South Sudan Surveillance Highlights
April - July 2014
(Epidemiological Weeks 15 to 30)

Highlights

- Acute respiratory infection, malaria, acute watery diarrhoea, and acute bloody diarrhoea remain the top causes of morbidity in the IDP sites.
- The number of consultations are on the increase in parallel with the increasing number of clinics established to cater for the increasing displaced populations.
- New cholera outbreaks emerge with cases confirmed in at least five states and 10 counties. Comprehensive cholera preparedness and response activities initiated by MoH with support from partners are ongoing.
- Acute watery diarrhoea trends have remained stable in the IDP camps, a trend that is attributable in part to the improving WASH indices and Oral Cholera Vaccination.
- Hepatitis E virus cases are on the increase in Mingkaman IDP; immediate response interventions have been initiated but outbreak confirmation is still pending.

Overview of the surveillance situation for the second quarter

Reporting and trends

- Overall, the completeness of reporting improved further, with 38 sites (74%) reporting in week 30 compared to 18 (47%) during week 14 in the first surveillance highlight, covering the period Dec 2013 to April 2014. There have been dips and upsurges in the reporting pattern, particularly noted between week 17 and 22 and then again weeks 25 and 26. See figure 1 below.

- The number of reporting sites increased from 38 to 48. The proportionate morbidity data was adjusted to account for weekly disparities in completeness.
- Timeliness increased from two in week 52, 2013 to 16 sites (33%) in week 30, 2014.
- The average number of consultations during the period was 17,405 with the highest number of consultations being recorded during week 19. The fluctuations are attributable in part to the number of health facilities providing care, completeness in reporting, and total number of displaced persons at any point in time and place. See figure 2 below.
The graph below (figure 3) shows the average number of consultations by IDP site and partner during 2014.

- During the period under review, Under-5 and crude mortality rates remained below the emergency thresholds for all camps except Bentiu. The living conditions in many camps remain precarious and of particular concern given the prolonged rains which are worsening the already poor living conditions, accounting for the increase in water borne diseases and respiratory tract infections. In Bentiu, under five mortality exceeded the emergency threshold of 2 per 10,000 per week from week 21 to 26, dropping from 2.8 to 1.8 per 10,000 per week during week 27, this also accounted for the increase in crude mortality recorded during week 23. See figures 4 and 5 below.
Since the onset of the crisis, at least 1,013 deaths have been reported in the camps, most due to Acute Watery Diarrhoea (AWD), measles, pneumonia, & malnutrition. Most of the deaths have occurred in Bentiu, Tongping, & Malakal camps. See chart below for details.

Figure 6: Summary of deaths reported in IDP camps, Week 51, 2014 to Week 30, 2014

A cumulative of 140 AWD deaths have been reported since the start of the crisis. Most of the AWD deaths in the recent 10 weeks occurred in Bentiu, Malakal, Tongping, & Mingkaman camps.

Malaria, Acute Respiratory Infections (ARIs), and AWD continue to account for the greatest disease burden, however, ARIs is now the second highest cause of illness, higher than AWD which was the case in the previous quarter. See figure 7 below.
**Malaria**

- Malaria accounted for the second highest proportionate morbidity, registering a general increase from week 17, recording two peaks, during week 20 and week 25 and dropping after week 26. This increase has been attributed to the rainy season, stagnant pools of water providing a breeding ground for mosquitoes due to poor drainage in the camps.
- The continued escalation of malaria cases justifies the need to strengthen malaria prevention and control interventions in the camps with priority accorded to distribution of bed nets, and prompt, effective management of all incident cases and eliminating vector breeding grounds. In Mingkaman and settlements in Yalakot and Kalthok in Awerial County, Indoor Residual Spraying was conducted, with a coverage rate of about 95%.

![Figure 8: Malaria Incidence, by Camp, for week 1 - 30, 2014](image)

**Acute Watery Diarrhoea**

- In response to the threat of cholera, particularly in IDP settings, a cholera response framework was developed and cholera case projections were calculated for 10 high-risk IDP camps and nine (9) host communities to support preparedness planning. In addition, Cary Blair transport media, Rapid Diagnostic Test Kits for cholera as well as emergency supplies for treatment of cholera were prepositioned at state levels as part of preparedness for cholera. The risk analysis was recently updated with additional variables.
- Oral cholera vaccinations (OCV) were conducted in Bentiu, Bor, Juba camps (Juba III/UN Camp and Tongping PoC), Malakal and Mingkaman in which 120,946 people were reached with two doses of the vaccine. It is believed that the OCV has had a protective effect on displaced people, given the low number of cholera cases reported in IDP camps.

**Cholera**

- The Ministry of Health declared an outbreak of cholera on 15 May 2014, however, following investigations, contact tracing and register review, it was noted that the first cholera cases were seen at Juba Teaching Hospital as early as 23 April 2014. As of 27 July 2014, a total of 5,246 cholera cases including 108 deaths (CFR 2.3%) had been reported in five states and 11 counties of South Sudan. The initial focus of the outbreak was Juba, which accounted for 63% (1,979) of all cases and 56% (39) of all deaths. The current focus of the outbreak is Torit county of Eastern Equatoria. See summary of the affected areas in the table below.
Table 2: Summary of cholera cases and deaths in South Sudan by affected county, 23 April – 27 July 2014

<table>
<thead>
<tr>
<th>States</th>
<th>Reporting counties</th>
<th>Total deaths</th>
<th>Total cases</th>
<th>CFR (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CES IDPs</td>
<td>Tongping</td>
<td>-</td>
<td>66</td>
<td>4.8</td>
</tr>
<tr>
<td></td>
<td>Juba III/UN House</td>
<td>3</td>
<td>78</td>
<td>0</td>
</tr>
<tr>
<td>CES</td>
<td>Juba</td>
<td>36</td>
<td>1945</td>
<td>1.9</td>
</tr>
<tr>
<td></td>
<td>Kajo-Keji</td>
<td>4</td>
<td>64</td>
<td>5.6</td>
</tr>
<tr>
<td></td>
<td>Yei</td>
<td>2</td>
<td>47</td>
<td>4.3</td>
</tr>
<tr>
<td>WES</td>
<td>Mundri East (Lanyi)</td>
<td>-</td>
<td>3</td>
<td>-</td>
</tr>
<tr>
<td>Jonglei</td>
<td>Bor (Kolmanyang)</td>
<td>-</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>EES</td>
<td>Magwi</td>
<td>8</td>
<td>172</td>
<td>5.0</td>
</tr>
<tr>
<td></td>
<td>Lopa-Lafon</td>
<td>4</td>
<td>110</td>
<td>4.3</td>
</tr>
<tr>
<td></td>
<td>Torit</td>
<td>27</td>
<td>1,760</td>
<td>2.3</td>
</tr>
<tr>
<td>Upper Nile</td>
<td>Manyo (Kaka)</td>
<td>-</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Malakal (Wau Shilluk)</td>
<td>19</td>
<td>936</td>
<td>2.2</td>
</tr>
<tr>
<td>SS Total</td>
<td></td>
<td>108</td>
<td>4278</td>
<td>2.3</td>
</tr>
</tbody>
</table>

- The notification of cholera alerts and response system has been streamlined, with a dedicated alert line, focal point and tracking system in place to support daily monitoring from national to state levels. This has reduced the time lag between alert notification, investigation and response from days to less than 24 hours, improving the overall response. Since the start of the outbreak more than 45 alerts have been reported and investigated, most alerts were found to be epidemiologically linked to cholera cases. See map below for a snapshot of confirmed outbreaks and alerts.

As at the end of week 30, two cholera alerts were under investigation/verification in Isohe payam, Ikotos County, Eastern Equatoria and Nigil Bor County, Jonglei state. The rest of the alerts highlighted in the map were investigated and confirmed not to be cholera. Bentiu and Mingkaman remain under close surveillance despite all samples testing negative; this is because of overcrowding, poor health and sanitation indicators and being in close proximity with neighboring counties that have confirmed outbreaks of cholera.
Acute Bloody Diarrhoea

- The areas reporting the highest morbidity due to ABD include Renk, Malakal, Akoka and Bentiu. ABD morbidity increased steadily from week 10 to week 20, declined from week 21 to 24, increased in week 25 but continued to decline thereafter. See figure 9 below. The sharp increase was due to the breakdown in the water treatment plan in Bentiu during week 12, the equally sharp decline from week 14 was associated with intensified health and hygiene education and other interventions.

Measles

- A continued decline in measles trends has been observed since week 14. This is attributed to measles vaccination campaigns conducted in UN House and Tongping IDP camp, Bor, Yuai, Lankien, Cueibet, the integrated Polio-measles and vitamin A vaccination campaign conducted during 23-30, April, 2014 and the ongoing vaccination of new arrivals inside all Bentiu POC sites.

- In response to the measles cases from Thol Payam (Nyirol) county, measles and polio vaccination was conducted from 11 – 16 June 2014 with support from MSF Holland. The vaccination coverage was 98% and 67% for measles and polio respectively.

ARIs

- Reporting for ARIs has improved and has showed an increasing trend from 18% proportionate morbidity in week 14 to 26% in week 28. This increase has been associated with the rains and improved reporting. The highest ARI incidence (cases per 10,000) of 116 was reported in week 25. See figure 10 below.

Hepatitis E

- An increasing number of cases of Hepatitis E have been noted in Mingkaman IDP camp, Awerial County, Lakes State since a suspected case of Acute Jaundice Syndrome (AJS) was admitted on 11 March 2014 in a health facility supported by MSF Swiss in Mingkaman camp. A blood specimen
collected from the suspected case tested positive for Hepatitis E by PCR/ELISA test at the KEMRI/CDC Laboratory in Nairobi, Kenya.

- As of 27 July 2014, a total of 67 cases including four deaths (CFR 6.7%) had been recorded in health facilities. Three of the deaths were in pregnant women. The majority of the cases are female (54%) and most (82%) of the cases are less than 30 years of age.

- Cases of Acute Jaundice Syndrome have been reported in several other camps including Juba 3 (1 case), Bentiu (3 cases), Lul (1 case), Malakal (1 case including 1 death), and most recently from Bor (1 case including 1 death). This highlights the possible spread of HEV to at least four other camps besides Mingkaman.

**Recommendations**

- Consolidate cholera response interventions in the 10 counties where cholera cases have been confirmed and enhance epidemic readiness and prevention in the rest of the counties.

- All AJS cases should be investigated and Outbreak declaration needs to be expedited as this has implications for enhancing community awareness, identification of other affected areas, and mobilizing a coordinated response to ensure the outbreak is rapidly contained from spreading.

- Partners are urged to strengthen public health prevention and control measures for malaria, ARI, AWD (including cholera), ABD, and Hepatitis E Virus (HEV).