	The influx of refugees to Uganda has continued as the security situation in the neighbouring countries remains fragile. According to UNHCR, the total number of registered refugee and asylum seekers in Uganda stands at 1 379 768, as of October 2017. More than 75% of the refugees are from South Sudan and 16.7% are from DR Congo.
Uganda	Measles	Ungraded	8-Aug-17	24-Apr-17	3-Oct-17	623	34	-	-	The outbreak is occurring in two urban districts: Kampala (310 cases) and Wakiso (313 cases).
Uganda	Cholera	Ungraded	28-Sep-17	25-Sep-17	29-Nov-17	225	17	4	1.8%	The outbreak in Kasese District is still ongoing. The number of sub-counties affected by this outbreak has continued to rise and has now reached twelve sub-counties. Nyakiryumbu sub County remains the most affected in the district. Another outbreak was identified in Kisoro district. So far, three cases were admitted, including 1 confirmed.
Uganda	Rift Valley fever (RVF)	Ungraded	22-Nov-17	14-Nov-17	23-Nov-17	2	2	2	100.0%	On 21 November 2017, the Uganda Virus Research Institute (UVRI) alerted the MoH of a confirmed case of Rift Valley Fever (RVF). The case was a 26-year-old male from Kiboga district, Kibinga Sub-county, who worked with cattle in a forest reserve. He died on 15 November 2017 and was buried on 17 November 2017. On 23 November 2017, a second confirmed and fatal case of RVF was reported in Mityana district.
Zambia	Cholera	G1	4-Oct-17	4-Oct-17	12-Dec-17	709	238	21	3.0%	Thirty-nine new cases were reported on 12 December 2017. The outbreak is no longer localised to Lusaka district, but has spread to other districts in the province including: Chongwe, Ndola, Rufunsa, Kapiri Mposhi and Shibuyunji.

Country	Event	Grade†	WHO notified	Start of reporting period	End of reporting period	Total cases	Confirmed cases	Deaths	CFR	Comments
Zambia	Anthrax	Ungraded	22-Nov-17	29-Sep-17	22-Nov-17	24	-	1	4.2%	On 22 November the WHO was notified of an outbreak of cutaneous anthrax in the Western province of Zambia. The index case was detected on 29 September at the Nasilimwe Health Centre in Nalolo. As of 17 November 2017, 24 cases had been reported from Nalolo (15), Shangombo (7) and Sioma (2) districts. One community death attributed to anthrax was reported in Nalolo. Samples collected from six cases were positive for <i>Bacillus anthracis</i> .
Zimbabwe	Typhoid fever	Ungraded	-	1-Oct-17	19-Nov-17	1 065	82	-	-	On 17 October, a confirmed case of typhoid fever was reported from Matapi area of Mbare in Harare. As of 19 November, the outbreak has spread from its epicentre in Matapi to other suburbs in Harare and areas outside of Harare.
Recently closed events										
Burundi	Malaria	G1	22-Mar-17	1-Jan-17	30-Oct-17	6 449 927	-	2 836	0.0%	As of week 47 weekly case counts are below the epidemiologic threshold. The Ministry of Health officially declared the end of the outbreak on 8 December 2017.
Nigeria	Acute Haemorrhagic fever syndrome	Ungraded	17-Nov-17	11-Nov-17	n/a	3	-	3	100.0%	Three people have died from an undiagnosed disease in Mabera area of Sokoto South LGA. Cases developed symptoms of bleeding from orifices, high fever and severe headache. No samples were collected from the deceased. As of 15 December 2017 no additional cases have been identified following retroactive case search.
Nigeria	Event of unknown etiology	Ungraded	16-Nov-17	1-Jul-17	n/a	-	-	-	-	As of 15 December, no additional information has become available regarding this event which occurred in Gidan Dugus village (Wangara district).

†Grading is an internal WHO process, based on the Emergency Response Framework. For further information, please see the Emergency Response Framework: <http://www.who.int/hac/about/erf/en/>.

Data are taken from the most recently available situation reports sent to WHO AFRO. Numbers are subject to change as the situations are dynamic.

**© WHO Regional Office for Africa**

This is not an official publication of the World Health Organization.

Correspondence on this publication may be directed to:

Dr Benido Impouma  
Programme Area Manager, Health Information & Risk Assessment  
WHO Health Emergencies Programme  
WHO Regional Office for Africa  
P O Box. 06 Cité du Djoué, Brazzaville, Congo  
Email: afrooutbreak@who.int

Requests for permission to reproduce or translate this publication – whether for sale or for non-commercial distribution – should be sent to the same address.

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate borderlines for which there may not yet be full agreement.

All reasonable precautions have been taken by the World Health Organization to verify the information contained in this publication. However, the published material is being distributed without warranty of any kind, either express or implied. The responsibility for the interpretation and use of the material lies with the reader. In no event shall the World Health Organization or its Regional Office for Africa be liable for damages arising from its use.

#### Contributors

S. Ohene (Ghana)  
M. Groepe (South Africa)  
A. Rakotonjanabelo (Madagascar)  
N. Bakyaïta (Zambia)  
M. Muita (Tanzania)  
F. Mboussou (DRC)

#### Graphic design

Mr. A. Moussongo

#### Editorial Team

Dr. B. Impouma  
Dr. C. Okot  
Dr. E. Hamblion  
Dr. B. Farham  
Dr. V. Sodjinou  
Ms. C. Machingaidze  
Mr. R. Ibrahim  
Dr. P. Ndumbi  
Dr. K. Heitzinger  
Dr. S. Funke

#### Production Team

Mr. A. Bukhari  
Mr. T. Mlanda  
Mr. C. Massidi

#### Editorial Advisory Group

Dr. I. Soce-Fall, *Regional Emergency Director*  
Dr. B. Impouma  
Dr. Z. Yoti  
Dr. Y. Ali Ahmed  
Dr. M. Yao  
Dr. M. Djingarey

#### Data sources

Data is provided by Member States through WHO Country Offices via regular situation reports, teleconferences and email exchanges. Situations are evolving and dynamic therefore numbers stated are subject to change.