



Republic of South Sudan

Situation Report #105 on Cholera in South Sudan

As at 23:59 Hours, 27 January 2017

Situation Update

Cholera outbreaks have been confirmed in **9 (32%)** of 28 states countrywide. The affected states include Imatong, Eastern Lakes, Jubek, Terekeka, Jonglei, Western Bieh, Northern Liech, Southern Liech; and Eastern Nile (Table 1 and Figure 1.0). Suspect cholera cases were reported in Mayendit and Ayod but are not confirmed (Table 4). One sample collected by MedAir from Madol 1CTU in Mayendit tested negative for cholera by culture in week 2, 2017. Cumulatively **156 (36.4 %)** of the samples tested positive for *Vibrio Cholerae inaba* in the National Public Health Laboratory as of 27 January 2017 (Table 3).

Table 1: Summary of cholera cases reported in South Sudan as of 27 January 2017

Reporting Sites	New admissions WK 3	New discharges WK 3	New deaths WK 3	Total cases currently admitted	Total facility deaths	Total community deaths	Total deaths	Total cases discharged	Total cases
Jubek – Juba	5	5	-	1	8	19	27	2,016	2,044
Jonglei-Duk	-	-	-	-	5	3	8	84	92
Terekeka	-	-	-	-	-	8	8	14	22
Eastern Lakes - Awerial	-	-	-	-	1	3	4	349	353
Imatong - Pageri	-	-	-	-	-	1	1	28	29
Western Bieh - Fangak	-	-	-	-	4	-	4	266	270
Northern Liech - Rubkona	3	-	-	30	7	2	9	920	959
Southern Liech - Leer	-	-	-	-	3	-	3	88	91
Southern Liech - Panyijiar	12	10	2	-	12	2	14	375	389
Eastern Nile - Pigi	-	-	-	-	5	-	5	163	168
Total	20	15	2	31	45	38	83	4,303	4,417

Highlights in week 3 of 2017:

1. A total of 3 cases reported from Bentiu PoC¹ in week 3 of 2017; compared to 35 cases in week 2 of 2017 [Table 1, Figure 1.1](#).
2. Five cases reported in UN House PoC in week 3 of 2017; which is comparable to week 2 of 2017 [Table 1](#).
3. A total of 12 cases including 2 facility deaths reported from Panyijiar in week 3 of 2017 compared to 23 cases in week 2 of 2017 [Table 1, Figure 1.1](#).
4. There was one culture positive case from Eastern Nile state in week 3 of 2017 [Table 3](#).
5. At least 64 suspect cholera cases reported in MedAir CTU in Madol 1, Mayendit, Southern Liech since 7

¹ Provision of health services paralyzed by ongoing strike by WASH community health workers.

Jan 2017 [Table 4](#).

6. Seven suspect cholera deaths from Yirol East are being investigated by the rapid response team [Table 4](#).
7. Overall; active transmission is ongoing but declining in Northern Liech (Bentiu PoC) and Southern Liech (Leer and Panyijjar); and Jubek (UN House PoC) [Figure 2.1](#).

In Jubek, there has been resurgence of cases in UN House PoC where at least 42 cases including at least 10 confirmed cases have been reported since week 52 of 2016. The majority, 39 (95%) of the cases from the recent wave of cases in UN House PoC originated from PoC 3. In response to the resurgence, a multi-cluster investigation mission was undertaken. Thus, response efforts have been enhanced in UN House PoC with the WASH cluster carrying out spraying of the latrines and random quality water testing and reactivation of ORPs. In addition, HHPs have been deployed to carry out house-to-house hygiene promotion.

In Northern Liech state, **959** cholera cases including **24** confirmed cases and **nine** deaths (CFR **0.85%**) were reported in Bentiu Town/PoC since 29 September 2016. The cholera taskforce, chaired by MoH and constituted by Health and WASH cluster partners is coordinating the response. Ongoing transmission is suspected to be associated with exposure to an unsecured water reservoir whose water is used for washing, bathing, swimming, and occasionally for domestic use. Bentiu PoC now has the highest cumulative incidence for cholera [Table 1.1](#).

In Southern Liech, two cholera cases originating from Leer Town tested positive for *Vibrio cholerae Inaba* on 11 October 2016. One additional case from Ganyliel in Panyijjar tested positive for cholera on 3 January 2017. Cumulatively, 91 cholera cases have been line listed from Leer and at least 389 cases including 14 deaths from Panyijjar in Southern Liech state. The initial case in Panyijjar was seen on 22 October 2016 involving a trader from Duk. Facility and community based response is ongoing with most cases being managed in facilities like Duong PHCC, Ganyliel PHCC, and Nyal PHCC with support from IRC, and UNIDO.

Since 7 October 2016, at least 158 suspect cholera cases including three deaths were reported by UNIDO and MedAir response teams in Mayendit. The MedAir CTU in Madol 1 has seen at least 64 cases since 7 January 2017.

Figure 1.0: Cholera incidence (cases per 10,000) and case fatality rate (%) as of 27 January 2017

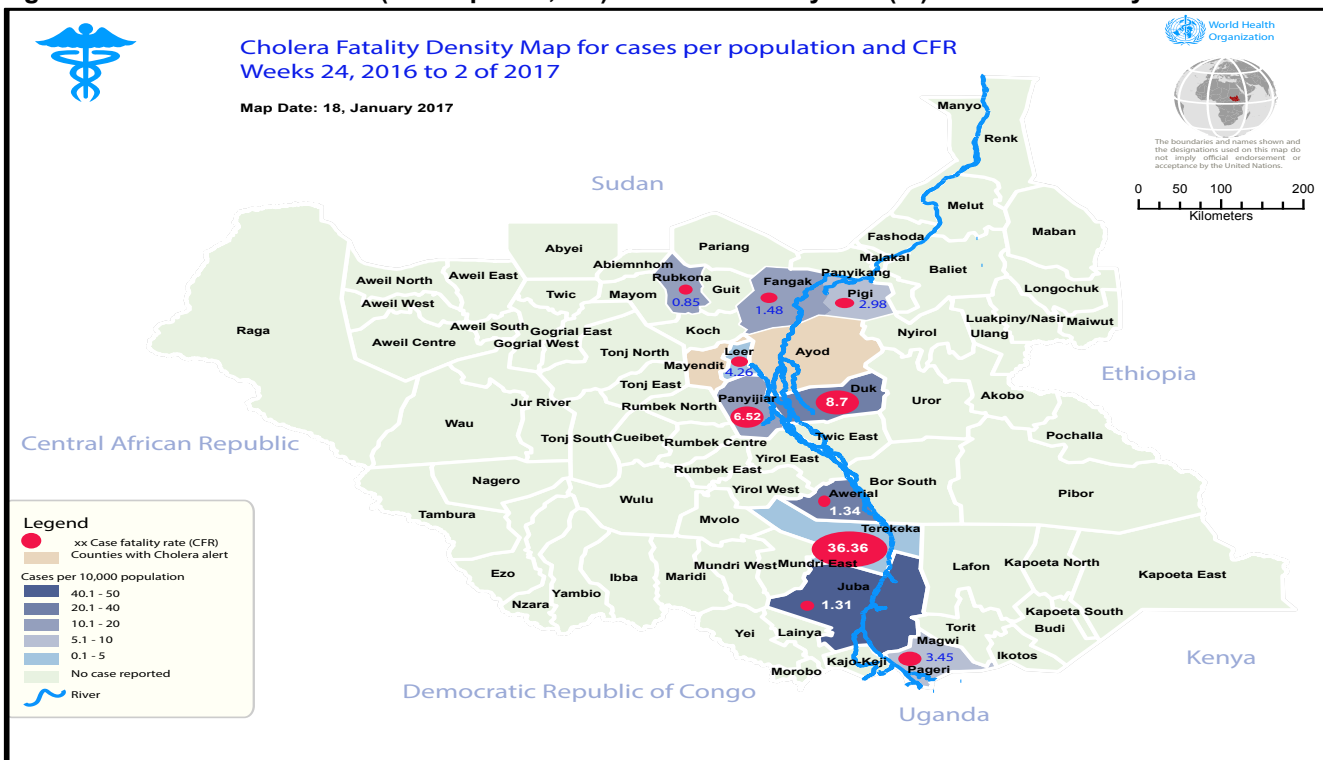
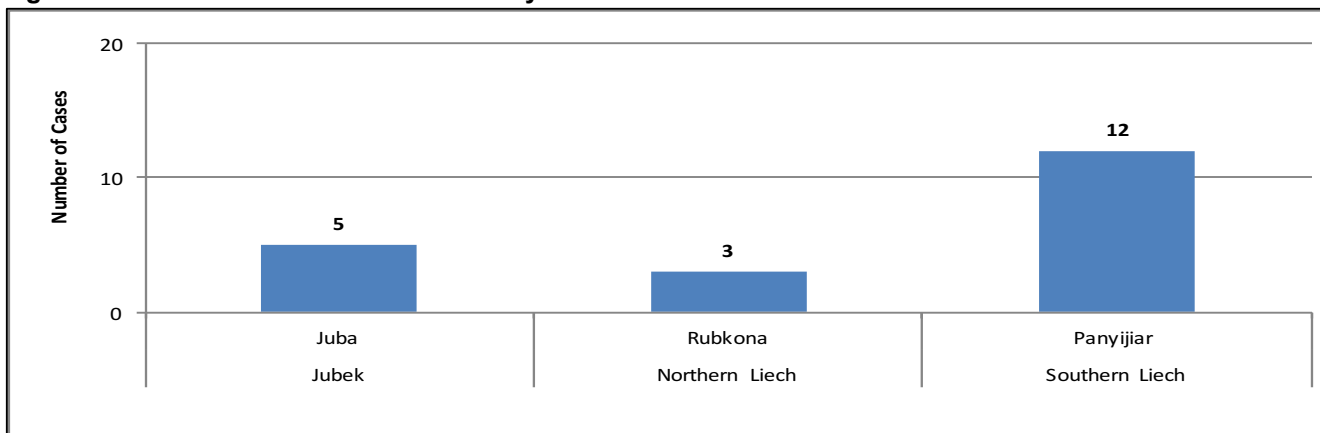


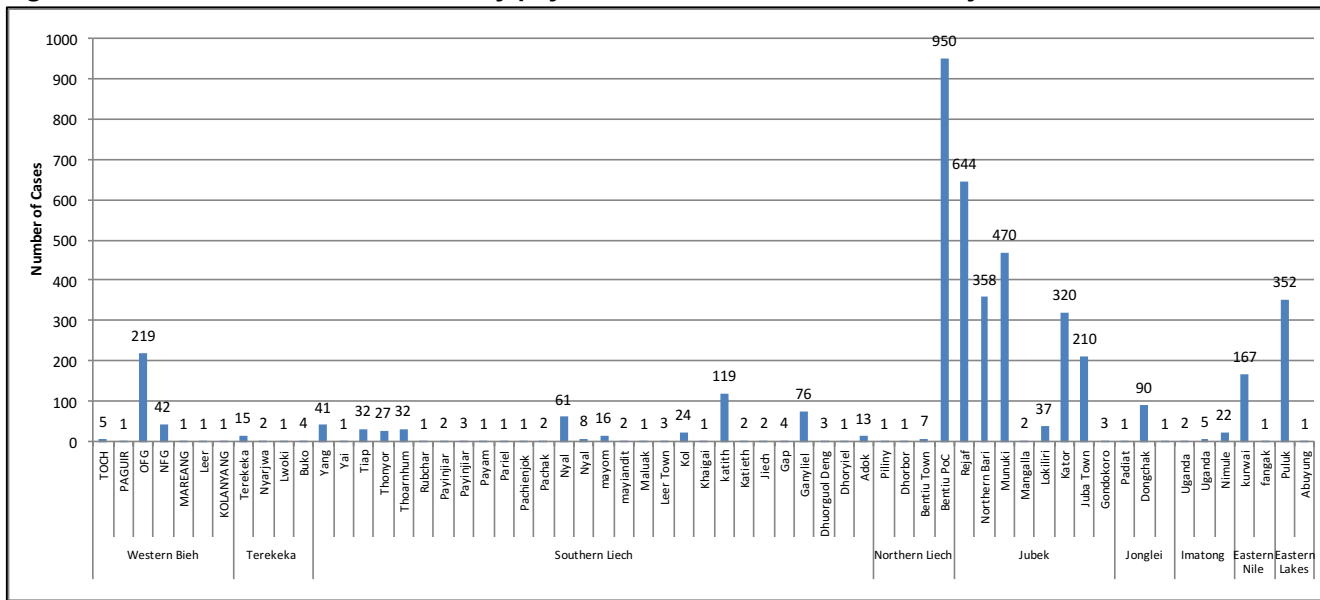
Figure 1.1: New cholera cases admitted by location in week 3 of 2017



In Eastern Lakes state, cholera cases were reported in Mingkaman IDP settlement. The initial cases were confirmed on 24 August 2016, after **two** of four samples tested positive for *Vibrio cholerae Inaba*. The cumulative cases are **353** cholera cases including **19** confirmed cases and **4** deaths (one facility and three community) (CFR **1.13** %). This outbreak has been controlled with only sporadic cases being reported – the most recent being admitted on 16 December 2016.

In Jonglei state, **92** suspected cholera cases including **8** deaths (CFR **8.7** %) were reported from Duk County involving mainly the three Islands of Kawer, Long, and Moldova. The index case was reported on 3rd July 2016 from Moldova Island. Of the five samples from Duk Islands that underwent culturing, one sample from Moldova Island, also the most affected, was confirmed as cholera on 29 July 2016. The most recent cases reported in Duk originated from Koyom Island on 10 Nov 2016. No additional cases were reported since then.

Figure 1.2: Cumulative cholera cases by payam of residence as at 27 January 2017



Terekeka state has reported **22** cases of cholera including **8** deaths (CFR **36.4%**) with 2 samples confirmed by the laboratory to be cholera. All the deaths were reported at the onset of the outbreak from Islands on River Nile where access to health services is poor. No additional deaths occurred after the rapid response team was deployed. The most of the recent cases originated from Kuda village, Lwoki payam, Nyori county on 22 September 2016. No additional cases were reported since then.

In Nimule, Imatong state, a cumulative of **29** cholera cases including four laboratory confirmed cases and one death (CFR **3.45%**) were reported from 15 August 2016. The affected locations in Imatong state included Abila, Malakia, and Motoyo. The last cholera case in Nimule was admitted in Nimule hospital on 29 Sept 2016 and discharged on 2 Oct 2016. No additional cases were reported since then.

Table 1.1: Cholera cases and deaths by state and county as of 27 January 2017

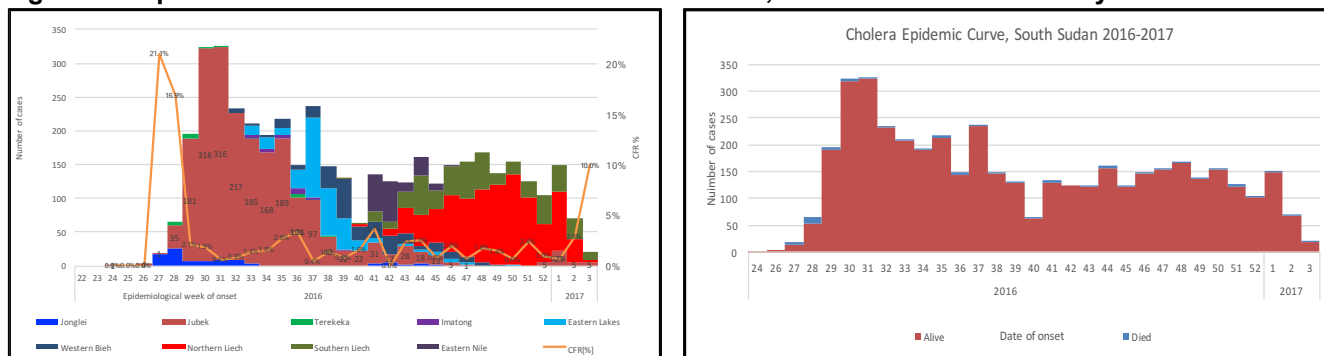
State	County	Population at risk	Week 3		Weeks 24, 2016 to 3 of 2017		CFR [%]
			New cases W3	Cases per 10,000 population	No. cases	Cases per 10,000 population	
Western Bieh	Fangak	139,509	0	-	269	19.3	1.48
Northern Liech	Rubkona	126,976	3	0.24	956	75.3	0.85
Southern Liech	Leer	67,167	0	-	95	14.1	4.21
Southern Liech	Panyijiar	64,254	12	1.87	389	60.5	3.60
Eastern Lakes	Awerial	114,837	0	-	353	30.7	1.13
Imatong	Pageri	215,130	0	-	29	1.3	3.45
Jonglei	Duk	26,180	0	-	92	35.1	8.7
Jubek	Juba	471,762	5	0.11	2,044	43.3	1.32
Terekeka	Terekeka	177,849	0	-	22	1.2	36.36
Eastern Nile	Pigi	125,496	0	-	168	13.4	2.98
	Total	1,529,160	20	0.13	4,417	28.9	1.88

The cholera outbreak in Western Bieh state was confirmed on 22 September 2016 after **two** of four samples tested positive for *Vibrio cholerae inaba*. The initial cases were reported on 10 August 2016 in Old Fangak. The cumulative cases are **270** cholera cases including **13** confirmed cases and **4** deaths (**4** facility and zero community) (CFR **1.48%**). As of 27 January 2017, the affected areas included Old Fangak (217 cases); New Fangak (42 cases); Mareang (1 case); Paguir (1 cases); Toch (3 cases); and Kolanyang (1 case) (Figure 1.2). The last case from Old Fangak in week 49 of 2016.

Cumulatively, **4,417** cholera cases including **83** deaths (**45** facilities and **38** community) (CFR **1.88%**) have been reported in South Sudan involving **9** states since the initial case was reported on 18 June 2016 for Jubek state; 3rd July 2016 in Jonglei state; 14 July 2016 for Terekeka state, 15 August 2016 for Eastern Lakes and Imatong states; 10 August 2016 for Fangak in Western Bieh and state; 29 September 2016 for Rubkona in Northern Liech state; 11 October 2016 for Leer and 22 October 2016 for Panyijiar in Southern Liech state; and 10 October 2016 for Pigi in Eastern Nile state (Figure 2.1 and Table 1.1).

As seen from Figure 2.1 there was a spike in cholera transmission in weeks 42-50 of 2016 that was attributed to transmission in Bentiu PoC where most cases originate from sectors 1, 2, and 3 in blocks that are surrounding a water retention reservoir ([Annex 1](#)). Bentiu PoC now has the highest cumulative incidence for cholera.

Figure 2:1 Epidemic curve for cholera cases in South Sudan, from 18 June - 27 January 2017



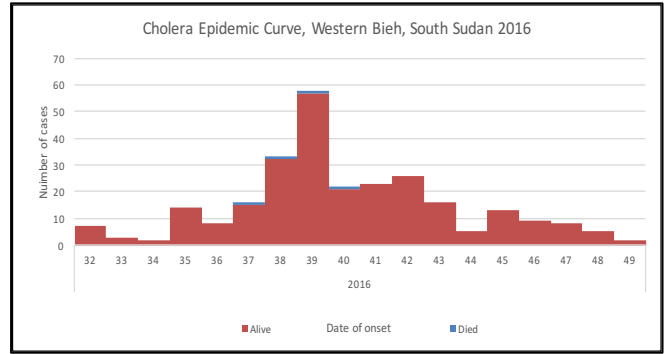
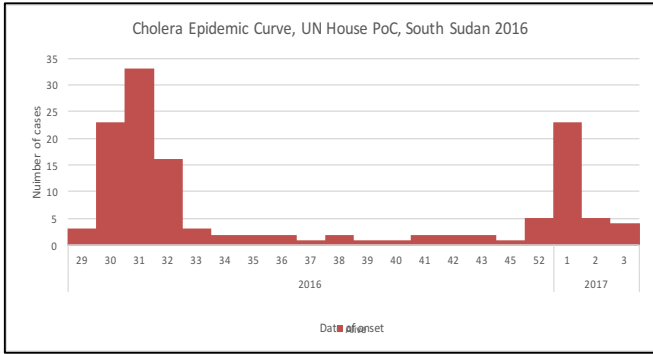
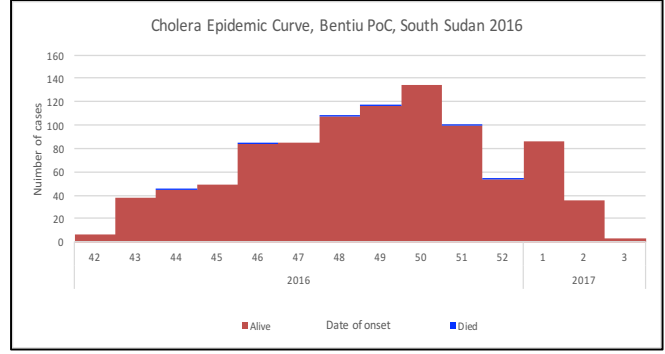
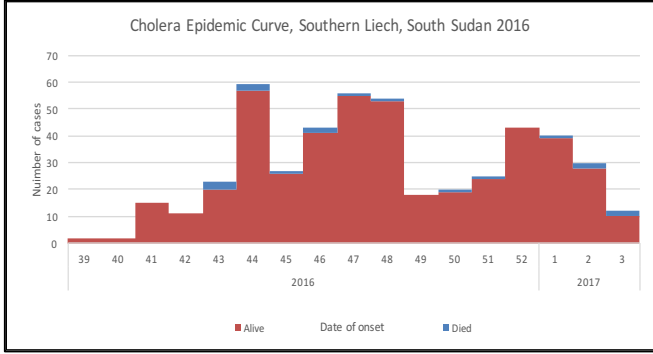
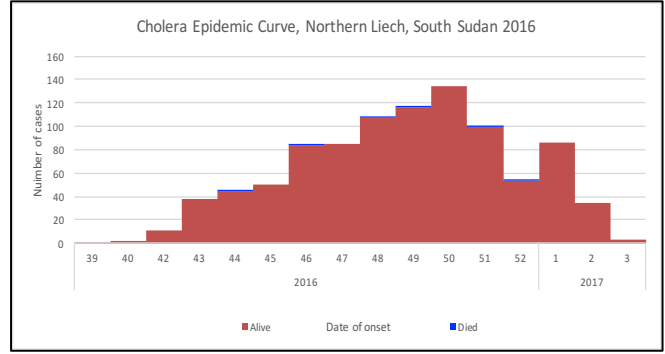
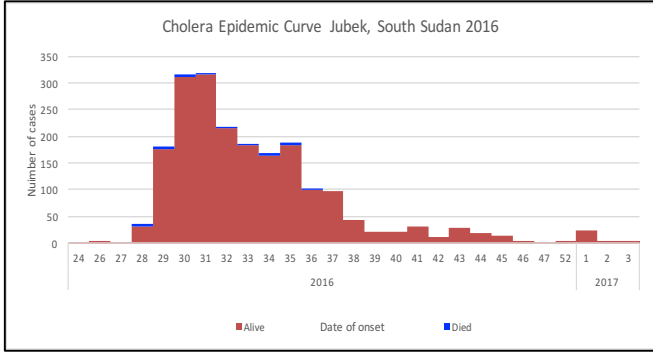
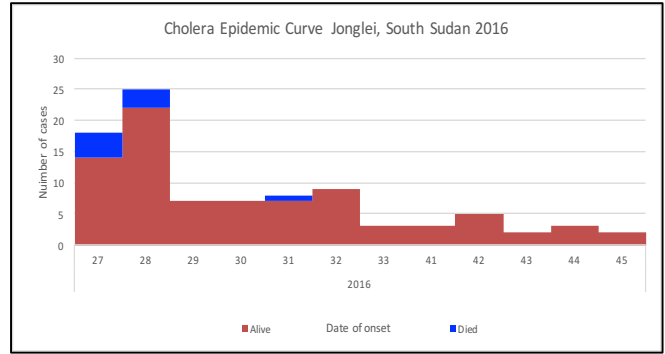
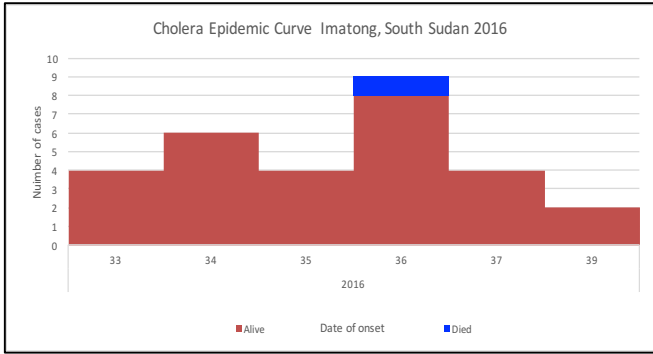
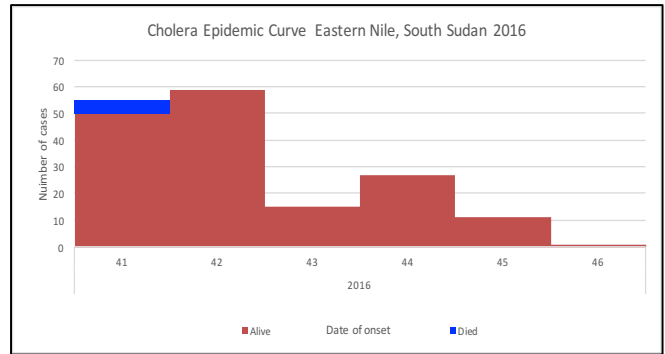
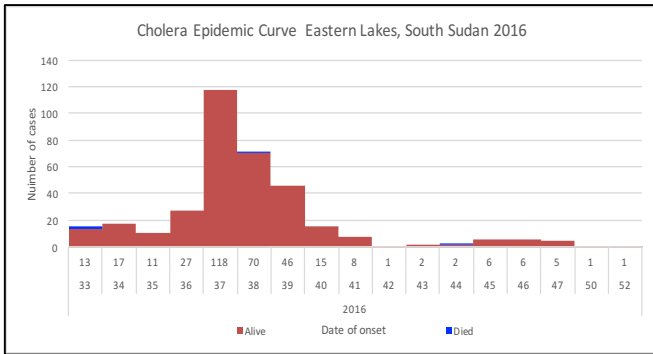
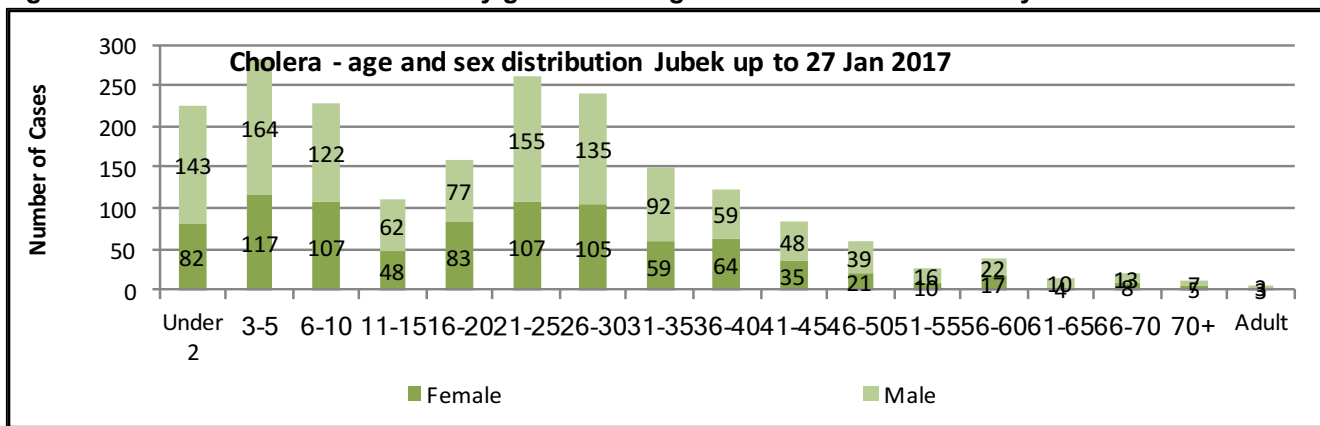
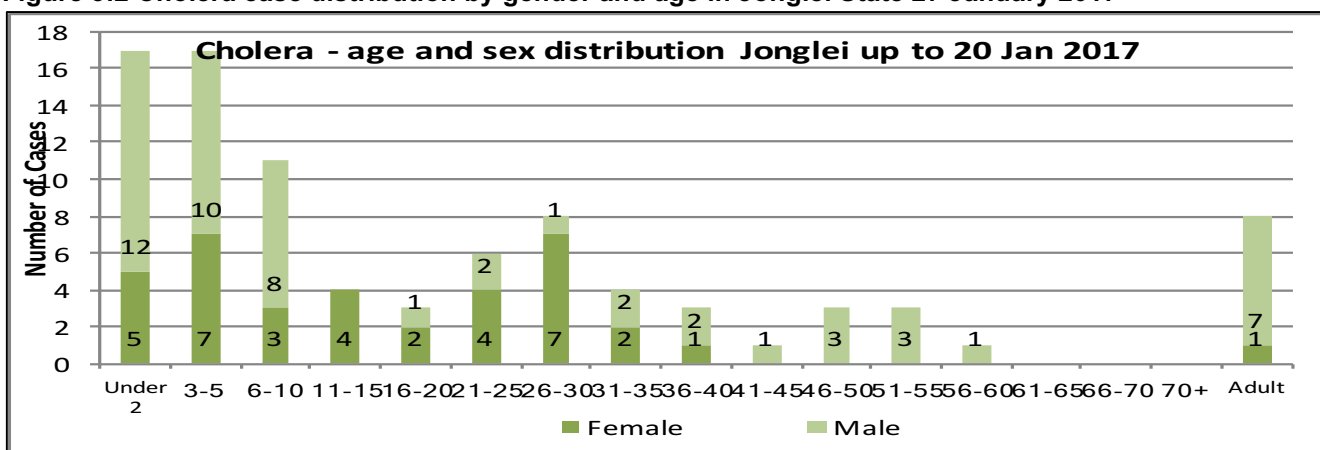


Figure 3:1 Cholera case distribution by gender and age in Jubek State 27 January 2017



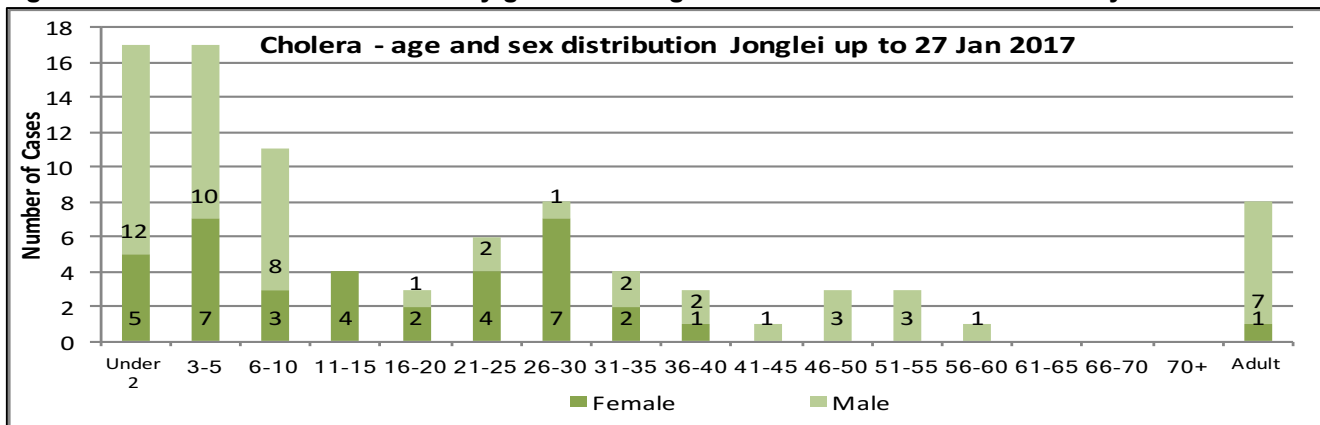
Out of the 2044 cholera cases in Jubek State, 875 (42.8%) were female, while 1169 (57.2%) were male

Figure 3:2 Cholera case distribution by gender and age in Jonglei State 27 January 2017



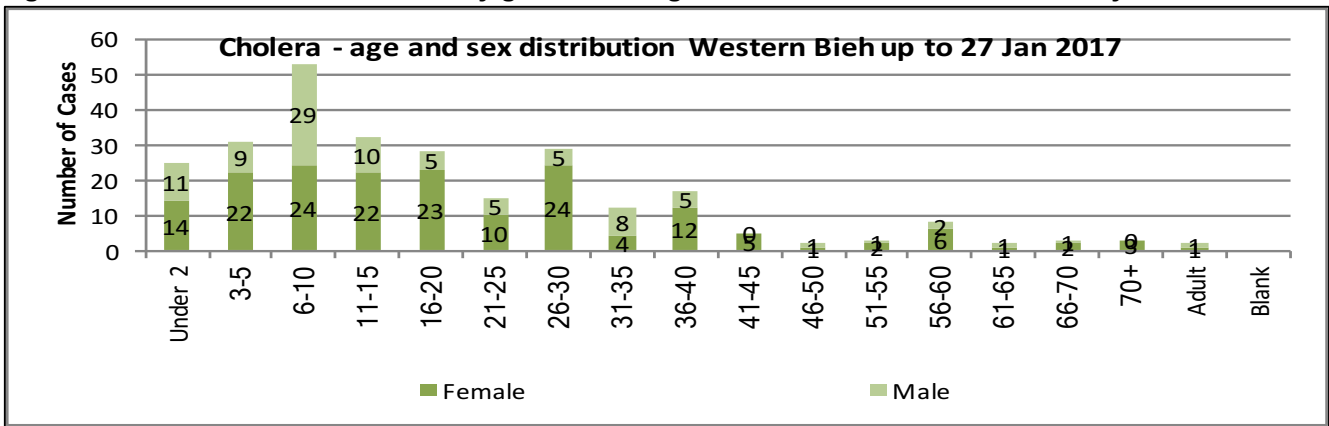
Out of the 92 cholera cases, in Jonglei State 40 (43.5 %) were female, while 52 (56.5%) were male

Figure 3:3 Cholera case distribution by gender and age in Eastern Lake State 27 January 2017



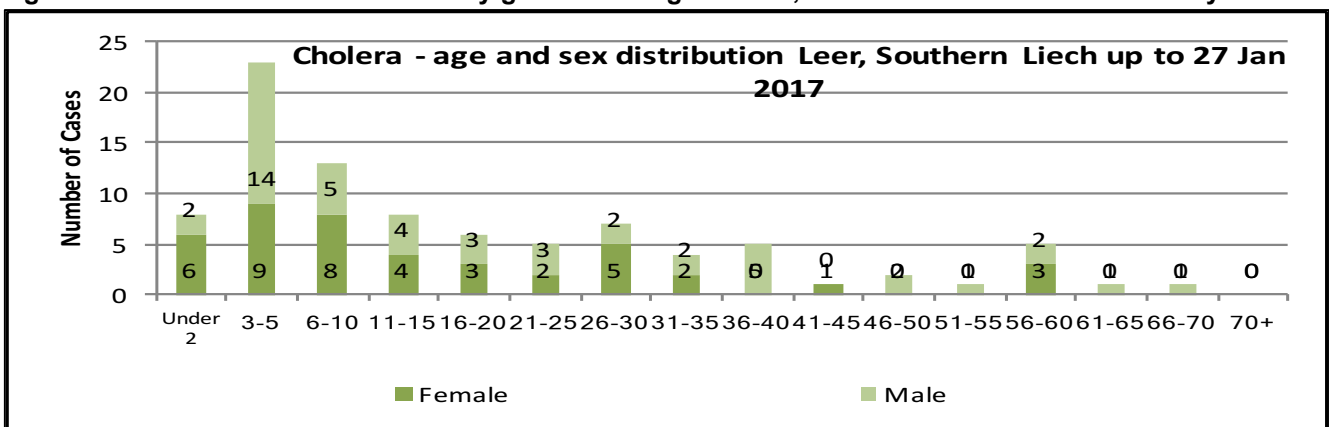
Out of the 353 cholera cases, in Eastern Lake State 151 (42.7 %) were female, while 202 (57.2 %) were male.

Figure 3:4 Cholera case distribution by gender and age in Western Bieh State 27 January 2017



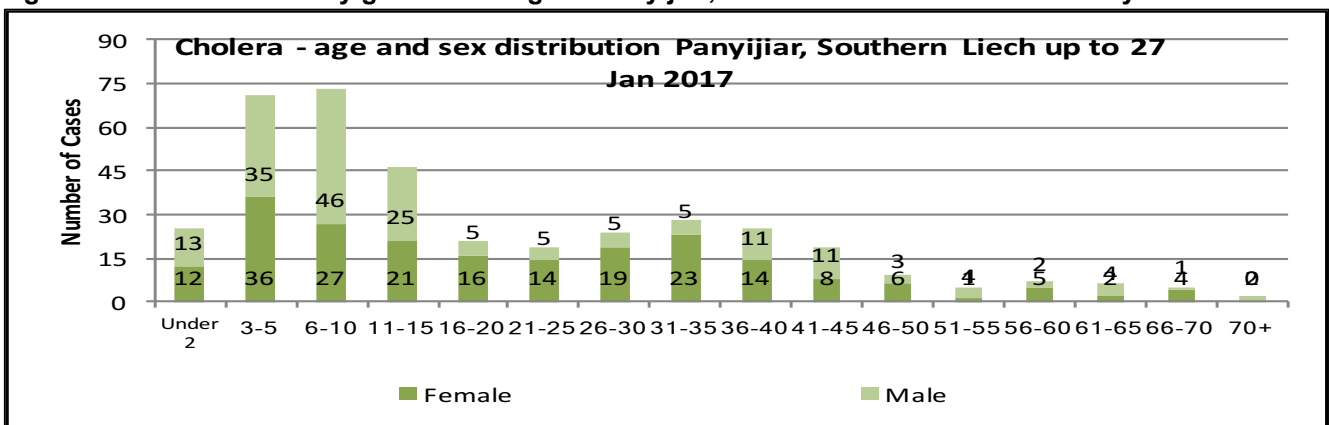
Out of the 268 cholera cases, in Western Bieh State 174 (65 %) were female, while 94 (35 %) were male.

Figure 3:5 Cholera case distribution by gender and age in Leer, Southern Liech State 27 January 2017



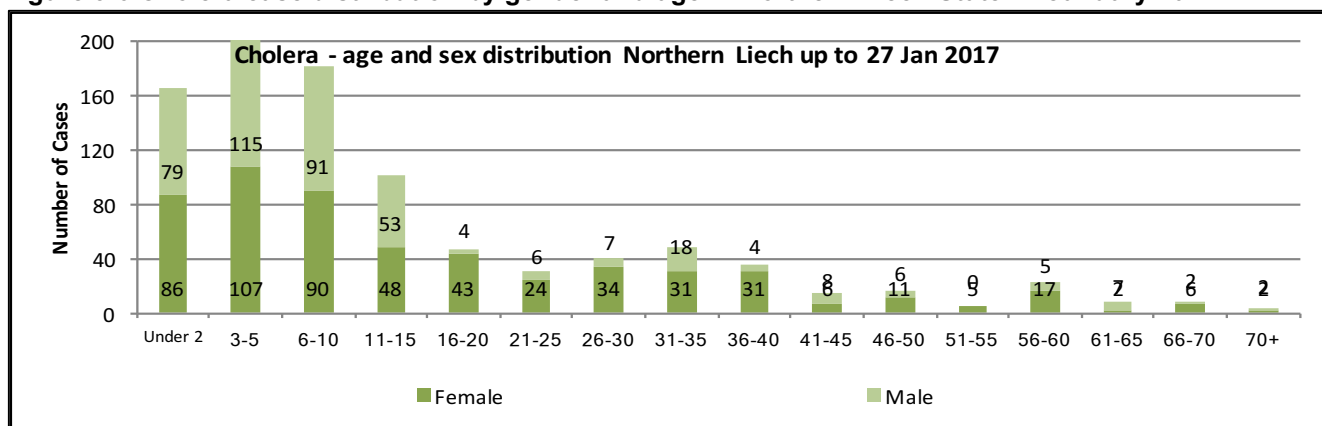
Out of the 91 cholera cases, in Leer, Southern Liech State 44 (48.4 %) were female, while 47 (51.6 %) were male.

Figure 3:5 Cholera cases by gender and age in Panyijiar, Southern Liech State 27 January 2017



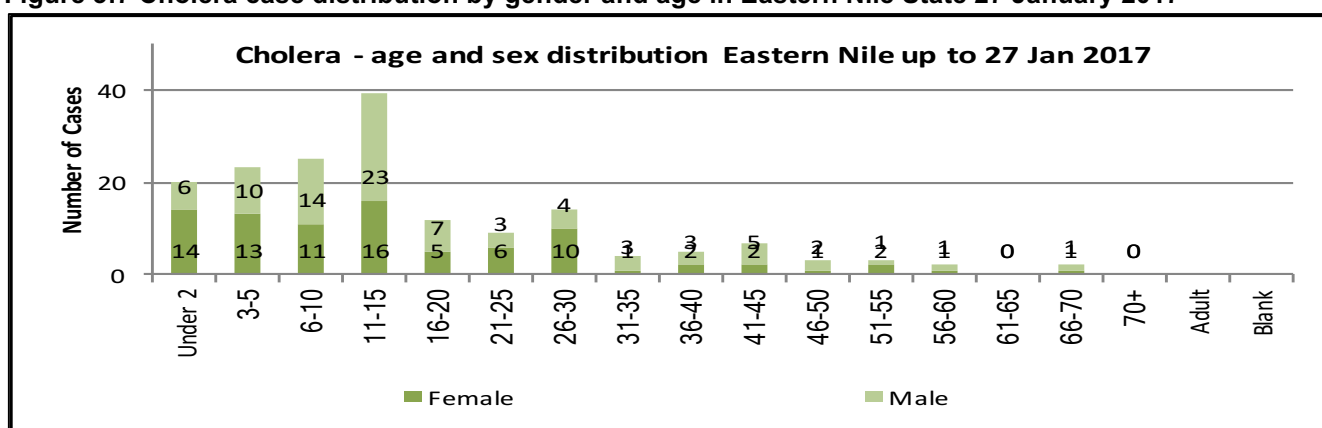
Out of the 385 cholera cases, in Panyijiar, Southern Liech State 208 (54 %) were female, while 177 (46 %) were male.

Figure 3:6 Cholera case distribution by gender and age in Northern Liech State 27 January 2017



Out of the 959 cholera cases, in Northern Liech State 549 (57.2 %) were female, while 410 (42.8 %) were male.

Figure 3:7 Cholera case distribution by gender and age in Eastern Nile State 27 January 2017



Out of the 168 line listed cholera cases, in Eastern Nile State 85 (50.6 %) were female, while 83 (49.4 %) were male.

Table 2: Case distribution by gender in South Sudan 27 January 2017

State	Female	Male	Total cases
Eastern Lakes	152	201	353
Imatong	13	16	29
Jonglei	40	52	92
Jubek	875	1,169	2,044
Terekeka	13	9	22
Western Bieh	176	94	270
Northern Liech	549	410	959
Southern Liech	254	226	480
Eastern Nile	85	83	168
Total cases	2,157	2,260	4,417

The probable risk factors fueling transmission include: using untreated water from the River Nile and water tankers; lack of household chlorination of drinking water; eating food from unregulated roadside food vendors or makeshift markets; open defecation/poor latrine use especially following the conflict.

Laboratory updates

Table 3: Cholera laboratory test results for Juba by 27 January 2017

State	Culture results			
	New positives in week 4	Cumulative Positive	Cumulative Negative	Total tested
Eastern Nile	0	0	5	5
Jonglei	0	1	4	5
Jubek	0	83	128	211
Terekeka	0	2	0	2
Eastern Lakes	0	19	42	61
Imatong	0	7	1	8
Fangak	0	13	29	42
Wau	0	0	6	6
Boma	0	0	2	2
Northern Liech	0	25	50	75
Southern Liech – Leer	0	2	0	2
Southern Liech - Panyijiar	0	1	0	1
Southern Liech – Mayendit	0	0	1	1
Eastern Nile (Pigi)	1	3	5	8
Total tested	01	156	272	429

Table 4: Cholera Alerts

Date of notification	Details of the alert	Area	Action
13-Sept-2016	No alerts From 14-17 Nov, the MedAir team responded to 78 suspect cholera cases including 15 deaths in Wiechdeng, Ayod. One case tested positive on cholera RDT.	Wiechdeng, Ayok county, Southern Bieh state	MedAir responded to suspect cholera cases in Wiechdeng by setting up a 10 bed CTU. Recent assessments by MedAir show there is no active transmission in Pagil; Haat; and Wiechdeng.
8- Oct-2016	UNIDO reported 158 suspect cholera cases including three deaths	Bhor, Thaker, Tutnyang, Madol 1, Leah, Dablual, Rubchay, and Malkuer Payams, Mayendit North, Southern Liech state	UNIDO, MedAir are the healthcare partners responding to suspect cases in Mayendit. Since 7 Jan 2017, MedAir has seen at least 64 cases in their CTU in Modol 1.
26-Jan-2017	Seven suspect cholera deaths in reported by the CHD Director Yirol East	Koduwau, Panhom, Wunlit, Mayom Abun, Wanemageu, Jualnhom, and Shambe in Yirol East	Rapid Response team verification and response is ongoing.

Cholera Response Activities

Overall coordination of the cholera response at the national level is coordinated by the National cholera taskforce to review outbreak trends and progress of implementation activities. Security concerns have remained a major impediment to the implementation of sustained and comprehensive cholera investigation and response activities in Leer and Mayendit.

Cholera case management is ongoing at the designated cholera treatment facilities in the nine affected states. As cases decline in the affected areas, laboratory surveillance has been strengthened to ensure that all suspect cholera cases undergo rapid diagnostic testing and stool culturing to confirm cholera. WHO has therefore supported the partners operating cholera treatment facilities with ample supplies for sample collection, onsite rapid diagnostic testing, and shipment to the National Public Health Laboratory for culturing.

WHO is supporting the cholera investigation and response activities in all the nine affected states and the two states with alert suspect cases. Core to WHO's support to the current cholera response is technical support to the taskforce committees by providing updated situation reports; supporting the investigation and testing of suspect cases; support towards case management activities through trainings on cholera case management protocols; recommending tailored strategies in response to emerging trends; and support for the outbreak evaluation process that is already underway. WHO technical officers are currently deployed in Mingkaman; Bentiu, Bor, Malakal, Imatong, and Juba to support the ongoing response activities.

UNICEF continues to support the Cholera response at the community level across all relevant sectors of Health, WASH, and communication through active partnerships with following implementing partners: Health Link South Sudan (HLSS), LiveWell, ACROSS, CAPIAD, THESO, BEDN, IMC, RUWASSA, SMC, NHDF, UNIDO, World Relief, and ARUDA.

In Jubek, there has been resurgence of cases in UN House PoC since week 52 of 2016. In response to the resurgence, a multi-cluster investigation mission was undertaken during the week. Thus, response efforts have been enhanced in UN House PoC with the WASH cluster carrying out spraying of the latrines and random quality water testing and reactivation of ORPs. In addition, HHPs have been deployed to carry out house-to-house hygiene promotion.

Active transmission is ongoing in Southern Liech and Northern Liech states where Facility and community based response is ongoing with most cases being managed in facilities like Duong PHCC, Ganyliel PHCC, and Nyal PHCC with support from IRC, UNIDO, and Sign of Hope.

Since 7 October 2016, at least 158 suspect cholera cases including three deaths were reported by UNIDO and MedAir response teams in Mayendit. The MedAir CTU in Madol 1 has seen at least 64 cases since 7 January 2017.

The resurgence of cholera cases in UN House PoC highlights the need to enhance cholera prevention and control activities in the PoC guided by the integrated approach for cholera response.

Recommendation and way forward for Bentiu PoC

Improving access to timely rehydration

The following strategies should be considered to increase access to timely rehydration in the PoC:

1. The community health workers should be deployed to do house-to-house case search and initiate prompt treatment with ORS with immediate referral to the designated cholera treatment centers. The community health workers should be able to dispense the ORS during the household visits.
2. Each block should have a designated community health worker with ORS that is known by the dwellers and who can be called on short notice to assess; initiate treatment; and refer suspect cases.
3. Open additional mobile clinics or ORPs in the most affected sectors to ensure good access to timely rehydration during day time.
4. All the existing clinics and pharmacies should be stocked with ample amounts of ORS to provide to suspect cases.

Surveillance and laboratory testing

Since this is a population where oral cholera vaccination was implemented in 2014 and 2015; case based surveillance is recommended. Thus, in the current context, cases that meet the suspect cholera case definition should undergo an initial screening using the enhanced RDT testing technique (using enrichment of samples with alkaline peptone water before the test is conducted). This will improve the specificity for identifying the real cholera cases and thus accurately monitoring the evolution of the outbreak.

Secure-off the water retention pond

Water retention pond: it is very clear that the possible source of infection to the community is the water retention pond. This water is contaminated with faecal matter due to rampant open defecation. The camp management should fence off this water source and forbid population from using it until the outbreak is over.

Targeted interventions to children as a high-risk group

Nearly 80% of the cases are children: This is possibly because they swim and drink the water in the retention pond. Health education should be directed to this age-group by involving the school children in the PoC.

ORAL Cholera Vaccination (OCV)

To increase immunity, there is a need for two rounds of oral cholera vaccination. The population of Bentiu PoC when the last two rounds were conducted in June 2015 was about 70,000. The current population has increased to 120,000. OCV coverage survey conducted by WHO/IOM in December 2016 showed that the OCV coverage stands at 40%. This is therefore not adequate to prevent transmission.

WASH related control activities

All efforts towards improving access to safe drinking water, hygiene, and sanitation should be enhanced with regular assessments to review and update the taskforce on the following:

- The amount of safe drinking water supplied per person per day by sector
- Access to improved latrines per person per day by sector
- Data on regular surveys to document FRC levels at the source; tap stands and household levels.
- Documentation of waiting time at the tap stands to determine if there are unacceptable delays
- A jerry-can cleaning and replacement drive at the tap stands in all the sectors to promote safe water chain.
- Distribution of other NFIs like soap to promote and augment personal hygiene at household level.
- House to house hygiene sensitization that is targeted to most affected blocks and sectors that are surrounding the water retention pond.

Social mobilization and health education for cholera control

Given the current transmission levels in Bentiu PoC; ongoing social mobilization in each of the five sectors to sensitize the camp dwellers on cholera, how it is spread, the signs and symptoms, and behaviors to mitigate the risk – proper hand washing; using safe drinking water; and good sanitation. The campaign should also entail a cleaning drive in each of the sectors.

Planned Activities

1. The next weekly EPR/cholera taskforce meeting is scheduled for 1 February 2017 starting 2:00pm in the WHO Conference Hall.
2. Continue social mobilization activities, active case surveillance, and street announcements with open van, house to house awareness and distribution of WASH supplies by HHPs in affected and at risk areas in UN House PoC, Northern Liech, and Southern Liech.

Many thanks to the staff at CTCs, MoH at national level and state levels, especially the Department of IDSR, who have helped to gather the information presented here. Situation Reports are posted on the WHO website: <http://www.who.int/hac/crises/ssd/en/> as well as on the Humanitarian Info webpage: <http://southsudan.humanitarianresponse.info/clusters/health>.

The MoH/WHO surveillance team welcomes feedback and data provided by individual agencies. Given the fast evolving nature of this epidemic, errors and omissions are inevitable: we will be grateful for any information that helps to rectify these. Send any comments and feedback to: E-mail: outbreak_ss_2007@yahoo.com, **The Toll-free number for Vivacell calls is: 1144.**

Contacts

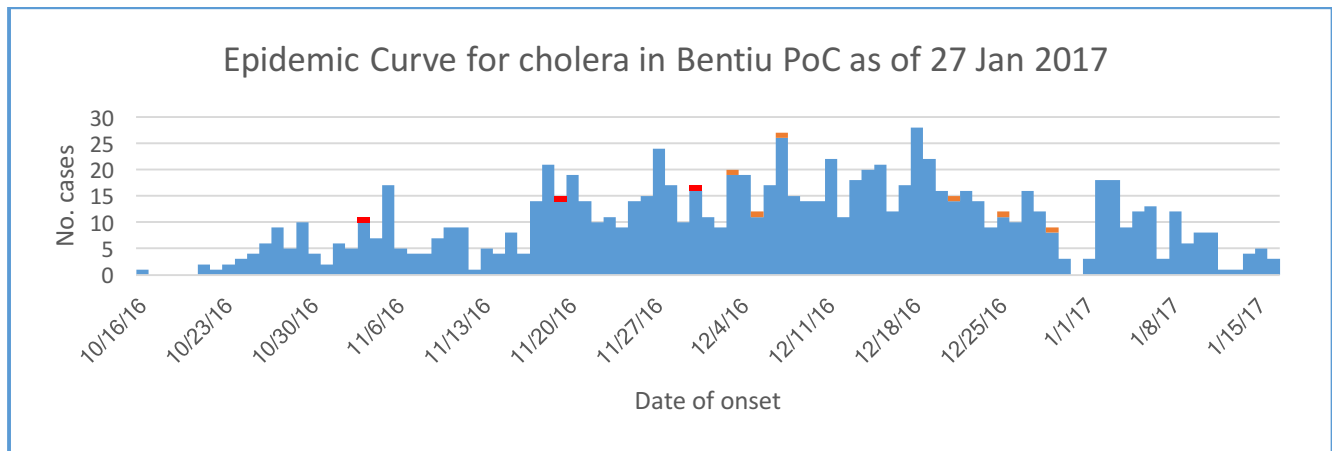
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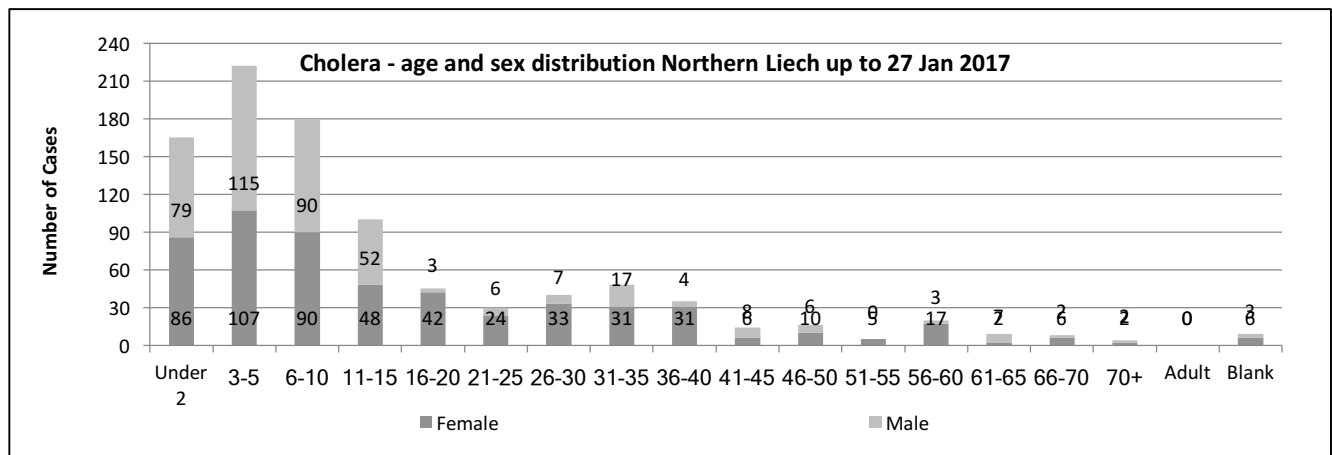
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Annex 1: Cholera distribution in Bentiu PoC as of 27 January 2017

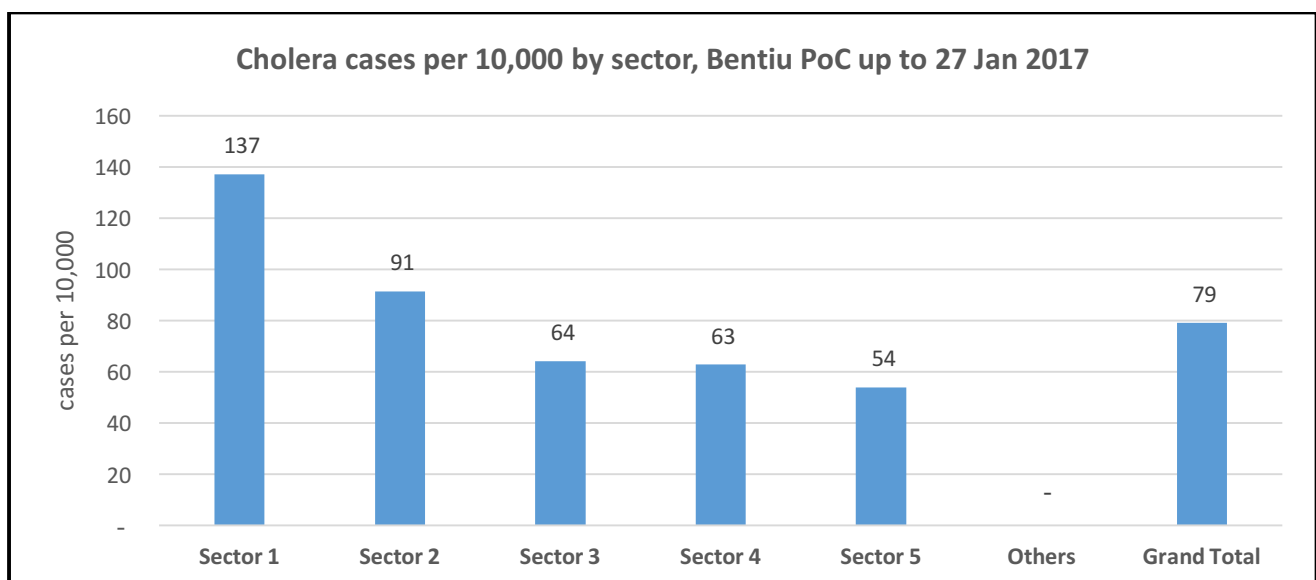
Annex 1.1: Cholera case distribution by time in Bentiu PoC 27 January 2017



Annex 1.2: Cholera age and sex distribution in Bentiu PoC as of 27 January 2017



Annex 1.3: Cholera case distribution by sector in Bentiu PoC as of 27 January 2017



Annex 1.4: Cholera case distribution by sector and block in Bentiu PoC as of 27 January 2017

