Republic of South Sudan

Situation Report #110 on Cholera in South Sudan

As at 23:59 Hours, 3 March 2017

Situation Update
Cholera has been confirmed in Malakal Town, Central Upper Nile State. A total of 14 counties in 9 (28%) of 32 states countrywide have confirmed cholera outbreaks (Table 1; Figure 1.0). During week 9 of 2017, one of two samples from Malakal Town tested positive for cholera on 3 March 2017 (Table 3). Cumulatively, 187 (37.4%) samples have tested positive for Vibrio cholerae inaba in the National Public Health Laboratory as of 3 March 2017 (Table 3).

Table 1: Summary of cholera cases reported in South Sudan as of 3 March 2017

<table>
<thead>
<tr>
<th>Reporting Sites</th>
<th>New admissions WK 9</th>
<th>New deaths WK 9</th>
<th>Total cases currently admitted</th>
<th>Total facility deaths</th>
<th>Total community deaths</th>
<th>Total deaths</th>
<th>Total cases discharged</th>
<th>Total cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jubek - Juba</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Jonglei-Duk</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Jonglei-Bor</td>
<td>6</td>
<td>4</td>
<td>10</td>
<td>-</td>
<td>-</td>
<td>10</td>
<td>17</td>
<td>27</td>
</tr>
<tr>
<td>Terekeka</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>8</td>
<td>8</td>
<td>14</td>
</tr>
<tr>
<td>Eastern Lakes - Awerial</td>
<td>10</td>
<td>3</td>
<td>13</td>
<td>2</td>
<td>8</td>
<td>10</td>
<td>512</td>
<td>535</td>
</tr>
<tr>
<td>Eastern Lakes - Yirol East</td>
<td>26</td>
<td>36</td>
<td>-</td>
<td>10</td>
<td>17</td>
<td>27</td>
<td>263</td>
<td>300</td>
</tr>
<tr>
<td>Imatong - Pageri</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>1</td>
<td>28</td>
<td>29</td>
</tr>
<tr>
<td>Western Bieh - Fangak</td>
<td>-</td>
<td>-</td>
<td>4</td>
<td>-</td>
<td>4</td>
<td>266</td>
<td>270</td>
<td>-</td>
</tr>
<tr>
<td>Northern Liech - Rubkona</td>
<td>-</td>
<td>-</td>
<td>7</td>
<td>2</td>
<td>9</td>
<td>1,149</td>
<td>1,158</td>
<td>-</td>
</tr>
<tr>
<td>Southern Liech - Leer</td>
<td>-</td>
<td>-</td>
<td>3</td>
<td>-</td>
<td>3</td>
<td>91</td>
<td>94</td>
<td>-</td>
</tr>
<tr>
<td>Southern Liech - Panyijiar</td>
<td>-</td>
<td>-</td>
<td>18</td>
<td>4</td>
<td>22</td>
<td>466</td>
<td>488</td>
<td>-</td>
</tr>
<tr>
<td>Southern Liech - Mayendit</td>
<td>-</td>
<td>-</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>214</td>
<td>219</td>
<td>-</td>
</tr>
<tr>
<td>Central Upper Nile - Pigi</td>
<td>-</td>
<td>-</td>
<td>5</td>
<td>-</td>
<td>5</td>
<td>176</td>
<td>181</td>
<td>-</td>
</tr>
<tr>
<td>Central Upper Nile - Malakal</td>
<td>-</td>
<td>-</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>42</td>
<td>43</td>
<td>28</td>
<td>61</td>
<td>72</td>
<td>133</td>
<td>5,356</td>
<td>5,517</td>
</tr>
</tbody>
</table>

Highlights in week 9 of 2017:
1. Cholera has been confirmed in Malakal Town after one sample tested positive for Vibrio cholerae Table 3.
2. A total of 42 cases reported in week 9 compared to 160 cases in week 8 of 2017 Figure 1.1.
3. Active transmission is ongoing in Yirol East where Guthom (43 cases including 3 deaths), Langmatot (20 cases including 4 deaths), and Shambe (4 cases including 2 deaths) were the most affected in weeks 8 and 9, 2017 Table 3.
4. Preliminary data shows that at least 30,772 people aged ≥1 year were vaccinated by MedAir in Leer Town, Thonyor, and Padeah, Leer county during the WFP Food count registration from 24-26 February 2017.

Active transmission is ongoing in Yirol East county where most of the new cases in the past two weeks (8 and 9) originated from Guthom, Langmatot, and Shambe. Guthom has numerous cattle camps, has no road access with
most of the affected being individuals who originate or who have visited Islands on River Nile. IOM set up an ORP to manage cases in Guthom. Untreated water from River Nile is the sole source of drinking water and there are no latrines in this community of around 2,000 inhabitants. The main economic activity is fishing with the fish sold in the open. Community sensitization is ongoing and demonstrations on ORS preparation and water purification using chlorine products are ongoing. The initial cases in Yirol East were reported on 3 February 2017 from Adior, Shambe, and Langmatot. The response in Yirol East was led by the state MoH, CHD, and health [CUAMM, WHO, UNICEF, IOM, and MSF-B] and WASH partners.

Figure 1.0: Cholera incidence (cases per 10,000) and case fatality rate (%) as of 3 March 2017

Figure 1.1: New cholera cases admitted by location in week 8 and 9 of 2017

The transmission in the other active transmission areas in Mingkaman, Bor, Northern and Southern Liech has declined significantly Figure 2.1. However new suspect cases are being investigated in Malakal Town in Central
Upper Nile state Table 4. Following the identification of four suspect cholera cases in Malakal Town, samples were obtained for confirmatory testing and follow up visits to the community to determine the source and identify additional suspect cholera cases. The taskforce has been activated and the response plan has been updated to guide preparedness and response actions by the taskforce.

Rapid response mission from 19-24 Feb 2017 visited Koyom and Moldova Islands in Duk. At least 8 suspect cases were reported in Koyom PHCU since 3 Feb 2017 Table 4. The team conducted sensitization on cholera prevention and left case management supplies with JDF. There is no access to safe water on the islands and there are only two communal latrines constructed by Africa Rise in 2016. The mission to Koyom and Moldova Islands was supported by WHO.

Figure 1.2: Cumulative cholera cases by state and county of residence as at 3 March 2017

On 22 February 2017, a rapid response mission was organized by MSF-B to Kuei Islands in Bor South county. There is one ‘Tukul’ (Hut) used as health facility with 3 Nurses, 3 health promoters, 1 hygiene officer, 2 clinicians, and 2 laboratory technicians – all working as volunteers. There were case management supplies donated by SMC – a national NGO. The immediate needs included training of the team on cholera protocols, securing a tent for case isolation, latrine facility, and safe water. There is no borehole on the island and only one communal latrine. These needs will be addressed in follow up visits organized by state and national taskforce.
Cumulatively, 5,517 cholera cases including 133 deaths (61 facilities and 72 community) (CFR 2.41%) have been reported in South Sudan involving 14 counties in 9 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; and 22 February 2017 for Malakal, in Central Upper Nile state (Figure 2.1 and Table 1.1).

Overall, males and females have been affected evenly Figure 3.1. The gender distribution of cholera cases by county is shown in Figure 3.1.
Children under 19 years constitute nearly 50% of the total cholera cases Figure 3.2. The age distribution of cholera cases by county is shown in Figure 3.3.

**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.

5. During the protracted crisis, cholera transmission hotspots have expanded to include the following:
   b. Refugee populations
   c. Neighbourhoods in urban settings with inadequate access to safe water and sanitation – Juba, Torit, Bor, etc.
   d. Towns and counties along the Nile – Nimule, Juba, Bor, Terekeka, Leer, Panyijiar, Ayod, Fangak, Pigi, Malakal etc.
   e. Populations on islands with nearly no access to health care and at risk for high mortality from cholera – Terekeka, Leer, Duk, Bor, Ayod, Yirol East etc.

Table 3: Cholera laboratory test results for Juba by 3 March 2017

<table>
<thead>
<tr>
<th>State</th>
<th>New positives in week 9</th>
<th>Cumulative Positive</th>
<th>Cumulative Negative</th>
<th>Total tested</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central Upper Nile</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Jonglei-Duk</td>
<td>0</td>
<td>1</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Jonglei-Bor South</td>
<td>0</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Jubek</td>
<td>0</td>
<td>83</td>
<td>133</td>
<td>216</td>
</tr>
<tr>
<td>Terekeka</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Eastern Lakes - Mingkaman</td>
<td>0</td>
<td>27</td>
<td>42</td>
<td>77</td>
</tr>
<tr>
<td>Eastern Lakes – Yirol East</td>
<td>0</td>
<td>4</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>Imatong</td>
<td>0</td>
<td>7</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>Fangak</td>
<td>0</td>
<td>16</td>
<td>37</td>
<td>45</td>
</tr>
<tr>
<td>Wau</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Boma</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Northern Liech</td>
<td>1</td>
<td>32</td>
<td>64</td>
<td>96</td>
</tr>
<tr>
<td>Southern Liech – Leer</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Southern Liech – Panyijiar</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Southern Liech – Mayendit</td>
<td>0</td>
<td>4</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>Central Upper Nile (Pigi)</td>
<td>0</td>
<td>3</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>Central Upper Nile (Malakal)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Total tested</td>
<td>2</td>
<td>187</td>
<td>313</td>
<td>500</td>
</tr>
</tbody>
</table>

Table 4: Cholera Alerts

<table>
<thead>
<tr>
<th>Date of notification</th>
<th>Details of the alert</th>
<th>Area</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>10-Feb-17</td>
<td>At least 2 suspect cases reported from Islands in Twic East and Panyagar</td>
<td>Twic East</td>
<td>The taskforce in Bor is planning verification missions to Twic East.</td>
</tr>
<tr>
<td>21-Feb-17</td>
<td>Suspect cases in Pajatriei Island of Baidit payam, Bor South County following the report of 2 deaths cases</td>
<td>Pajatriei Island of Baidit payam</td>
<td>Plans underway to send verification and response team to the Island</td>
</tr>
</tbody>
</table>

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, and Bor. In Bor, the cholera task force meets twice a week on Mondays and Fridays at 10: 30 am at the SMOH meeting room.

The Ministry of Health with support from WHO has deployed three rapid response teams to support the cholera response in Bor, Mingkaman, and Yirol East.
Following the confirmation of cholera cases in Malakal Town, the cholera taskforce has been activated and the response plan has been updated to guide preparedness and response activities.

Rapid response teams from MoH, CHD, CUAMM, IOM, MSF-B are supporting cholera outbreak response activities in Yirol East. Rapid response teams from MoH and WHO are working with CUAMM, CHD, and HLSS to respond to the cholera outbreak in Mingkaman. The current response efforts in Eastern Lakes are aimed at addressing the underlying risk factors and improving skills for case management and infection prevention and control at existing cholera treatment facilities.

To slow the current surge in cholera cases, WHO working with health cluster partners has secured the initial batch of 69,125 doses of oral cholera vaccine for Leer, Padeah, and Thonyor in Leer county. Preliminary data shows that at least 30,772 people aged ≥1 year were vaccinated by MedAir in Leer Town, Thonyor, and Padeah, Leer county during the WFP Food count registration from 24-26 February 2017.

WHO working with the health and WASH cluster partners has identified at least nine high-risk populations that have been prioritized for emergency complementary oral cholera vaccination. A multi-year plan for complementary oral cholera vaccination alongside improving access to safe water, sanitation, social mobilization, case management, and surveillance will be validated and launched on 9 March 2017.

**Cholera response in Bor county, Twic East, and Duk Counties by thematic area**

**Case management**
- Rapid response cholera outreach undertaken by MSF who donated medical and IPC supplies and provided training to the staffs working in Jalle, Paryak PHCC and Malao, Aqui Deng, Langbar, Jarwong, Panuel PHCU and Kuei Islands.
- Five cholera cots donated to Jalle, Paryak CTUs to improve on Case management.
- The MSF team also visited Jonglei, Dhiam Dhiam, and Wutnathel Islands and is completing arrangements to set up ORPs while continuing with distribution of aqua tab and community awareness.
- SMOH, WHO and MSF continue to provide technical and logistical support for the CTC at Bor Hospital. There is improvement in the case management as there has been no facility death reported in the last three weeks.

**Social mobilization**
UNICEF supported C4D partner Community Development Organization Network (CNDF), in collaboration with the SMoH and County Health Department (CHD) to undertake:
- **House-to-house visits:** A total of 6,916 individuals (1645 HHs) reached through 70 trained volunteers on cholera and diarrheal disease prevention.
- **School interventions:** A total of 6 schools and 1799 pupils were reached through school-based interventions.
- **Community meetings:** Eight community dialogue and focus meetings were conducted with participation of 422 local leaders in eight different villages in Bor town.
- **Market interventions:** Market sessions were conducted and reached 478 people including food vendors.
- **Water purification demonstrations:** Seven (7) water point sessions have been conducted by social mobilizers reaching a total of 588 people including water vendors and have distributed 247 chlorine tabs in Bor town high risk residential area covering Bor, Twic East and Duk counties.
- Radio Jonglei and Radio Mingkaman are broadcasting cholera messages reaching about 43,100 individuals with key hygiene promotion messages through a radio campaign inclusive of a radio drama, radio spots, talk shows and aired in three languages namely Dinka, English and Arabic - educating communities on good water, sanitation and hygiene practices including hand washing at critical times, use of latrines, household water treatment and safe storage, food safety and waste disposal.

**Water Sanitation and Hygiene (WASH)**
The WASH response in Jonglei is implemented by the state Ministry of Physical Infrastructure, Urban Water Corps, ZOA, THESO, CRS, UNICEF, OXFAM, IAS, CRS, and AAID that have implemented the following activities in Bor South, Twic East, and Duk Counties:

1. **ZOA**
   - Rehabilitated 8 boreholes during the month of February 2017 at the following sites (Wun-Aree, Nyuedet, Abidoor, Thon Buor, Pan-Apet, Deldior, Makoi, and Jaruong boreholes).
Conducted a door-to-door cholera awareness campaign in Jaruong and Malual Agoorbar reached 685 households. This campaign included the distribution of Pur for water purification, 2 bars of soap to each household. The team has also distributed 130 WASH kits to young adolescent girls in Malual Agoorbar.

Construction of a 5-stand emergency latrine at Malual Agoorbar church is currently ongoing.

2. PAH
- Completed water quality analysis of 5 water sources from Jaruong and Bor town. 4 boreholes and the Nile water. One borehole and Nile water were contaminated by faecal coliform. The Borehole has been chlorinated and environment improved. Drilling of one addition borehole has been completed.
- Supported State Ministry of Physical Infrastructure with spare parts and tools for Rehabilitation of bore holes.

3. Oxfam
- Trained 25 community health volunteers in Leudier, Malou, Achiendir & Lenguet and Arek for cholera awareness in Bor.
- Distributed 375 hygiene kit to 375 HHs in Leudier (content, 2 bucket per HH, soaps, Aqua tab and PUR).
- Distributed 38 hand washing stations to selected restaurants in the markets.
- Engaged two chlorinators in Malou, Achiendir and Leudier to take FRC readings.
- Plan rehabilitation of 30 boreholes awaiting to pick the lists from SMOPI.
- Repaired two boreholes, one in, Malual chaat at the school and other in Jerweng at the church and plus Mayual borehole and distribution of hygiene in Achiendir for 375 HHs is ongoing.
- OXFAM EP&R team to dispatched on 28th February 2017 for the intervention in the islands.

4. Tearfund
- Eleven (11) hand pumps were rehabilitated in Motot with change of all the Riser pipes and connecting rods.
- Six water user committees (WUCs) were trained on water safety plans and their roles and responsibility on maintaining the hand pumps functional in Motot.
- Hygiene Clubs were formed in Modit Wickol and Karam to make their Schools WASH- friendly, Women’s group comprising of 8 members were trained on Key WASH components to enable them to disseminate key WASH messages in the three communities.
- Community Led Total Sanitation (CLTS) latrine construction in12 villages distributed as follows; 4 in Motot, 2 in Pulchuol, 4in Pathai and 2 in Pieri is ongoing and the progress is promising.
- Water quality tests of 16 boreholes; 4 in Yuai, 4 in Padiek, 4 in Wickol, 4 in Modit were conducted negative results to faecal coliform contamination.
- Three (3) boreholes initially fitted with hand pumps were upgraded into Mini water yards, in Wickol, Pathai and Pulchuol

5. CRS
- Bor County
  - Established 13 HHPs groups with (65 females) in Kolnyang and Baidit Payams.
  - 12 MTMSG members received hygiene messaging on Water safety in Kolnyang Payam
- Twic East County
  - 56 (female 31 and 25 males) members of SILC, WUC and MTMSG received hygiene messaging on cholera and water related diseases prevention.
- Duk County
  - Monitoring of construction of pit latrine in Jual and Kuei Primary schools and so far 700 blocks produced.
  - Drilled one borehole in Kuei-nyang in Padiet.
  - Conducted hygiene message to 45 pupils (male 32 and 23 female) in Poktap primary school.

6. NALF
- House-to-house Water Treatment awareness demonstration in Dhiam-Dhiam Island carried out by 4 Hygiene promoters from 1st to 18th Feb 2017. A total of 595 HHs- 1172 women, 785 men, 1041 girls and 938 boys (1,614 persons were reached.
- Refresher Training of Water Committees for 10 rehabilitated boreholes was conducted from 1st to 18th Feb 2017. It reached 45 women + 25 men= 70 Members.

7. THESO
- A total of 237 Households were reached with hygiene messages through house-to-house visits in 5 villages of Mathiang, Wuncuei, Tong, Mac Deng and Makol-cuei. During the visits, the community hygiene
promoters also distribution and demonstrate use of Aqua tabs to 65 HHs in Akay, Patook, Thiang-wong and Anya. 27 Pathiang and Haichuei. 38 households

8. AAID
- AAID deployed team to 17 islands of Duk for cholera response for 6 months
- 400 cartons of soap and other WASH/NFIs

Constraints
- The main constraint to prompt response to the numerous islands in remains the lack of boats, and the fact that most of the Rapid response teams need to spend at least one week on ground to have meaningful impact on the cholera situation in the islands.
- Health partners luck funding for establishment of treatment Units and OPRs in the Islands.

Planned Activities/recommendations

1. The Ministry of Health with support from the WHO and Health and WASH cluster partners has organized a 2-day meeting to draw lessons from past cholera outbreak responses to inform a rational plan to fight cholera in South Sudan using all the tools available including WaSH, social mobilization, and oral cholera vaccines. The meeting will take place from 8th to 9th March 2017 in Juba Grand Hotel.

2. The next weekly EPR/cholera taskforce meeting is scheduled for 15 March 2017 starting 2:00pm in the WHO Conference Hall.

3. Roll out a comprehensive integrated response to the cholera outbreak in Malakal Town.

4. Continue with the ongoing response to the outbreaks in Mingkaman, Yirol East, Bor, Southern Liech, Northern Liech, and Pigi in Central Upper Nile state.

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/ssp/en/](http://www.who.int/hac/crises/ssp/en/) as well as on the Humanitarian Info webpage: [http://southsudan.humanitarianresponse.info/clusters/health](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
For more information, please contact

Dr. Pinyi Nyimol Mawien  
Director General - Preventive Health Services  
MoH, Republic of South Sudan  
Tel: +211955604020

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