



Republic of South Sudan

Situation Report #119 on Cholera in South Sudan As at 23:59 Hours, 5 May 2017

Epidemic trends

Cholera confirmed in Kapoeta South after four of six samples tested positive for *Vibrio cholerae* on 5 May 2017 [Table 3](#). [Table 1](#) summarizes reported cases (confirmed or suspected), admissions and deaths during the current reporting period, and cumulatively, by affected county and state. Currently, **9 (47%)** out of **19** counties ever affected (since June 2016) have reported cholera cases in the past 4 reporting periods (weeks) and are considered to have active transmission [Table 1](#).

Table 1: Counties with active transmission (cholera cases in the last four weeks) as at 5 May 2017

State	County or site	Date first reported	Cases reported		Inpatient admissions		Deaths			
			New during reporting period	Cumulative to date (attack rate per 10,000)	New during reporting period	Cumulative to date	New during reporting period	Cumulative to date		
							Community	Facility	Facility (CFR%) [†]	
Jonglei	Duk	05-Jul-16	45	40	45	466	0	32	4	0.9
Fashoda	Kodok	04-Apr-17	0	5.1	0	30	0	1	3	10.3
Fangak	FANGAK	10-Aug-17	0	20.5	0	356	0	0	5	1.4
	Ayod	30-Mar-17	2	11.6	2	308	0	38	0	0.0
Eastern Lakes	Awerial	15-Aug-16	33	94.2	33	1126	0	11	2	0.2
	Yirol East	05-Feb-17	117	69	117	917	3	40	16	1.8
	Yirol West	12-Apr-17	12	3.5	12	96	0	0	0	0.0
Central Upper Nile	Pigi- canal	10-Oct-16	0	12.2	0	202	0	0	5	2.5
Kapoeta	Kapoeta South	23-Apr-17	25	2.4	25	28	0	0	0	0.0
Totals (South Sudan)			234		234	3529	3	122	35	1.0

[†] Case-fatality ratio (deaths among all cases discharged dead or alive from health facilities).

Laboratory testing and confirmation

During the reporting period, five samples from Kapoeta South (4) and Kodok (1) tested positive for *Vibrio cholerae*. A total of **19** counties in 11 (**33%**) of 32+1 states countrywide have confirmed cholera outbreaks since June 2016 [Table 1.1](#); [Figure 1.0](#). Cumulatively, **226 (38.8%)** samples have tested positive for *Vibrio Cholerae inaba* in the National Public Health Laboratory as of 5 May 2017 [Table 3](#).

Table 1.1: Summary of cholera cases reported in South Sudan as of 5 May 2017

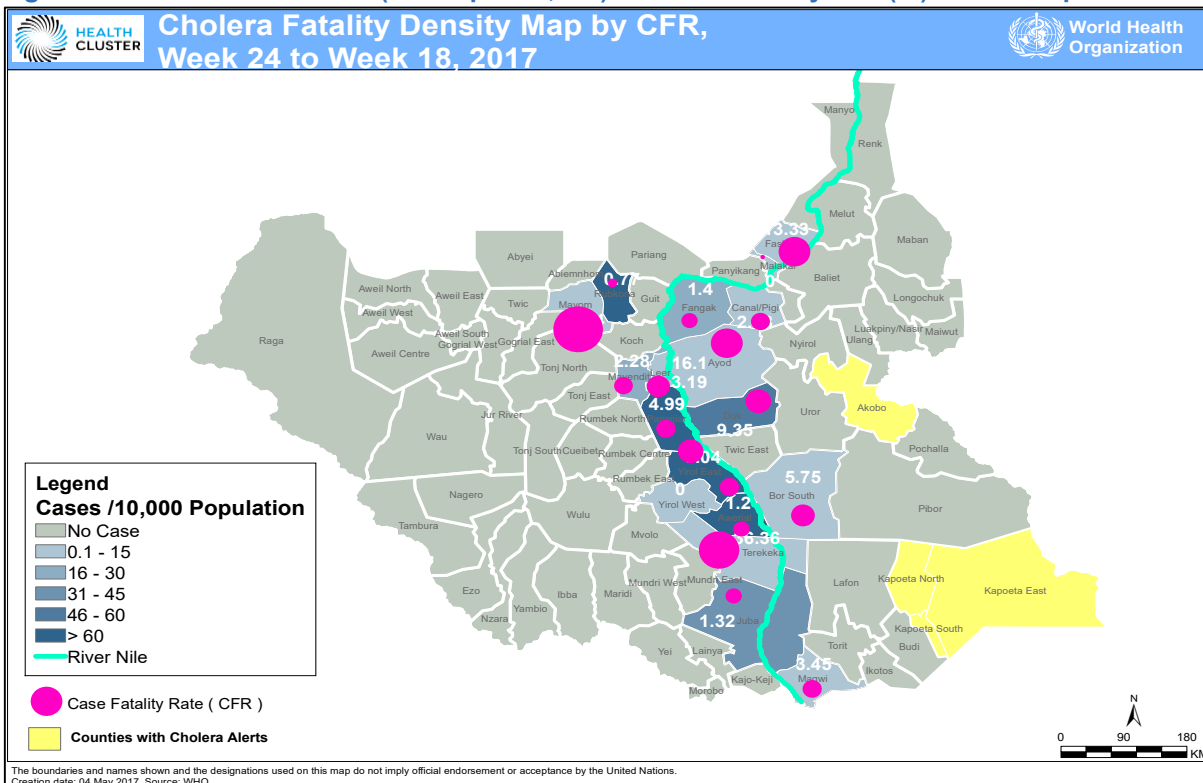
County	New admissions WK 18	New discharges WK 18	New deaths WK 18	Total cases currently admitted	Total facility deaths	Total community deaths	Total deaths	Total cases discharged	Total cases
Juba	-	-	-	-	8	19	27	2,018	2,045
Duk	45	81	1	-	5	32	37	429	466
Bor	-	-	-	-	1	4	5	82	87
Terekeka	-	-	-	-	-	9	9	13	22

County	New admissions WK 18	New discharges WK 18	New deaths WK 18	Total cases currently admitted	Total facility deaths	Total community deaths	Total deaths	Total cases discharged	Total cases
Awerial	33	56	-	21	2	11	13	1,092	1,126
Yirol East	117	161	6	5	16	40	56	856	917
Yirol West	12	19	-	6	-	-	-	90	96
Pageri	-	-	-	-	-	1	1	28	29
Ayod	2	14	-	-	-	38	38	270	308
Fangak	-	-	-	-	5	-	5	351	356
Rubkona	-	-	-	-	7	2	9	1,167	1,176
Mayom	-	-	-	-	-	4	4	3	7
Leer	-	-	-	-	3	-	3	91	94
Panyijjar	-	-	-	-	21	4	25	476	501
Mayendit	-	-	-	-	-	5	5	221	226
Pigi	-	-	-	-	5	-	5	197	202
Kodok	-	-	-	-	3	1	4	26	30
Malakal	-	-	-	-	0	-	-	19	19
Kapoeta South	25	14	-	14	0	-	-	14	28
Total	234	345	7	46	76	170	246	7,443	7,735

Highlights in week 18 of 2017:

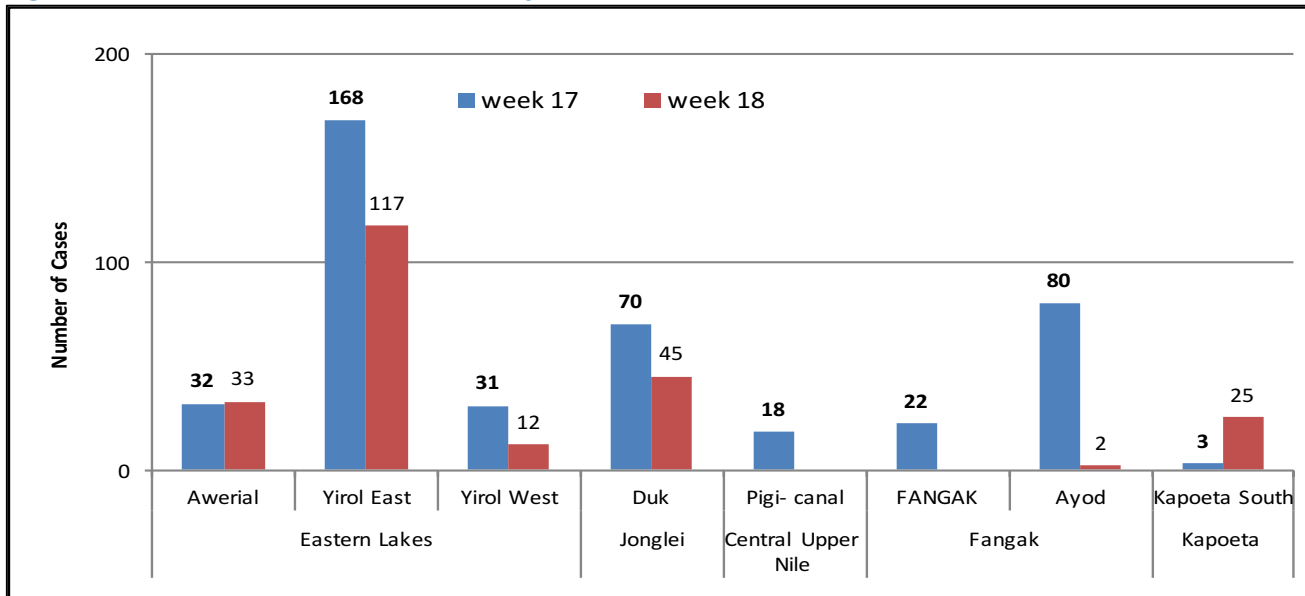
1. Cholera confirmed in Kapoeta South after four of six samples tested positive for *Vibrio cholerae* on 5 May 2017 [Table 3](#).
2. During the reporting period, five samples from Kapoeta South (4) and Kodok (1) tested positive for *Vibrio cholerae* [Table 3](#).
3. Active transmission reported in at least nine counties where cases have been reported in the last four weeks [Table 1](#).
4. The first round of oral cholera vaccination in Bentiu PoC started on 5 May 2017 while the first round of the vaccination campaign in Mingkaman ends on 6 May 2017 [Table 5](#) and [Table 6](#).

Figure 1.0: Cholera incidence (cases per 10,000) and case fatality rate (%) as of 22 April 2017



As seen from [Figure 1](#), while cholera outbreaks have been confirmed in 19 counties. The most affected counties are located along River Nile. This suggests – vehicle borne transmission from contaminated water in affected counties.

Figure 1.1: New cholera cases admitted by location in week 16 and 17 of 2017



During the reporting period, a total of 234 cholera cases were reported from Awerial (33), Yirol East (117), Yirol West (12), Duk (45), Kapoeta South (25), and Ayod (2) [Figure 1.1](#). Most of the cases in Yirol East originated from Yali Payam and were seen at Thonabitkok ORP. In Duk, most of the cases reported in the week originated from Poktap.

Table 1.2: Cholera cases and deaths by state and county as of 5 May 2017

State	County	Population at risk	Week 18		Weeks 24, 2016 to 18 of 2017		
			New cases W18	Cases per 10,000 population	No. cases	Cases per 10,000 population	CFR [%]
Fangak	Fangak	168,947	0	-	356	21.1	1.4
Fangak	Ayod	204,215	2	0.10	308	15.1	13.6
Northern Liech	Rubkona	126,976	0	-	1176	92.6	0.77
Northern Liech	Mayom	191,758	0	-	7	0.4	57.14
Southern Liech	Leer	95,731	0	-	94	9.8	3.19
Southern Liech	Panyijiar	78,020	0	-	501	64.2	4.99
Southern Liech	Mayendit	97,127	0	-	226	23.3	2.28
Eastern Lakes	Awerial	114,837	33	2.87	1126	98.1	1.15
Eastern Lakes	Yirol East	104,694	117	11.18	917	87.6	6.11
Eastern Lakes	Yirol West	155,934	12	0.77	96	6.2	0
Imatong	Pageri	215,130	0	-	29	1.3	3.45
Jonglei	Bor South	331,611	0	-	87	2.6	5.75
Jonglei	Duk	96,259	45	4.67	466	48.4	7.94
Jubek	Juba	579,778	0	-	2,045	35.3	1.32
Terekeka	Terekeka	209,902	0	-	22	1.0	36.36
Central Upper Nile	Pigi	150,800	0	-	202	13.4	2.48
Fashoda	Kodok	59,074	0	-	30	5.1	13.33
Central Upper Nile	Malakal	214,679	0	-	19	0.9	0
Kapoeta	Kapoeta South	116,695	25	2.14	28	2.4	0
Total		3,312,167	234	0.71	7,735	23.4	3.23

† Case-fatality ratio (deaths among all cases discharged dead or alive from health facilities).

Cumulatively, **7,735** cholera cases including **246** deaths (**76** facilities and **170** community) (CFR **3.23%**) have been reported in South Sudan involving **19** counties in **11** states since the initial case was reported on 18 June 2016 for Jubek state; 3rd July 2016 for Duk in Jonglei state; 14 July 2016 for Terekeka state, 15 August 2016 for Mingkaman in Eastern Lakes and Pageri in Imatong states; 10 August 2016 for Fangak in Western Bieh state; 29 September 2016 for Rubkona in Northern Liech state; 11 October 2016 for Leer; 22 October 2016 for Panyijiar in Southern Liech state; 10 October 2016 for Pigi in Central Upper Nile state; 7 October 2016 for Mayendit in

Southern Liech state; 30 January 2017 for Bor South in Jonglei state; 3 February 2017 for Yirol East in Eastern Lakes state; 22 February 2017 for Malakal, in Central Upper Nile state; and 8 April 2017 for Ayod; 4 April for Kodok; and 23 April for Kapoeta South (Figure 2.1 and Table 1.1).

Figure 2:1 Epidemic curves for counties with active transmission (cases in the recent four weeks), 2017

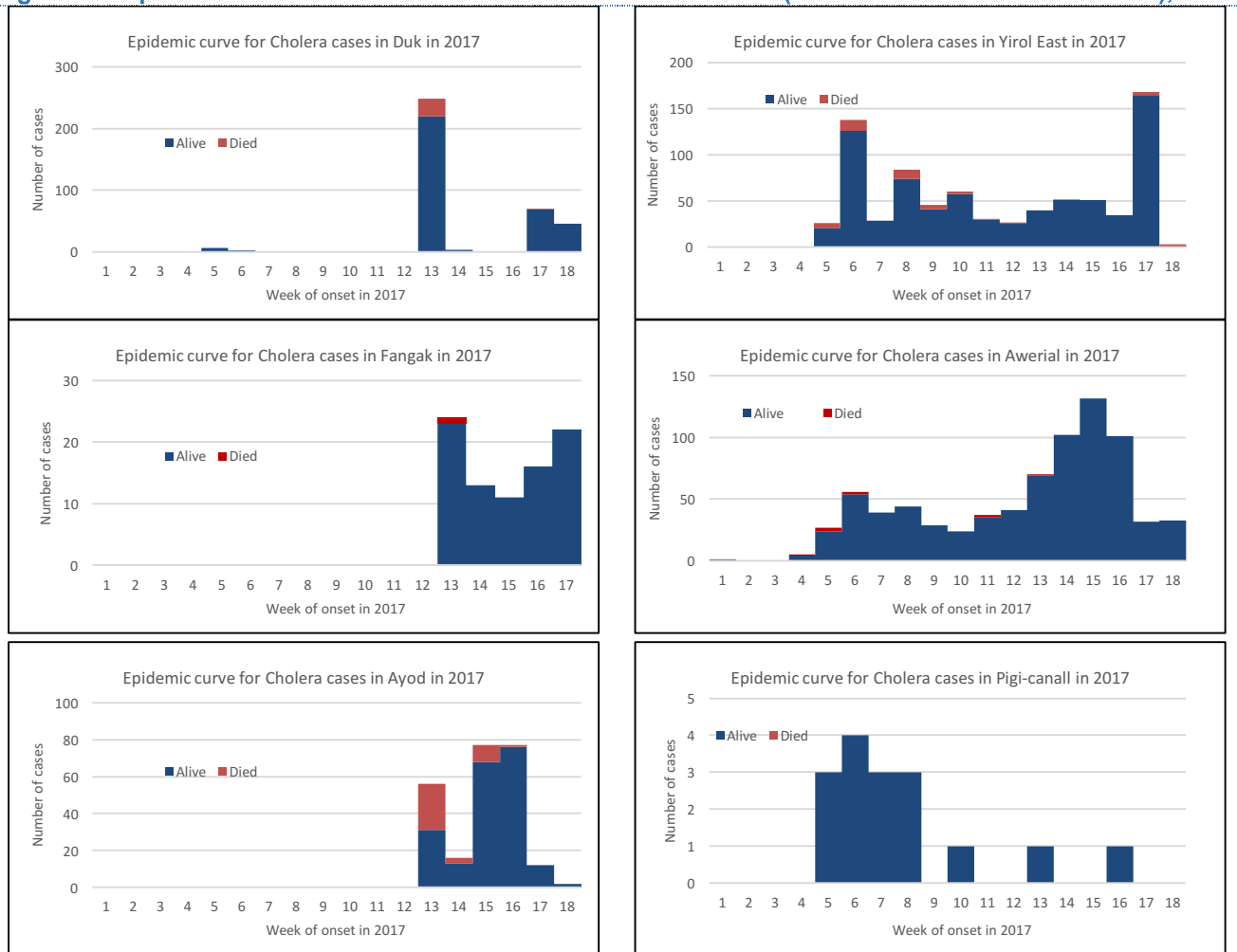


Figure 2.2 Epidemic curve for cholera cases in South Sudan from week 24, 2016 to week 18, 2017

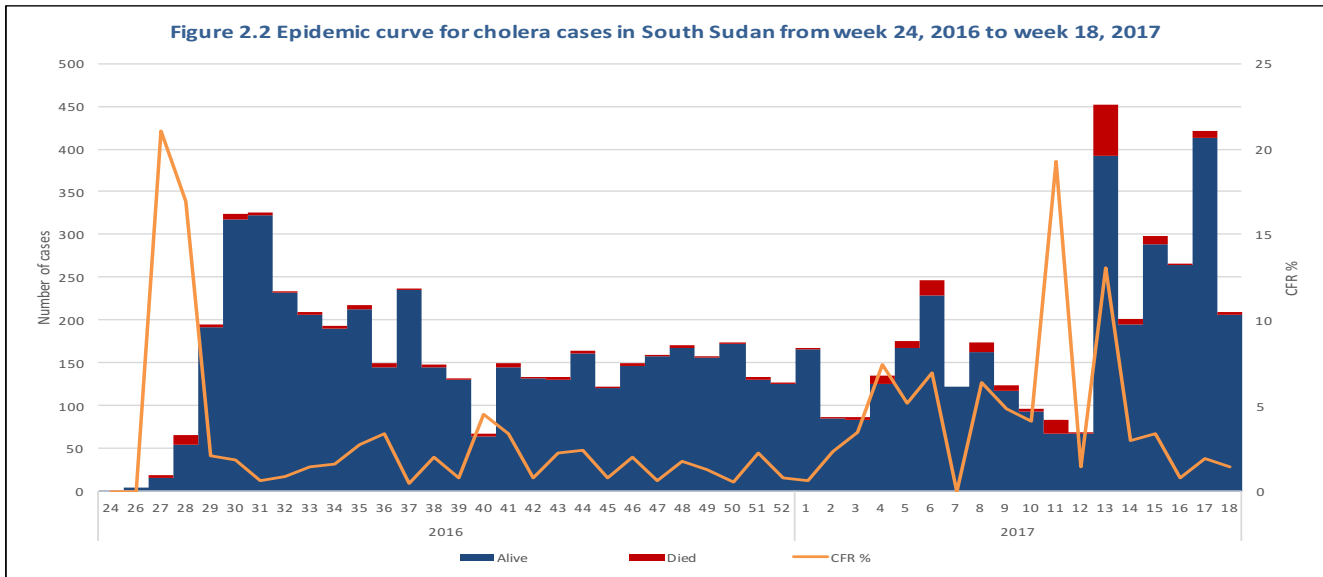
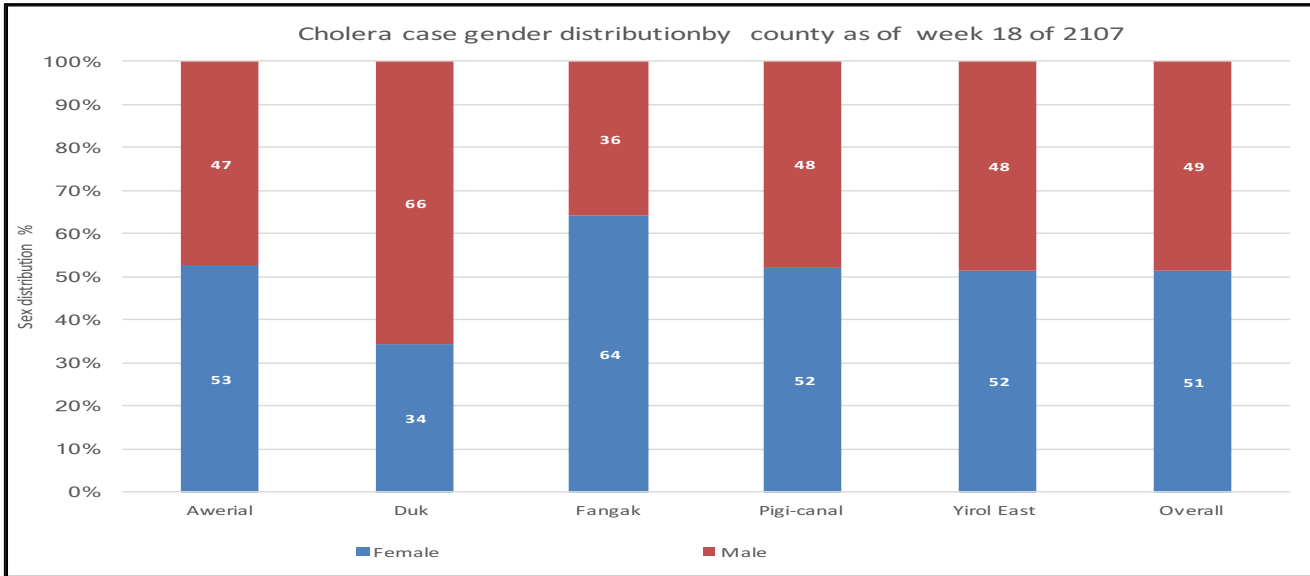


Figure 2.1 shows the epidemic curves for the counties with active transmission with sustained and increasing transmission reported in Yirol East, Awerial, Ayod, and Fangak. These trends highlight the need to enhance and optimize the preventive and response interventions in these counties to interrupt transmission. Figure 2.2 shows the overall cholera epidemic curve and the weekly case fatality rates since June 2016. Recent upsurges in transmission and case fatality rates associated with transmission in cattle camps.

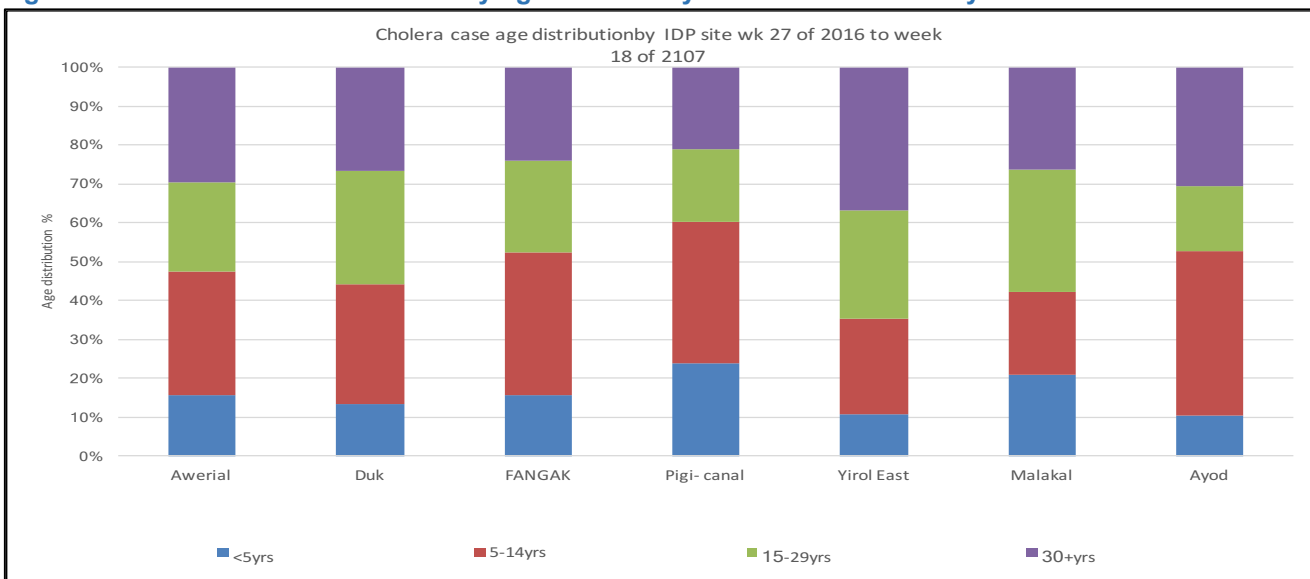
Figure 3:1 Cholera case distribution by gender and county 5 May 2017



Overall, males and females are almost evenly [Figure 3.1](#). The gender distribution of cholera cases by county is shown in [Figure 3.1](#) for only select counties with active transmission.

Children and young adults under 30 years are the most affected constituting 70% of the cases [Figure 3.2](#). The age distribution of cholera cases by county is shown in [Figure 3.3](#) for only select counties with active transmission.

Figure 3:3 Cholera case distribution by age and county in South Sudan 5 May 2017



Probable risk factors

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.

Other factors

1. Due to the protracted nature of the crisis since 2013, there has been destruction of infrastructure and limited investments to improve social services to the general population as such, living conditions have deteriorated with declining access to safe water and sanitation amenities.
2. Due to the worsening, economic situation, the cost of accessing safe water from the water trucks has increased substantially thus forcing households to resort to unsafe water sources.
3. In Southern Liech, humanitarian access remained limited due to persistent hostilities that kept away partners and thus impeding the initiation of comprehensive and sustained cholera interventions to interrupt transmission and prevent widespread and protracted outbreak. Consequently, transmission has continued in Southern Liech since late September 2016 with continued case spillovers to Bentiu, Panyijiar, Awerial, and Bor South.
4. While WASH partners have endeavoured to improve access to safe water and sanitation in Bentiu PoC; the continued arrival of people into the PoC has remained a challenge. In addition, current transmission in Bentiu PoC is linked to an oxidation water pond that is being used for bathing, washing, swimming and sometimes to collect water for household use since its water is soft and considered more palatable by the local population. The pond therefore needs to be secured-off to stem the ongoing transmission and to prevent future outbreaks.

Table 3: Cholera laboratory test results for Juba by 5 May 2017

State (County)	Culture results			Total tested
	New positives in week 18	Cumulative Positive	Cumulative Negative	
Central Upper Nile	0	0	5	5
Jonglei-Duk	0	7	5	12
Jonglei-Bor South	0	6	3	9
Jubek	0	84	133	217
Terekeka	0	2	0	2
Eastern Lakes - Mingkaman	0	44	52	96
Eastern Lakes – Yirol West	0	3	0	3
Eastern Lakes – Yirol East	0	4	6	10
Imatong	0	7	1	8
Fangak – Fangak	0	18	41	59
Fangak – Ayod	0	1	2	3
Wau	0	0	6	6
Boma	0	0	2	2
Northern Liech – Rubkona	0	32	73	105
Northern Liech – Mayom	0	1	1	2
Southern Liech – Leer	0	2	0	2
Southern Liech - Panyijiar	0	1	0	1
Southern Liech – Mayendit	0	4	6	10
Fashoda – Kodok	1	2	3	5
Central Upper Nile (Pigi)	0	3	5	8
Central Upper Nile (Malakal)	0	1	11	12
Kapoeta (Kapoeta South)	4	4	2	6
Total tested	5	226	357	583

Table 4: Cholera Alerts

Notification date	Details of the alert	Area	Action
	No alerts		
26-Apr-2017	Suspect cholera cases and deaths reported in cattle camps in Kapoeta East	Kapoeta East	- Verification of suspect cases ongoing by ARC supported by the CHD and Carter Center.
25-Apr-2017	Suspect cholera case reported in Akobo West by IMC	Akobo West	- Investigation and case management activities led by IMC

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. Sub-national cholera taskforce committees are coordinating the cholera response in Northern and Southern Liech, Yirol East, Mingkaman, Bor, Duk, Ayod, and Malakal Town.

Since mid-February 2017, there have been increasing reports of suspect cholera cases in cattle camps. As pastures reduce and seasonal water streams dry up during the dry season; the cattle camps gravitate and converge on the remaining water sources usually in the swampy areas along River Nile and other rivers where they use and share the same water with the animals and use the same water for defecation.

The affected cattle camps include Guthom in Yirol East, Jalle in Bor; cattle camps in Awerial near Mingkaman, Mamour in Duk-Padiet; Buol cattle camps in Ayod, Torch cattle camps along River Kier in Ayod, Tar cattle camp in Ayod, and other cattle camps near Pagil in Ayod. The transmission in Awerial (Dor), Yirol East (Tharnuar), and Ayod (Buol and Tar) is largely attributed to disease spread in affected cattle camps. Oral rehydration points and/or mobile teams have been deployed to respond to cholera cases in affected cattle camps. The communication strategy has been updated accordingly.

In Kapoeta South and Kapoeta East, Save the Children has established an oral rehydration point (ORP) in Riwoto PHCC while ARC with support from Unicef and WHO has established a cholera treatment unit (CTU) in Kapoeta state hospital.

WHO and UNICEF have delivered case investigation and case management supplies to Kapoeta. Stool samples have been delivered in Juba to test for cholera.

WHO has also deployed a team of technical officers to Mingkaman to support the cholera response.

In response to the suspect cholera cases in Kapoeta, WHO has deployed a cholera investigation and case management team along with kits to enhance cholera investigation and response activities.

Working with Health and Wash cluster partners, WHO has completed a rational plan for deploying 9 million doses of oral cholera vaccines alongside WASH interventions over the next two years targeting at least 4.5 million people aged one year and above in cholera transmission hotspots. The plan has been submitted to the Global Taskforce for cholera control for approval.

In response to these cases in cattle camps, oral rehydration points have been established and mobile teams have been deployed to treat cases and improve access to safe water. In collaboration with health cluster partners, WHO is planning to deploy oral cholera vaccines to mitigate the risk of cholera in the cattle camps.

Working with the MoH and MSF-CH, WHO is supporting the reactivation of active cholera surveillance in at least eight sentinel health facilities in Juba to ensure timely detection and response to emerging cases.

Complementary oral cholera vaccination

At least 43,197 individuals one year and above received OCV in Leer, Malakal Town, and Bor PoC in 2017. The first round of oral cholera vaccination in Bentiu PoC started on 5 May 2017 and ends on 8 May 2017 [Table 5](#). The first round of the vaccination campaign in Mingkaman started on 25 April 2017 and ends on 6 May 2017 [Table 6](#). Preparations are underway to conduct reactive vaccination campaign in Ayod (Tar and Pagil) using the vaccine balances from Mingkaman.

Table 5: OCV administrative coverage summary for day 1 (5May2017) in Bentiu PoC

Bentiu PoC site	1-4 years.	5-14 years.	≥15 years.	Total Vaccinated day 1
Gate 1	-	-	-	-
Gate 2	-	-	-	-
Sector 1	449	669	607	1,725
Sector 2	581	912	680	2,173
Sector 3	456	834	809	2,099
Sector 4	390	819	521	1,730
Sector 5	250	453	482	1,185
Grand Total	2,126	3,687	3,099	8,912

Table 6: OCV administrative coverage summary for Mingkaman, 25 April to 4 May 2017

Mingkaman IDP site	1-5yrs		5-17yrs		18-45 yrs		>45 yrs	
	Male	Female	Male	Female	Male	Female	Male	Female
Site 0	2356	2342	3898	3806	3603	3954	1305	1650
Site 1	1087	1013	1930	1841	1007	1534	393	600
Site 2	508	486	570	635	453	620	311	354
Site 3	242	267	292	356	165	255	92	131
Kalthouk	338	335	372	374	168	281	76	115
Totals	4531	4443	7062	7012	5396	6644	2177	2850

Social mobilization activity updates

no – updates submitted this week.

Wash cluster response highlights

no – updates submitted this week.

Planned Activities/recommendations

1. The next weekly EPR/cholera taskforce meeting is scheduled for 10 May 2017 starting 2:00pm in the WHO Conference Hall.
2. Roll out a comprehensive integrated response including oral cholera vaccination in response to the cholera outbreak in Mingkaman IDPs, Bentiu PoC, and Bor PoC.
3. Continue with the ongoing response to the outbreaks in Mingkaman, Yirol East, Yirol West, Northern Liech, and Pigi/Malakal Town in Central Upper Nile states.
4. Deploy additional WASH partners to support the cholera response in Yirol East and Yirol West.
5. Develop tailored strategies for cholera prevention and response in affected and at-risk cattle camps.
6. Enhance cholera preparedness, investigation and response activities in Kapoeta North and Kapoeta East as well as Torit county.
7. Identify areas with active transmission that should be prioritized for comprehensive response including oral cholera reactive vaccination to interrupt transmission.

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/sitreps/en/>

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

For more information, please contact

Dr. Pinyi Nyimol Mawien
Director General - Preventive Health Services
MoH, Republic of South Sudan
Tel: +21 1955604020

Dr. Alice Igale
Ag. Director - IDSR
MoH, Republic of South Sudan
Tel: +211956420189