

Health Cluster Bulletin
The cholera response overview (September – December 2019)



WHO and UNICEF teams during the first OCV campaign in Blue Nile, Photo courtesy of WHO.

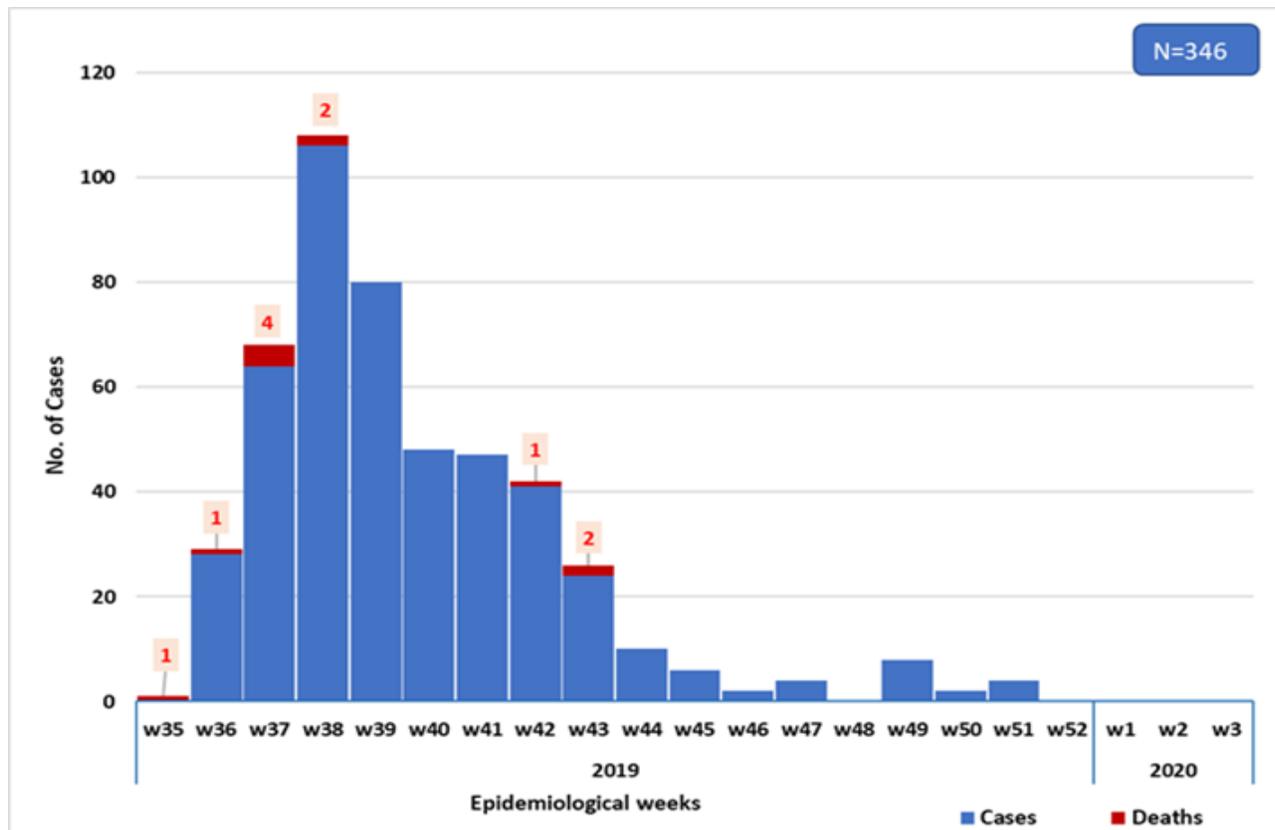
On 2 September 2019, Blue Nile State Ministry of Health (SMoH) reported five suspected cholera cases from El Roseires hospital, the index case was reported from Ganees Shareg area of El Roseires locality with date of onset of symptoms being the 28 August 2019. On the 8th of September, the federal ministry of health declared a cholera outbreak in Blue Nile state after receiving positive laboratory results confirming the presence of *Vibrio Cholerae* in four out of six samples collected from the affected state, by the end of December 2019 four states were affected by the outbreak, namely, Blue Nile, Sennar, Gezeira, and Khartoum states. The last cholera outbreak 2016 -2018 has started primarily in Kassala and Blue Nile states and eventually spreading to affect all 18 states across Sudan with 36,000 cases of cholera reported by the end of the outbreak.

Timeline:

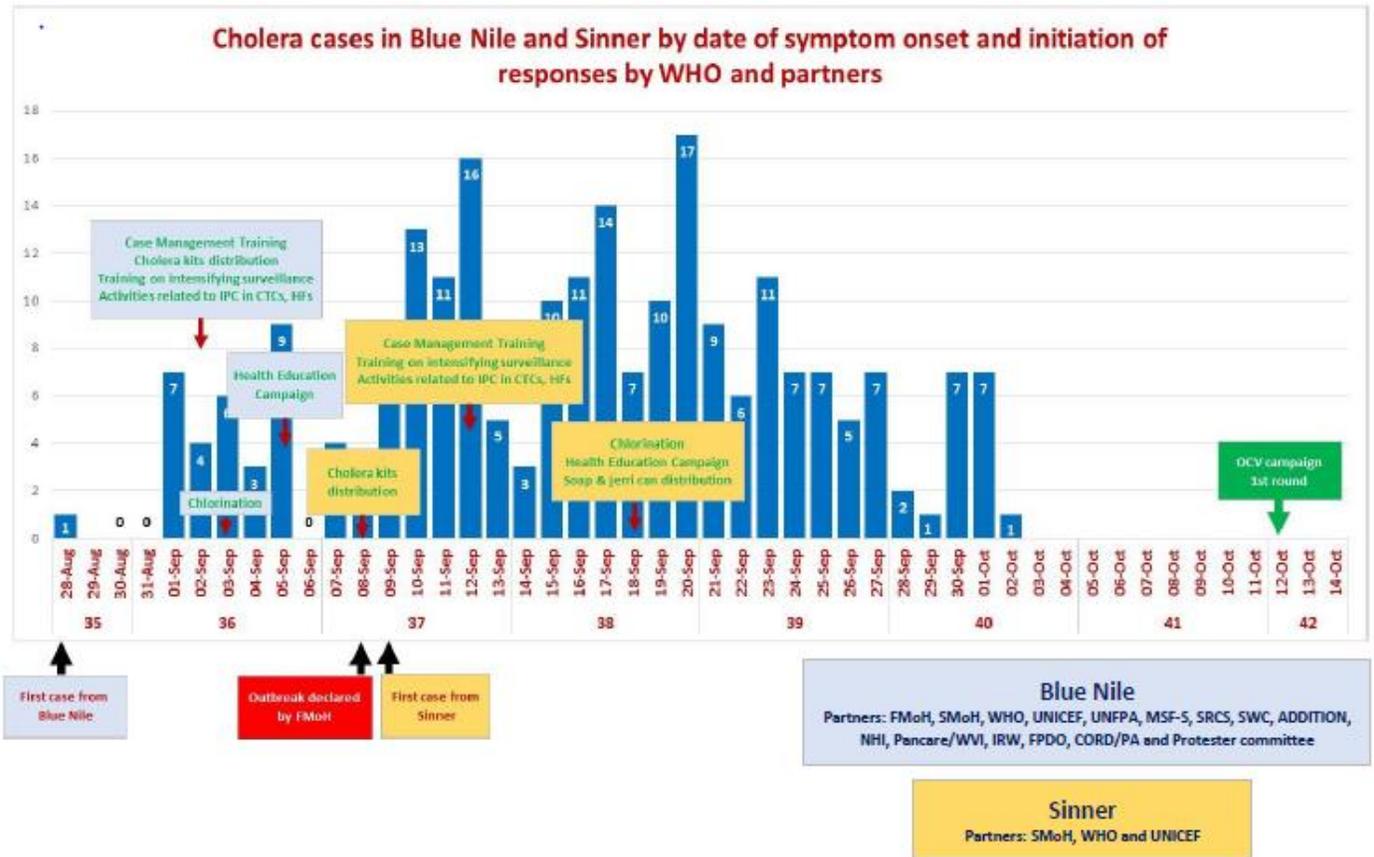
- 8th of September, the federal ministry of health declares a cholera outbreak in Blue Nile state.
- 13th of September, the first case of Cholera reported from Sennar state.
- 2nd of October the inter-agency consolidated the humanitarian cholera readiness and response plan by WHO, UNICEF and UNHCR was finalized.
- 11-17 of October, first phase of the OCV campaign in Sennar and Blue Nile states.
- 19th of October the first case of cholera reported in Khartoum state.
- 7th of November, first case of suspected Cholera in Gazeira State.
- 16- 21 of November, second phase of OCV campaign in Sennar and Blue Nile states.
- As of 16 January 2020, 346 suspected cholera cases (including 11 deaths) were reported from Blue Nile, Sennar, Al Gezira and Khartoum states, according to FMOH. The case fatality rate (CFR) is 3.2 per cent.

The response started as early as the 2nd of September and on 11 September FMOH/WHO/UNICEF conducted the first joint health and WASH cluster meeting on cholera response in Blue Nile. The FMOH supported by WHO activated emergency operation centers in Khartoum and all affected states with daily meetings to update and inform the response.

Cholera cases and deaths per week (W35-W52 2019).



Cholera response activities timeline

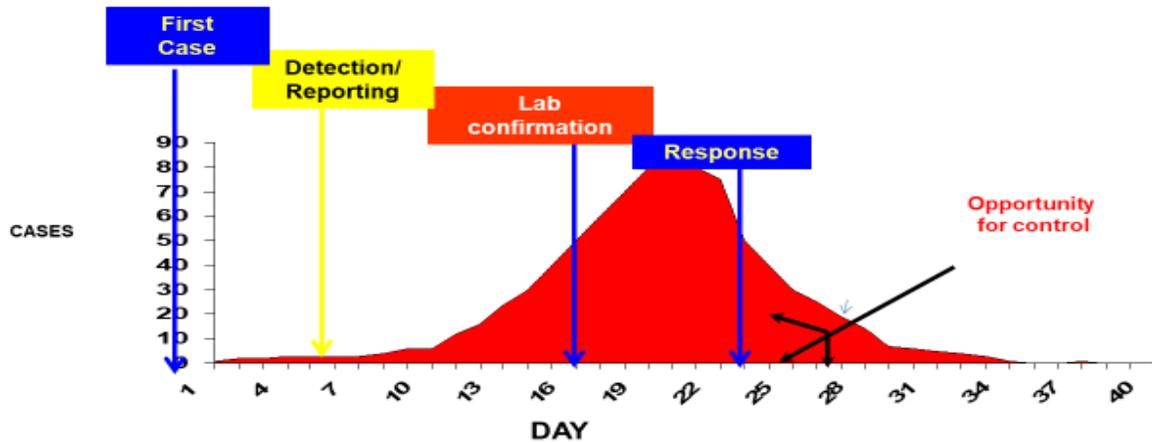


During the second half of September, WHO experts visiting Sudan had estimated that if without the proper interventions, there could be between 5,000 and 13,200 cholera cases within six months (between September 2019 and February 2020). The projections are created based on the pattern of previous cholera/AWD outbreaks from 2016-2018, which can be characterized as the “delayed outbreak detection and response” case.

The information available and latest figures indicate that the prompt response and mitigation measures by all health sector partners led by FMOH have resulted in a much lower total caseload and spread control, compared to the previous 2016-2018 outbreak and should be considered as a successful early detection and response case.

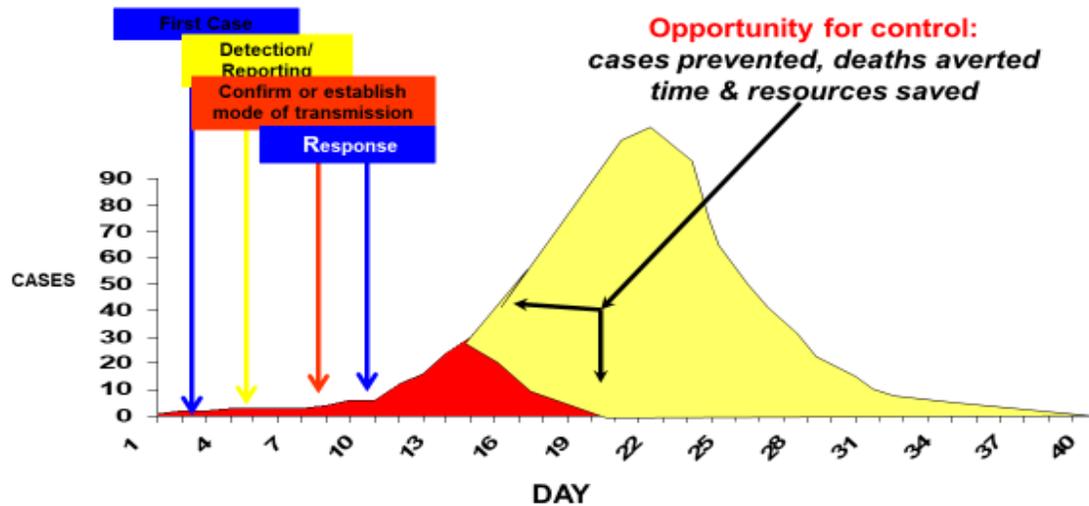
According to WHO, there are two scenarios or patterns that can play out in any cholera outbreak. One is characterized by delayed outbreak detection, laboratory confirmation and response (see the graph below). In this scenario/pattern, there is little room for control of the outbreak as by the time response starts the outbreak (and the number of new cases per day) is already in the downward trend.

Delayed Outbreak Detection and Response:



Another scenario/pattern features early detection, lab confirmation and response. This scenario has a much larger opportunity to prevent new cholera cases, avert deaths and saves time and resources to be spent on response.

Prompt Outbreak Detection and Response



Response overview:

Coordination:

- Term of Reference (TOR) prepared by WHO for establishment emergency operation centers in all affected states with Federal Ministry of Health (FMOH).
- Emergency Operation Centre (EOC) activated and daily meetings at FMOH where epidemiologic situation and response updates were presented and discussed.
- WHO and UNICEF supported locality level coordination meetings in Blue Nile and Sennar to ensure the regular participation of all implementing to feed into state level task force meetings.
- WHO and UNICEF deployed senior staff from Khartoum to support the emergency coordination in areas of Health & Nutrition, WASH, and C4D.
- The ISCG and HCT convened on weekly bases to discuss the outbreak update and support the inter-sectorial response.
- OCHA support the formulation the Humanitarian readiness and response plan.
- Health cluster partners mobilized resources and supported the response: WVI, ADDITION, IRW, ICRC, SRC, CORD, NHI, KPHF, FPDO, MSF Switzerland, MSF Spain, MSF France, SCI, IMC, GAH, SWC, WHO, UNICEF, UNFPA, and UNHCR.

Disease Surveillance and Reporting:

- WHO trained/refreshed 49 rapid response teams RRTs (9 in Blue Nile and 7 in Sennar, 5 in Khartoum, 9 West Darfur, 14 North Darfur, and 5 Central Darfur).
- WHO printed and distributed 1,590 guidelines and surveillance books for all States.
- WHO supported 112 SMOH/WHO joint epidemic alert investigation and follow up missions in affected and high risk states.
- WHO activated 17 community based surveillance CBS sites (14 Blue Nile and 3 Sennar) through training of 120 volunteers.
- UNICEF trained 132 community health workers in Blue and Sennar on suspected case identification and reporting to Health Facilities for further case investigation and action. In addition, WHO trained 267 health staff on case definition and management.
- An international laboratory consultant deployed by WHO and conducted a rapid assessment of capacities and readiness of the national public health lab in Khartoum (NPHL) and 23 peripheral laboratories in Sennar and Blue Nile states.
- A laboratory international consultant provided training on “Proper Collection, Transportation and Disposal of Cholera Samples and Practicing the Use of Rapid Diagnostic Tests (RDTs)” to 12 microbiologists and 41 members of the rapid response team in Sennar. Training for use of RDTs included into the RRTs module.
- WHO procured and distributed 9,000 RDTs to all 18 States to confirm start and end of cholera outbreak.
- WHO supported shipment of 60.stool samples from States to NPHL and or abroad 7 sample for serotyping control.
- WHO procured and supported National Public Health Laboratory (NPHL) and State PHL with supplies, reagents and equipment including Personal Protection Equipment (PPE).

Case Management and Infection Prevention and Control (IPC):

- WHO Supported Save the Children with supplies and operational costs for 4 CTCs (2 CTCs in Sennar and 2 CTCs in Khartoum), and directly supported the functioning of 14 CTCS/CTUs: 3 CTCs and 4 CTUs in Blue Nile and 3CTCs and 4 CTUs in Sennar.
- UNICEF in collaboration with Addition for Disasters assistance and Development (ADD) in Blue Nile established 2 CTU.
- WHO deployed 12 national consultants and support staff to Blue Nile and Sennar to support case management and IPC.
- WHO procured 10 cholera kits enough to support 1000 sever cases. In addition to 45 periphery cholera kits enough to support 1800 cases.
- 10 AWD kits distributed by UNICEF, 5 in Blue Nile and Sennar States, sufficient to cover the needs of 3,000 cases. In addition, UNICEF distributed 10 CTNs of ORS, 10 CTNs of Zinc, 15 IMCI kits and 640 Ringer Lactate to SMOH in Blue Nile and Sennar to support case management and the health systems enough to reach 150,000 children under five.
- MSF Switzerland provided complete package of support and training in 2 CTC in Sennar.
- IMC and WVI designated isolation centers in their health facilities in Blue Nile.
- MSF Spain supported a CTC with full package of equipment and staff training.

Community Engagement:

- WHO and UNICEF supported the SMoH, SRCS, and resistance committee to conduct 33,555 home visits reaching more than 353,000 individuals with key cholera messages.
- WHO supported 71 cholera awareness sessions in 58 schools and 47 community awareness sessions in Sennar.
- UNICEF C4D supported orientation of Mosque Imams conveyed key OCV messages during Friday's prayers in Blue Nile and Sennar. UNICEF also monitored the delivery of the key messages.
- UNICEF supported mobile theatres in the night to deliver key messages on cholera and the OCV in Blue Nile and Sennar States. UNICEF also trained 1,480 community mobilizers and revolutionary resistance committee and community volunteers, including Imams, community leaders, youth groups and women groups on awareness raising and importance of adopting essential family practices on cholera prevention and awareness. In addition, UNICEF created a social platform (both WhatsApp and Facebook) together with key stakeholders to provide updates on cholera situation and awareness raising in both White Nile and Sennar.
- WHO and UNICEF supported the broadcasting of health education messages on cholera prevention and treatment through radio reaching approximately half the population in affected states. Taking advantage of the ongoing immunization acceleration campaign in the state, the UNICEF EPI team delivered cholera awareness messages to 8,690 House Holds as well as mobile audio messages covered around 20,000 people.
- Through UNICEF C4D support the following have been reached:
 - Direct community engagement: 1,126,115 was the approximate number of participants.
 - Social media: 36,295 participants.
 - School pupils, 132 schools covered and the approximate total number of pupils was 66,000.

WASH:

- UNICEF provided the chlorine for the main water network in affected states.
- UNICEF provided chlorine for disinfection at all CTC/CTU/ORT corners.
- WHO deployed 7 additional WASH officers to support the response (2 BN, 3 Sennar, 1 Gezira, 1 Khartoum)
- WHO trained 310 WASH MOH and WES officers for Sennar and Blue Nile
- WHO supported the operation of 200 Water Testing monitors that collected 68,000 water samples tested
- WHO provided 8 additional entomologists in Kassala, Red Sea, and River Nile and 30 MOH entomologists.
- 1650 Volunteers for Integrated vector control trained by WHO in Blue Nile, Sennar, Kassala, Red Sea.
- WHO procured and distribute 40 Fogging Machines and 20 Hudson pumps along with 240 liters insecticide for integrated vector management IVM.
- WHO provided the operational costs for IVM (fogging and breeding sites management) 24 Rounds in Kassala, Red Sea, River Nile, North Darfur, West Darfur, White Nile, and South Darfur covering 1.9 million people.
- 1600 PPE, 50 Hand Washing station and 300 waste containers, 15,000 plastic bags for waste collection procured and distributed by WHO.

Nutrition:

- UNICEF expanded nutrition interventions to respond to Cholera in the most 40 fragile communities Blue Nile and Sennar as part of the integrated health and nutrition response plan. An estimated 20,000 persons have received key behavioral change messages, including handwashing with soap, water safety, water chlorination and information about SAM and CMAM services.
- UNICEF trained 40 health workers each in Blue Nile and Sennar on IYCF and supported them to cascade training at community level among mothers and volunteers.
- UNICEF established 61 mother support groups in Blue Nile and Sennar and supported them with training and logistics to hold a total of 680 sessions reaching 3,400 women on recommended IYCF practices during diarrhea as well as key messages on Cholera prevention and what to do in case of symptoms.

UNHCR response for refugees:

- Procurement and delivery of hand washing soap for 187,177 Refugees in White Nile for 2 months.
- Procurement and delivery of hand washing soap for 25,000 Refugees in Naivasha and Bantiu for 3 months.
- Procurement and delivery of soap for hand washing for 20 schools in White Nile and KOA.
- Procurement and delivery of HTH70% Calcium Chlorine to apply through Government Water supply and environmental sanitation projects.
- Purchase and distribute hand washing facilities (Ibriks) For Niavasha and Bantiu.
- Purchase and distribute communal hand washing facilities (100 liters plastic drum with metallic stand and a tap).
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Oral cholera vaccine OCV campaign

The oral cholera vaccines have been mobilized by the World Health Organization (WHO), UNICEF and FMOH through coordination with the International Cholera Coordination Group (ICG). The ICG manages the global stockpile of oral cholera vaccine which was created as a tool to help control cholera epidemics. The campaign targeted an estimated 1.65 million people (age 1 year and older) with 3.3 million doses of oral cholera vaccine, two doses each.

Locality	Target population	First round(12-16 Oct 2019)		Second round(16-21 Nov 2019)	
		People Vaccinated in the first OCV round	Percentage	People Vaccinated in the second OCV round	percentage
Ad-Damazine	312,505	297,184	95%	306,515	98.10%
Roseries	228,053	214,743	94%	222,527	97.60%
Wad El Mahi	145,419	102685	71%	101,920	70.10%
Gaissan	121,679	103,487	85%	92,214	75.80%
Bau	87,825	75,703	86%	71,744	81.70%
Total Blue Nile	895,481	793,802	89%	794,920	88.80%
Singa	215,295	208,062	98.80%	208,665	96.90%
AbuHugar	172,008	176,842	94.30%	166,582	96.80%
Soki	365,875	361,368	94.30%	358,753	98.10%
Total Sennar	753,178	746,272	99.10%	734,000	97.50%
Grand Total	1,648,659	1,540,074	93%	1,528,920	93%



The official OCV 2 doses vaccination card, Photo courtesy of WHO.

Funding and resource mobilization:

The estimated cost of the response (the objective was control the diseases outbreak within 3 months by the end of December 2019) was 20 million USD.

3 million USD were secured through CERF and distributed as follows:

Agency	Agency Project	Sector	Window	Approved Amount
United Nations Children's Fund	Integrated three-months response to the cholera epidemic	Water and Sanitation	Rapid Response	\$1,450,006
World Health Organization	Integrated response to cholera outbreak in the Republic of Sudan	Health	Rapid Response	\$1,150,000
United Nations High Commissioner for Refugees	Cholera prevention through strengthening community health and hygiene practices in White Nile refugee camps and Khartoum Open areas	Water and Sanitation	Rapid Response	\$399,883
Total				\$2,999,889

In addition, 6 million USD were allocated for the cholera response through the SHF emergency reserve fund as follows:

Agency	Agency project	Response	Implementation period	Approved Amount
AORD (Alsalam Organization for Rehabilitation and Development)	Response to Cholera Outbreak in Blue Nile state	Cholera response	8 Months	\$249,998.01
IRW (Islamic Relief Worldwide)	Public Awareness Campaign in Cholera-Affected Populations in Sennar and Blue Nile States	Cholera response	6 Months	\$312,438.72
UNICEF (United Nations Children's Fund)	Lifesaving supplies and interventions for AWD/cholera and floods-affected children and communities.	Floods & Cholera response	6 Months	\$2,406,915.80
WHO (World Health Organization)	Access to life-saving health services and response to, and prevention of cholera outbreak for the communities affected by floods and other vulnerabilities in 17 states of Sudan.	Floods & Cholera response	6 Months	\$2,999,999.66
Total				\$5,969,352.19

The success to control the outbreak can be attributed to the following concrete actions and their execution:

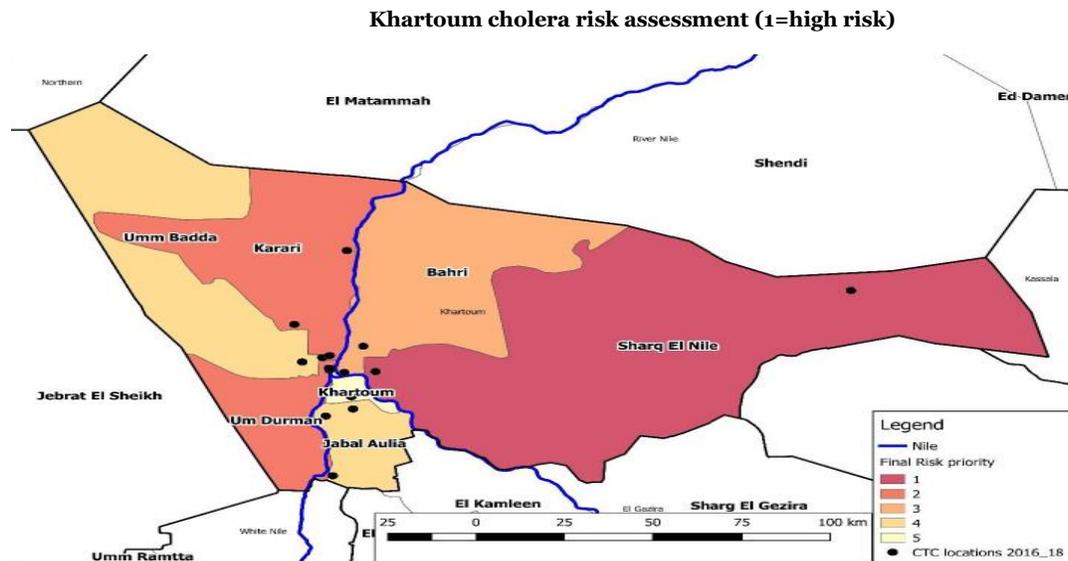
- A 3-month (October-December 2019) cholera readiness and response plan was developed at the cost of US\$ 20.3 million.
- Early detection and announcement of the outbreak.
- Early mobilization of health partners and providing surge capacity to affected areas.
- Activation of the emergency operation centers in EOC in affected states.
- Effective information sharing and reporting by the state, and federal ministries of health.
- Early activation and support of cholera treatment centers and isolation wards with provision of cholera treatment kits.
- Implementation of the oral cholera vaccine on timely manner contributed to limiting the spread of the disease within the affected localities and to other states.
- This was complemented by aggressive WASH interventions, including water chlorination, sanitation, and health and hygiene awareness campaigns.
- Donors support through provision of funds to CERF and SHF allocations.

Challenges and lessons learnt:

- While cholera is endemic in Sudan with several recorded outbreaks (16 outbreaks since 1966, including the 2019 outbreak), preparedness is a main issue that needs addressing at federal and state level.
- Lack of Availability of trained staff in case definition, case management, and IPC, with high turnover of health staff (around 40% of trained staff change every 6 months), necessitating the re-initiation of training upon the onset of new outbreaks.
- Lack of health partners in the frequently affected eastern states of the country affecting the ability to scale up the response and limiting the surge capacity of partners.
- While significant effort was exerted to ensure the safety of water, WASH actors were faced with a suboptimal water-network that proved to be very challenging to chlorinate due to the multiple resources it is being fed by. Despite the implemented interventions free residual chlorine FRC levels stayed below effective levels in many affected areas. In addition, the coverage of the water network does not exceed 30% of the population who have access to a vast number of unmonitored water sources (wells, boreholes, donkey cartsetc.).
- Low acceptance by the local population to use the provided chlorine tablets at a household level due to deeply entrenched unfounded beliefs of possible side effects and usability of chlorinated water for religious purposes.
- While Khartoum state has been spared from the full brunt of the outbreak with only 3 reported cases. the planning for the response was faced with many hurdles such as,
 - Lack of previous interventions and humanitarian partners rendering the state “uncharted territory” for health partners.
 - Outdated data of status of health facilities and availability of services, water network status, utilized water sources by the population...etc.
 - With around 8 million in population, community engagement might have required significant, yet unavailable resources.

Eventually, WHO produced a locality based risk map for Khartoum state based on four indicators,

- Cholera attack rate of the 2016 outbreak.
- Cholera fatality ratio of the 2016 outbreak
- Availability of hand washing facilities.
- Availability of sanitation facilities.



Way forward and recommendations:

The outbreaks of water-borne diseases such as cholera, usually coincide or follow the rainy season and the subsequent floods. Both 2016-2018 and 2019 cholera outbreak started after the rainy season and floods and the weekly number of cases for both peaked during the week 38 suggesting a convergence of factors - rains, floods, etc – during that particular time.

For 2020, the government and health partners can save lives, avert hundreds of cholera cases and other water borne diseases, and save time and resources by acting early:

- Updated rainy season and floods response plans.
- Prepositioning of essential medicine and supplies and kits.
- Ensuring the readiness of disease surveillance, availability of trained rapid response teams RRTs, and sufficient laboratory capacity in states and at federal level for early confirmation of an outbreak.
- WASH interventions to minimize contamination of water sources and mitigate the consequences of the rainy season.
- Allocate sufficient funds early to ensure the best return on investment.

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