South Sudan

Integrated Disease Surveillance and Response (IDSR)

Epidemiological Update W47 2018 (Nov 19- Nov 25)
• Completeness for IDSR reporting at county level was 79%. Completeness for EWARS reporting from IDPs was 82%.

• A total of 21 alerts were reported, of which 76% were verified. 0 alerts risk assessed & 0 required a response.

• A Yellow Fever outbreak has been confirmed in Sakure, Nzara county, Gbudue state.

• A new measles outbreak has been confirmed in Rumbek East after nine measles IgM positive cases were confirmed on 22/11/2018 with the earliest case reported on 09/10/2018.

• A suspect Ebola death was reported in Yambio hospital on 29/11/2018. Following case investigations, preliminary testing showed the sample was negative for Ebola Zaire by GeneXpert. Further confirmatory testing is underway.

• There was no new suspect Rift Valley Fever (RVF) case reported from Yirol East in week 47. A total of 58 suspect human cases including 6 confirmed; 3 probable; 48 non-cases; and 01 pending classification (with no definitive lab. test results) have been reported. Nine confirmed animal cases (cattle).

• Two new HEV cases were reported in week 47. A total of 147 HEV cases (18 confirmed by PCR) have been reported in Bentiu PoC in 2018. Current response entails surveillance, case follow up, WASH and discouraging communities from using stagnant water for domestic and recreational purposes.

• In light of the confirmed EVD outbreak in North Kivu, the South Sudan EVD contingency plan has been updated and implemented to mitigate the risk of EVD importation and enhance readiness capacities.
Surveillance | IDSR surveillance indicators

Table 1 | IDSR surveillance performance indicators by county (W47 2018)

<table>
<thead>
<tr>
<th>Hub</th>
<th>Reporting</th>
<th>Performance (W47 2018)</th>
<th>Performance (Cumulative 2018)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td># counties</td>
<td># reports received</td>
<td>Completeness</td>
</tr>
<tr>
<td>Aweil</td>
<td>5</td>
<td>5</td>
<td>100%</td>
</tr>
<tr>
<td>Bentiu</td>
<td>9</td>
<td>6</td>
<td>67%</td>
</tr>
<tr>
<td>Bor</td>
<td>11</td>
<td>9</td>
<td>82%</td>
</tr>
<tr>
<td>Juba</td>
<td>6</td>
<td>6</td>
<td>100%</td>
</tr>
<tr>
<td>Kwajok</td>
<td>7</td>
<td>6</td>
<td>86%</td>
</tr>
<tr>
<td>Malakal</td>
<td>13</td>
<td>8</td>
<td>62%</td>
</tr>
<tr>
<td>Rumbek</td>
<td>8</td>
<td>8</td>
<td>100%</td>
</tr>
<tr>
<td>Torit</td>
<td>8</td>
<td>3</td>
<td>38%</td>
</tr>
<tr>
<td>Wau</td>
<td>3</td>
<td>2</td>
<td>67%</td>
</tr>
<tr>
<td>Yambio</td>
<td>10</td>
<td>10</td>
<td>100%</td>
</tr>
<tr>
<td>South Sudan</td>
<td>80</td>
<td>63</td>
<td>79%</td>
</tr>
</tbody>
</table>

- Completeness for IDSR reporting at county level was 79% in week 47 and cumulatively at 82% for 2018.
- Timeliness for IDSR reporting at county level was 79% in week 47 and cumulatively at 79% for 2018.
The graph shows completeness for weekly reporting at county level. The national average currently stands at 82%.
Surveillance | Maps of IDSR completeness by county

Map 1a | Map of IDSR completeness by county (W47 2018)

Map 1b | Map of IDSR completeness by county (2018)

- Counties that submitted IDSR reports in W47 are shown in green in map 1a.
- Counties that did not submit IDSR reports in W47 are shown in grey in map 1a.
Timeliness and completeness for EWARN/IDP reporting stands at 82% for week 47, while cumulatively timeliness and completeness are 66% and 64% respectively for 2018.

<table>
<thead>
<tr>
<th>Partner</th>
<th>Performance # sites</th>
<th>Reporting (W47 2018) # reports received</th>
<th># reports received</th>
<th>Completeness</th>
<th>Timeliness</th>
<th>Reporting (Cumulative 2018)</th>
<th>Completeness</th>
<th>Timeliness</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMD</td>
<td>3</td>
<td>3</td>
<td></td>
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<td>GOAL</td>
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<tr>
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<td>4</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>UNIDO</td>
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<td>1</td>
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<tr>
<td>UNKEA</td>
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<td>2</td>
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<td></td>
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</tr>
<tr>
<td>World Relief</td>
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</tr>
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<td>TRI-SS</td>
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<td></td>
</tr>
<tr>
<td>LIVEWELL</td>
<td>4</td>
<td>4</td>
<td></td>
<td></td>
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</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>62</strong></td>
<td><strong>51</strong></td>
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</tr>
</tbody>
</table>
A total of 21 alerts were reported in week 47 with 76% of the alerts in week 47 being verified; 0 were risk assessed and 0 required a response.
During the week, Malaria and Measles were the most frequent infectious hazards reported.
During week 47, a total of 21 alerts were reported through EWARS.

During the week; Malaria, and Measles were the most frequent alert (see table and figure)

Other cases investigated included Yellow Fever and suspected Guinea Worm cases in Pibor; and Longechuk.

In Rumbek East at least 15 suspect measles cases including one death have been reported since 12/10/2018. Case and laboratory investigations shows 9 out of 11 samples tested Positive for Measles.
The Figure shows the cumulative number of alerts triggered in 2018 by hazard.
### Cumulative alerts by risk assessment stage in 2018

<table>
<thead>
<tr>
<th>County</th>
<th>OUTCOME</th>
<th>RISK ASSESSED</th>
<th>RISK CHARACTERISED</th>
<th>VERIFICATION</th>
<th>Total Alerts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Watery Diarrhoea</td>
<td>1</td>
<td>1</td>
<td></td>
<td>134</td>
<td>136</td>
</tr>
<tr>
<td>AFP</td>
<td></td>
<td></td>
<td></td>
<td>20</td>
<td>21</td>
</tr>
<tr>
<td>Bloody Diarrhoea</td>
<td>1</td>
<td>1</td>
<td></td>
<td>171</td>
<td>173</td>
</tr>
<tr>
<td>EBS</td>
<td>1</td>
<td>2</td>
<td></td>
<td>32</td>
<td>35</td>
</tr>
<tr>
<td>Guinea Worm</td>
<td>1</td>
<td></td>
<td></td>
<td>23</td>
<td>25</td>
</tr>
<tr>
<td>Neonatal Tetanus</td>
<td></td>
<td></td>
<td></td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Viral Haemorrhagic Fever</td>
<td></td>
<td></td>
<td></td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Yellow Fever</td>
<td></td>
<td></td>
<td></td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Measles</td>
<td>4</td>
<td>8</td>
<td>1</td>
<td>132</td>
<td>145</td>
</tr>
<tr>
<td>Cholera</td>
<td></td>
<td></td>
<td></td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Malaria</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>140</td>
<td>150</td>
</tr>
<tr>
<td><strong>Total Alerts</strong></td>
<td><strong>14</strong></td>
<td><strong>17</strong></td>
<td><strong>4</strong></td>
<td><strong>670</strong></td>
<td><strong>705</strong></td>
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</table>

- The Figures show the cumulative alerts by risk assessment state in 2018.
- Of the 705 alerts reported in 2018; a total of 670 alerts have been verified; 17 alerts underwent risk assessment; and 14 alerts have a documented outcome.
• The map show outbreaks confirmed in 2018
• The active outbreaks include: Guinea worm (Rumbek Center and Rumbek North); Rift Valley Fever (Yirol East); HEV (Bentiu PoC); possible malaria upsurge in 21 counties; measles outbreak in Bor PoC

• New confirmed Yellow Fever outbreak in Nzara county
• New confirmed outbreak of measles in Rumbek East
Suspect Outbreaks South Sudan – 2 December 2018

- Map shows suspect outbreaks reported in 2018
- New alerts in the week
  - Suspect EVD (Yambio town)
  - Guinea worm (Pibor and Longechuk)
  - Suspect measles (Juba; Wau; Bentiu PoC)

<table>
<thead>
<tr>
<th>Disease</th>
<th>Symbol</th>
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<tr>
<td>Meningitis</td>
<td>🌞</td>
</tr>
<tr>
<td>Measles</td>
<td>🌞</td>
</tr>
<tr>
<td>Rabies</td>
<td>🍃</td>
</tr>
<tr>
<td>Health effects of petroleum drilling</td>
<td>🌞</td>
</tr>
<tr>
<td>Pertussis</td>
<td>▼</td>
</tr>
<tr>
<td>Cholera</td>
<td>🍃</td>
</tr>
<tr>
<td>Acute Jaundice Syndrome</td>
<td>🌞</td>
</tr>
<tr>
<td>Guinea worm</td>
<td>🌞</td>
</tr>
<tr>
<td>Suspect Yellow Fever</td>
<td>YF</td>
</tr>
<tr>
<td>VHF</td>
<td>VHF</td>
</tr>
<tr>
<td>Susp. Anthrax</td>
<td>✦</td>
</tr>
</tbody>
</table>

- Map shows suspect outbreaks reported in 2018
- New alerts in the week
  - Suspect EVD (Yambio town)
  - Guinea worm (Pibor and Longechuk)
  - Suspect measles (Juba; Wau; Bentiu PoC)
### Response | Summary of major ongoing outbreaks

<table>
<thead>
<tr>
<th>Aetiologic agent</th>
<th>Location (county)</th>
<th>Date first reported</th>
<th>New cases since last bulletin</th>
<th>Cumulative cases to date (attack rate %)</th>
<th>Interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>New epidemics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yellow Fever</td>
<td>Nzara</td>
<td>23/11/2018</td>
<td>1</td>
<td>1 (0.001)</td>
<td>Yes</td>
</tr>
<tr>
<td>Measles</td>
<td>Rumbek East</td>
<td>09/10/2018</td>
<td>0</td>
<td>15 (0.008)</td>
<td>Yes</td>
</tr>
<tr>
<td>Measles</td>
<td>Bor PoC</td>
<td>20/10/2018</td>
<td>0</td>
<td>3 (0.15)</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Ongoing epidemics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Guinea worm</td>
<td>Rumbek Center &amp; Rumbek North</td>
<td>27/05/2018</td>
<td>0</td>
<td>3 (0.001)</td>
<td>Yes</td>
</tr>
<tr>
<td>RVF</td>
<td>Yirol East</td>
<td>28/12/2017</td>
<td>0</td>
<td>58 (0.054)</td>
<td>Yes</td>
</tr>
<tr>
<td>Hepatitis E</td>
<td>Bentiu PoC</td>
<td>03/01/2018</td>
<td>1</td>
<td>145 (0.123)</td>
<td>Yes</td>
</tr>
<tr>
<td>Possible malaria upsurge</td>
<td>21 counties</td>
<td>01/07/2018</td>
<td></td>
<td></td>
<td>Yes</td>
</tr>
</tbody>
</table>

### New outbreak in week 47, 2018
1. Yellow Fever in Nzara county
2. Measles in Rumbek East county

### Other ongoing outbreaks
1. Measles in Bor PoC
2. Guinea worm (Rumbek Center and Rumbek North);
3. Rift Valley Fever (Yirol East);
4. Hepatitis E Virus (Bentiu PoC);
5. Possible malaria upsurge in 21 counties
<table>
<thead>
<tr>
<th>Aetiologic agent</th>
<th>Location (county)</th>
<th>Date first reported</th>
<th>New cases since last bulletin</th>
<th>Cumulative cases to date (attack rate %)</th>
<th>Interventions</th>
<th>Case management</th>
<th>Vaccination</th>
<th>Health promotion</th>
<th>WASH</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Controlled epidemics</strong></td>
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<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Measles</td>
<td>Juba (Al Mahad IDPs)</td>
<td>11/09/2018</td>
<td>0</td>
<td>26 (0.33)</td>
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<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
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<td>Bentiu PoC</td>
<td>10/06/2018</td>
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<tr>
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<td>Bor South</td>
<td>20/08/2018</td>
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<td>Yes</td>
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<tr>
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<td>Yes</td>
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<td>Yirol East</td>
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<td>18 (0.017)</td>
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<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>N/A</td>
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<td>Juba</td>
<td>28/05/2018</td>
<td>0</td>
<td>10 (0.0017)</td>
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<td>13/05/2018</td>
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<td>Wau PoC AA</td>
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<td>Old Fangak</td>
<td>15/02/2018</td>
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<td>Yes</td>
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<td>Jur River</td>
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<td>6/Jan/2018</td>
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<td>Aweil East</td>
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<td>Bor South</td>
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<td>173 (0.107)</td>
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<td>No</td>
<td>Yes</td>
<td>Yes</td>
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</table>

During 2018, at least 24 outbreaks have been reported out of which 19 outbreaks have been controlled.
**Confirmed Yellow Fever Case, Sakure, Nzara county**

- On 23th Nov 2018, a suspect Ebola alert (Mr. T. A. 25 years old farmer) was reported in Sakure, Nzara county, Gbudue state;

- His illness started on 18/Nov/ 2018 two days after traveling to Bangadi, DR Congo. He presented with fever, body weakness, and vomiting of blood. He returned to South Sudan on 23/11/2018 and was retained at Sakure border screening post.

- The rapid response team investigated and collected samples from the case on 24/11/2018. The preliminary GeneXpert test results were negative for Ebola Zaire and follow up PCR testing was negative for all Ebola species, Marburg, Rift Valley Fever, Crimean Congo Haemorrhagic Fever, and Sosuga viruses.

- Further testing of the sample at UVRI using Taqman Array Card platform and YF-specific PCR assay confirmed that the sample was **PCR positive for Yellow Fever Virus**

- **Response actions to date entail:**
  - Outbreak declaration by the MoH on 29 November 2018
  - Deployment of a rapid response teams to conduct further risk assessment in Nzara and Yambio counties
  - Enhanced surveillance for suspect Yellow Fever cases countrywide including retesting of previous VHF samples for Yellow Fever
  - Risk communication to the public on Yellow fever prevention and control
**Confirmed measles outbreak – Rumbek East**

**Background**
- Suspect measles cases reported from Mabor Duang village, Aduel payam in Rumbek East where the initial suspect case was a 38 year female whose illness started on 12 October 2018 in week 41.
- The affected village is served by Mabor Duang PHCC

**Descriptive Epidemiology**
- Since 20 Oct 2018; at least 15 cases including 1 death (CFR 6.67%) have been reported.
- All the suspect cases are from one village and payam (see background) and have never received measles vaccine.
- 12 (80%) cases were under 5 years of age
- A total of 9 samples tested measles IgM positive on 22 November 2018

**Recommended response**
1. A vaccination microplan has been developed by the MoH with support from WHO.
2. Surveillance through active case search and line listing and community sensitisation on routine immunization
An increase in dog bite (suspect rabies) cases continues to be reported from Agok hospital in Abyei.

An exponential increase in suspect rabies cases has been reported in 2018 when compared to the previous years with a total of 848 cases reported in 2018 (week 1-42);

Most bites reported in persons aged 10-19 years and there are no significant risk difference by sex (gender).

Current response entails surveillance - case detection and line listing & post exposure prophylaxis with rabies vaccine.

As part of the rabies day (28/9/2018) celebrations, Abyei is one of the five states selected by the South Sudan Veterinary Association (SSVA) to conduct rabies vaccination in dogs (the campaign is currently underway in Abyei).

Meeting organized in PHEOC on 24/10/2018 to review rabies situation and current response.
Confirmed Measles Outbreak in Rumbek Center

**Background**
- MSF Agok hospital has reported suspect hepatitis E cases from Agok, Abyei town.
- Abyei has in the recent weeks been affected by floods following torrential rains. This should have exacerbated contamination of water sources in the affected areas

**Descriptive Epidemiology**
- At least seven (7) suspect Hepatitis E virus cases and two (2) deaths (CFR 29%) deaths have been line listed since 10 July 2018.
- A total of six cases have been tested positive for HEV by RDT but definitive PCR testing is pending. However, the recent death was HEV RDT negative.
- The symptoms include fever, jaundice, vomiting, epigastric pains, head ache, and at least two cases have had unexplained bleeding.
- All the affected are males with a median age of 24 years
- All the affected are from Abyei town

**Recommended response**
1. Supportive case management and line listing underway in MSF Agok hospital
2. Integrated health WASH response planned to map possible sources of contamination and to improve access to safe water and sanitation in the affected locations

**Other Public Health issues in Abyei**
- Abyei is also currently challenged by the following public health issues
  - **Malaria** – current malaria trends higher than expected (above the third quartile)
  - **Suspect rabies** – Abyei has reported 848 animal bites (suspect rabies) in 2018
Confirmed Measles Outbreak in Rumbek Center

A new suspect Ebola death was reported from Yambio town on 29 Nov 18. The rapid response team investigated the case on 29 Nov 2018. The sample obtained tested negative for Ebola Zaire following GeneXpert testing in Juba on 30 Nov 18. The sample was shipped for further testing at UVRI, Entebbe, Uganda on 1 Dec 2018.

A total of 16 Ebola alerts investigated since May 2018

Samples obtained from nine Ebolavirus alerts; and

Nine samples have tested **PCR negative for Ebolavirus**

One sample tested **PCR positive for Yellow Fever**

### Ebola alerts investigated since May 2018

<table>
<thead>
<tr>
<th>Date</th>
<th>Cases</th>
<th>Deaths</th>
<th>Payam</th>
<th>County</th>
<th>eRDT</th>
<th>eGeneXpert</th>
<th>ePCR</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>28May</td>
<td>1</td>
<td>0</td>
<td>Makpandu</td>
<td>Yambio</td>
<td>ND</td>
<td>ND</td>
<td>-ve</td>
<td>Reported in refugee camp</td>
</tr>
<tr>
<td>8Sep</td>
<td>1</td>
<td>1</td>
<td>Bakiwiri</td>
<td>Yambio</td>
<td>ND</td>
<td>ND</td>
<td>-ve</td>
<td>Did not meet case definition</td>
</tr>
<tr>
<td>26Sep</td>
<td>1</td>
<td>1</td>
<td>N/Bari</td>
<td>Juba</td>
<td>ND</td>
<td>ND</td>
<td>-ve</td>
<td>Community death</td>
</tr>
<tr>
<td>30Oct</td>
<td>1</td>
<td>1</td>
<td>Yei town</td>
<td>Yei</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>Never traced (?false alert)</td>
</tr>
<tr>
<td>12Oct</td>
<td>1</td>
<td>0</td>
<td>Rumbek</td>
<td>Rumbek Center</td>
<td>ND</td>
<td>-ve</td>
<td>-ve</td>
<td>Recent travel from DR Congo</td>
</tr>
<tr>
<td>14Oct</td>
<td>1</td>
<td>0</td>
<td>Gumbo</td>
<td>Juba</td>
<td>ND</td>
<td>-ve</td>
<td>-ve</td>
<td>Did not meet case definition</td>
</tr>
<tr>
<td>18Oct</td>
<td>1</td>
<td>1</td>
<td>Mundri East</td>
<td>Mundri East</td>
<td>ND</td>
<td>-ve</td>
<td>ND</td>
<td>Reported by Lui hospital</td>
</tr>
<tr>
<td>21Oct</td>
<td>1</td>
<td>1</td>
<td>Yambio</td>
<td>Yambio</td>
<td>ND</td>
<td>ND</td>
<td>-ve</td>
<td>Recovered &amp; discharged</td>
</tr>
<tr>
<td>29Oct</td>
<td>2</td>
<td>0</td>
<td>Nimule</td>
<td>Pageri</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>Alerts discarded</td>
</tr>
<tr>
<td>11Nov</td>
<td>1</td>
<td>1</td>
<td>Loka</td>
<td>Lainya</td>
<td>ND</td>
<td>-ve</td>
<td>-ve</td>
<td>Investigated 11 Nov</td>
</tr>
<tr>
<td>23 Nov</td>
<td>1</td>
<td>0</td>
<td>Sakure</td>
<td>Nzara</td>
<td>ND</td>
<td>-ve</td>
<td>-ve</td>
<td>Confirmed for Yellow Fever</td>
</tr>
<tr>
<td>29 Nov</td>
<td>1</td>
<td>1</td>
<td>Yambio</td>
<td>Yambio</td>
<td>ND</td>
<td>-ve</td>
<td>Pending</td>
<td>Investigated on 29 Nov</td>
</tr>
</tbody>
</table>
Suspect Ebola virus disease death in Yambio town, Gbudue state, 29 November 2018

On 29th Nov 2018, the Gbudue state MoH received an EVD alert from medical director of Yambio State Hospital.

Case description
• The case involved a 45 year old male who was brought dead to Yambio State Hospital mortuary where evidence of bleeding from the ears, nose, and mouth was identified
• The deceased is a DR Congo (DRC) national that has been residing in Yambio with no history of travel to DRC in the past seven years.
• Following the rapid response team investigation on 29/11/2018; samples were collected and shipped to Juba by UNHAS on 30/11/2018.
• Preliminary GeneXpert testing on 30/11/2018 was negative for Ebola Zaire and the sample has been shipped for confirmatory testing UVRI, Entebbe, Uganda.

Response undertaken
• The safe and dignified burial team conducted the supervised burial in Yambio
• Surveillance for suspect Ebola virus disease cases enhanced in Gbudue state
• Risk communication on Ebola presentation, spread, and prevention is ongoing
• Confirmatory test results awaited
Malaria trends

Current malaria trends
Malaria remains the top cause of morbidity and mortality that accounts for 63.6% of cases as of week 47, 2018. Consequently, trend analyses show that 21 counties in 6 state hubs currently have malaria trends that are significantly higher than expected. Counties with malaria trends that exceed the threshold (third quartile of trends for the period 2013-2017) include:

1. Aweil hub (Aweil Center, Aweil East, and Aweil West);
2. Rumbek hub (Cueibet, Rumbek Center, Rumbek East, Rumbek North, Wulu, Yirol East, Yirol West);
3. Kuajok hub (Abyei, Gogrial East, Tonj East, Tonj South, Tonj North, and Twic Mayardit);
4. Bentiu hub (Abiemnhom, Mayom, and Panyijiar); and
5. Juba hub (Terekeka).
6. Malakal hub (Melut)

Proposed public health actions
1. Convene malaria taskforce or malaria technical working group meeting to ensure that operational readiness for malaria prevention, diagnosis, and treatment are optimized.
2. Field missions to conduct technical verification of the trends in the affected counties
3. Assessment of current stock levels of malaria diagnostics (RDTs), medicines (ACTs), and LLINs in the affected counties.
4. Stocking up on malaria prevention (LLINs), diagnostics (RDTs), medicines (ACTs), and enhancing behavioral change communication for malaria prevention, prompt investigation and initiation of treatment.
Response | Confirmed epidemics

Hepatitis E, Bentiu PoC

- At least 147 suspect cases of Hepatitis E (HEV) including one death (CFR 0.70%) have been reported in 2018. Of the 147 suspect cases, a total of 18 cases have been PCR confirmed as HEV in Bentiu PoC.
- Only 11 HEV cases have been admitted.
- Most (37.1%) of the cases are 15-44 years of age; and 59% being male. Among the females, most cases have been reported in those aged 15-44 yrs (who are at risk of adverse outcomes if infected in the 3rd trimester of pregnancy).
- Use of stagnant water for domestic or recreation purposes likely to be source of infection - communities are being educated on the risk and draining the water is being discussed.
- Unicef has disseminated key HEV messages - on radio [Kondial FM & Bentiu FM] and through community sensitizations.
- Case identification and follow up is and WASH interventions are ongoing.

Two new HEV cases reported in week 47
Hepatitis E Old Fangak

- One suspect HEV death reported in week 43 of 2018.
- At least 14 suspect HEV cases including one confirmed HEV case (one suspect HEV death) have been investigated in Old Fangak.
- At least 13 cases were HEV RDT positive.
- Over half (54%) of the cases are 20-29 years of age.
- The cases appear to be occurring sporadically and are using River water (largely from Phow river).
- Community awareness and hygiene promotion are ongoing.

<table>
<thead>
<tr>
<th>Age</th>
<th>Female</th>
<th>Male</th>
<th>Total cases</th>
<th>Percentage</th>
<th>Cum.%</th>
</tr>
</thead>
<tbody>
<tr>
<td>10-19yrs</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>31%</td>
<td>31%</td>
</tr>
<tr>
<td>20-29yrs</td>
<td>1</td>
<td>6</td>
<td>7</td>
<td>54%</td>
<td>85%</td>
</tr>
<tr>
<td>30-39yrs</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>15%</td>
<td>100%</td>
</tr>
<tr>
<td>Total</td>
<td>3</td>
<td>10</td>
<td>13</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>
Response | Confirmed epidemics

Ongoing epidemics - Epidemic description - RVF Eastern Lakes state

- No new suspect RVF case reported from Yirol East in week 47.
- In the period 7 December 2017 to 25 Nov 2018, a total of 58 suspect RVF cases were reported in Eastern Lakes.
- These were reclassified based on investigations and laboratory results, such that as of 25th Nov 2018, there were a total of six (6) RVF confirmed cases, three (3) probable, and 01 suspect RVF cases (either no samples collected or samples collected and test results are pending).
- Forty eight (48) cases were discarded as non-cases following negative laboratory results for RVF and other common causes of viral haemorrhagic fever.
- A total of nine animal samples have been confirmed serologically (3IgM and 6IgG).
- Current response entails surveillance, laboratory testing, supportive care for suspect cases, and community sensitization on hygienic animal handling.
Kala-azar is endemic in Upper Nile, Unity, Jonglei, & Kapoeta. Response interventions have been complicated by insecurity, population displacement, poor living conditions, increasing food insecurity, closure of treatment facilities; and low treatment completion rates.

In week 45, one Kala-azar treatment facility (Koradar) reported with no new cases, deaths or defaulters reported.

Since the beginning of 2018, a total of 1,978 cases including 67 deaths (CFR 3.4%); 51 (2.6%) defaulters; 1,524 (77%) new cases; 93 (4.7%) PKDL; and 361 (18.3%) relapses - all reported from 39 treatment centers.

In the corresponding period of 2017, a total of 3,444 cases including 68 deaths (CFR 2.0%) and 76 (2.2%) defaulters were reported from 21 treatment centers.

The majority of cases in 2018 have been reported from Lankien (975), Kurwai (194), Old Fangak (167), Walgak (98), Ulang (61), Malakal IDP (64), Narus (91), Pieri (42), KCH (65), Pagil (71), Doma (22), KMH (15), Bentiu (26) and Adong (13).

The most affected groups include, males [977 cases (49.4%)], those aged ≥15 years and above [873 cases (44.1%)] and 5 - 14 years [783 (39.7%)]. A total of 306 cases (15.5%) occurred in children <5 years.

Low reporting rates currently impede meaningful trend interpretations however the major concern currently is seen from the high relapse rates; suggesting the need to improve treatment compliance through regular availability of testing and treatment kits and provision of food rations for cases on treatment. Treatment health facilities are urged to improve on timeliness of reporting.
In the weeks 41-45, 2018, a total of 32 new AFP cases was reported from Central Equatoria; Eastern Equatoria; Jonglei; Lakes; Unity; Upper Nile; Warrap; Western Bahr el Ghazal; Western Equatoria hubs. This brings the cumulative total for 2018 to 349 AFP cases.

The annualized non-Polio AFP (NPAFP) rate (cases per 100,000 population children 0-14 years) in 2018 is 4.9 per 100,000 population of children 0-14 years (target ≥2 per 100,000 children 0-14 years).

Stool adequacy was 87% in 2018, a rate that is higher than the target of ≥80%.

Environmental surveillance ongoing since May 2017; with 23 samples testing positive for non-polio enterovirus (NPEV) in 2017 and Thirty Six (36) NPEV positive sample in 2018.

Source: South Sudan Weekly AFP Bulletin
Preparedness: Cholera preventive activities

Cholera preparedness and preventive activities - Oral cholera vaccine campaigns - 2018

<table>
<thead>
<tr>
<th>Site</th>
<th>Total population</th>
<th>Target population</th>
<th>1st round doses</th>
<th>2nd round doses</th>
<th>Total doses</th>
<th>1st Round dates</th>
<th>2nd Round dates</th>
<th>Partners</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malakal PoC</td>
<td>24,424</td>
<td>23,691</td>
<td>34,291</td>
<td>34,291</td>
<td>19-23March2018</td>
<td>Apr 17-21 2018</td>
<td>MoH, WHO, Unicef, IOM</td>
<td></td>
</tr>
<tr>
<td>Lankien</td>
<td>38,000</td>
<td>36,860</td>
<td>36,860</td>
<td>36,860</td>
<td>73,720</td>
<td>28May - 13Jun2018</td>
<td>MoH, WHO, Unicef, IOM</td>
<td></td>
</tr>
<tr>
<td>Panyijiar</td>
<td>75,000</td>
<td>72,750</td>
<td>75,000</td>
<td>75,000</td>
<td>150,000</td>
<td>16-22May2018</td>
<td>MoH, WHO, Unicef, IOM</td>
<td></td>
</tr>
<tr>
<td>Leer town</td>
<td>50,000</td>
<td>48,500</td>
<td>48,500</td>
<td>97,000</td>
<td>24-29Aug (Leer Town); 8-13Aug (Leer County)</td>
<td>MoH, WHO, Unicef, MedAir</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leer county</td>
<td>50,000</td>
<td>48,500</td>
<td>48,500</td>
<td>97,000</td>
<td>24-29Aug (Leer Town); 8-13Aug (Leer County)</td>
<td>MoH, WHO, Unicef, MedAir</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Totals</td>
<td>824,808</td>
<td>800,064</td>
<td>591,358</td>
<td>591,358</td>
<td>1,422,759</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Cholera prevention and response activities are already underway to mitigate the risk of cholera outbreaks in cholera transmission hotspots
- These efforts are critical now at the rain season is starting for the states in the Southern parts of the country.
- The use of oral cholera vaccines alongside WASH and other interventions is critical to these efforts
- Preventive vaccine campaigns (with oral cholera vaccines) for the first half of 2018 are listed in the table
- The National Cholera Control Plan is being finalized by a consultant secured with support from the GTFCC
- Validation of the National Cholera control plan is planned for August 2018
- A consignment of 96,285 doses of oral cholera vaccine from the ICG arrived in the country on 4Jul 2018 for the pre-emptive campaign in Leer county
- Another 352,660 doses of oral cholera vaccine from the GTFCC arrived in the country on 18 July 2018 for the campaigns in Panyijiar and Yirol

Oral cholera vaccine campaigns completed in 2018 include:
- Malakal Town (2nd round)
- Aburoc IDPs (2nd round)
- Malakal PoC (1st & 2nd round)
- Wau PoC+IDPs (1st & 2nd round)
- Juba Town (1st & 2nd round)
- Panyijiar (1st & 2nd round)
- Leer county (1st & 2nd round)
- Yirol East and Yirol West (1st round)

Upcoming campaigns for 2018
- Torit (2nd round)
- Yirol East and Yirol West (2nd round)
Preparedness | Cholera preventive activities

**Oral cholera vaccine campaigns administrative coverage - 2018**

The following OCV campaigns have been completed in 2018:

1. Malakal Town (2\textsuperscript{nd} round)
2. Aburoc IDPs (2\textsuperscript{nd} round)
3. Budi county (2\textsuperscript{nd} round)
4. Malakal PoC (1\textsuperscript{st} & 2\textsuperscript{nd} round)
5. Wau PoC+IDPs (1\textsuperscript{st} & 2\textsuperscript{nd} round)
6. Juba (2\textsuperscript{nd} round)
7. Panyijiar (1\textsuperscript{st} & 2\textsuperscript{nd} round)
8. Leer county (1\textsuperscript{st} & 2\textsuperscript{nd} round)
9. Lankien (1\textsuperscript{st} round)
10. Pieri (1\textsuperscript{st} & 2\textsuperscript{nd} round)
11. Yirol East & Yirol West (1\textsuperscript{st} round)
12. Torit county (1\textsuperscript{st} round)

### 2018 OCV campaigns

<table>
<thead>
<tr>
<th>Site</th>
<th>Target</th>
<th>First round</th>
<th>Second round</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malakal Town</td>
<td>19,200</td>
<td>12,393</td>
<td>64.5%</td>
</tr>
<tr>
<td>Aburoc IDPs</td>
<td>9,683</td>
<td>8,484</td>
<td>87.6%</td>
</tr>
<tr>
<td>Malakal PoC</td>
<td>23,447</td>
<td>22,588</td>
<td>96.3%</td>
</tr>
<tr>
<td>Wau IDPs</td>
<td>37,048</td>
<td>35,887</td>
<td>96.9%</td>
</tr>
<tr>
<td>Budi county</td>
<td>89,377</td>
<td>94,128</td>
<td>105.3%</td>
</tr>
<tr>
<td>Juba</td>
<td>216,852</td>
<td>201,737</td>
<td>93.0%</td>
</tr>
<tr>
<td>Panyijiar</td>
<td>75,000</td>
<td>71,378</td>
<td>95.2%</td>
</tr>
<tr>
<td>Lankien+Pieri</td>
<td>38,000</td>
<td>6,294</td>
<td>16.6%</td>
</tr>
<tr>
<td>Leer county</td>
<td>48,125</td>
<td>21,819</td>
<td>45.3%</td>
</tr>
<tr>
<td>Yirol East &amp; Yirol West</td>
<td>165,081</td>
<td>156,682</td>
<td>94.9%</td>
</tr>
<tr>
<td>Torit</td>
<td>158,297</td>
<td>126,895</td>
<td>80.2%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>544,998</strong></td>
<td><strong>474,708</strong></td>
<td><strong>85.3%</strong></td>
</tr>
</tbody>
</table>

**OCV administrative coverage [%] by site in 2018**

- **Administrative coverage**
  - Malakal Town: 64.5%
  - Aburoc IDPs: 87.6%
  - Malakal PoC: 103.3%
  - Wau IDPs: 103.3%
  - Budi county: 93.0%
  - Juba: 95.2%
  - Panyijiar: 94.9%
  - Leer county: 95.2%
  - Yirol East & Yirol West: 94.9%
  - Torit: 80.2%
## Ebola update DRC 29 Nov 2018

### Current situation
- Currently in 17th week of the outbreak
- **428** Cases [352 confirmed & 48 probable]
- **248** Deaths [200 confirmed & 48 probable]
- **41** Health workers [12 dead]

### Response update
- **4767** contacts under surveillance [88-100% followed up]; **35,958** vaccinated
- **125** cases discharged from ETCs

### Affected health zones
- **2** provinces [North Kivu & Ituri]
- **14** health zones [10North Kivu & 3 in Ituri]
- **Kalunguta, Beni, Butembo/Katwa** (North Kivu) – principle hotspots

Source: WHO Ebola situation report
Distribution of the new confirmed and cumulative Ebola cases by Health Zone

Democratic Republic of Congo,
Data as of November 25, 2018

Proportion of total cases (confirmed+probable) since May 1st, 2018
- 1-2%
- 3-6%
- 7-20%
- 21-50%
- ≥8%

The total number of cases by Health Zone since May 1st, 2018 is in parentheses
The graph still shows persistent transmission
Several peaks since outbreak was declared

60% cases female
Most cases in males are 35-44yrs; & 15-24yrs in the females

Source: WHO Ebola situation report
**EVD risk assessment**

- Very high-risk of regional spread to priority 1 countries like South Sudan

- On 17 Oct 2018; Emergency committee determined that EVD outbreak in DRC does not constitute a Public Health Emergency of International Concern (PHEIC)

- Priority 1 counties like South Sudan urged to:
  - Accelerate preparedness & surveillance
  - Strengthen risk communications
  - Vaccinating frontline HCWs in areas bordering DRC
**Ebola preparedness in South Sudan**

**EVD preparedness activities undertaken in South Sudan**

- South Sudan, as a priority one (1) country for Ebola virus disease outbreak (EVD) preparedness continues to make progress to enhance capacities for EVD case detection, investigation, response, and prevention.

- The national Ebola taskforce continues to meet twice weekly and is coordinating the implementation of the EVD contingency plan. The Ebola taskforce working groups are currently updating and implementing the EVD contingency plan to enhance readiness capacities for EVD response.

- Detailed preparedness update can be accessed [here](https://www.afro.who.int/publications/weekly-update-ebola-virus-disease-evd-preparedness-south-sudan)
The electronic EWARS platform for capturing, aggregating, and analyzing points of entry screening data is now up and running with the table above, summarizing the number of travelers screened in week 47 at the active points of entry being exported from the web-based platform.
<table>
<thead>
<tr>
<th>Date of report</th>
<th>Disease suspected</th>
<th>Number cases (deaths)</th>
<th>County</th>
<th>Payam</th>
<th>Status of investigations</th>
</tr>
</thead>
<tbody>
<tr>
<td>13Mar18</td>
<td>meningitis</td>
<td>16 (00)</td>
<td>Duk</td>
<td>Ayueldit</td>
<td>On 12 Mar 2018; a 3 year old male from Buongjok area, Ayueldit payam was admitted to Padiet PHCC. The health partner SMC requested for guidance on managing the case and the WHO Bor team shared the meningitis case management guidelines. Surveillance was stepped up but no additional cases were identified.</td>
</tr>
<tr>
<td>17Feb18</td>
<td>meningitis</td>
<td>173 (31)</td>
<td>Torit</td>
<td>Iyire and Imurok</td>
<td>After rumors of strange illness in Iyire, several RRT verification and response missions have been undertaken since 20Feb18. Torit county surpassed in the alert and epidemic thresholds in week 7 and week 9 respectively. There was no conclusive laboratory confirmation due to sample contamination. Overall coordination, case surveillance, line listing, and investigation are ongoing. Transmission declined after week 9 with the weekly attack rate falling below the alert and epidemic threshold in weeks 11-18, 2018. Plans underway to conduct meningitis training for the NRRT and laboratory team at NPHL &amp; in the state hubs.</td>
</tr>
<tr>
<td>10Mar18</td>
<td>meningitis</td>
<td>3 (0)</td>
<td>Cueibet</td>
<td></td>
<td>Since 10 Mar 2018, at least three suspect meningitis cases have been reported by CUAMM in Cueibet hospital. However, no samples were collected.</td>
</tr>
<tr>
<td>02Feb2018</td>
<td>meningitis</td>
<td>52 (06)</td>
<td>Aweil South (14 cases)</td>
<td>Aweil hub</td>
<td>Since 2Feb2018, at least 52 suspect cases (6 deaths) have been reported in Aweil hub. Six samples positive for <em>Streptococcus pneumoniae</em> following rapid pastorex testing or showed gram positive diplococci on gram stain. None of the affected counties exceeded the alert threshold for meningitis.</td>
</tr>
<tr>
<td>06Jan18</td>
<td>meningitis</td>
<td>03 (00)</td>
<td>Abyei and Twic</td>
<td>Rumkor and Panyok</td>
<td>The two suspect cases were treated in Agok hospital on 4 Jan and 29 Jan respectively with initial diagnoses of severe malaria but final diagnosis was bacterial meningitis. Rapid pastorex testing sample for the 2nd &amp; 3rd suspect case from Twic and Abyei counties respectively were positive for <em>Streptococcus pneumoniae</em>.</td>
</tr>
<tr>
<td>14Feb18</td>
<td>meningitis</td>
<td>21(03)</td>
<td>Wau (Jur River)</td>
<td>Udici, Roc Roc Dong</td>
<td>Since 14 Feb; 20 suspect meningitis cases have been reported from Wau (11 cases - 2deaths) and Jur River (9 cases - 1 death) counties. A suspect case involving a 45 year old male from Jur River was admitted in Combini hospital on 28 Feb 18. PCR testing was positive for <em>Streptococcus pneumoniae</em>. Another suspect case tested positive for NmA by rapid pastorex at NPHL on 27/4/18.</td>
</tr>
<tr>
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</tr>
<tr>
<td>16Mar2018</td>
<td>Measles</td>
<td>08(01)</td>
<td>Mayom</td>
<td>Riak &amp; Lol Maroal</td>
<td>Suspect measles cases reported from Riak payam in Nyebola village since 9 Mar 2018. Four samples were obtained by MSF-CH for testing. Three of the four samples tested were positive for rubella IgM.</td>
</tr>
<tr>
<td>16Feb18</td>
<td>Health effects of petroleum drilling</td>
<td>Unspecified</td>
<td>Pariang</td>
<td>Pariang</td>
<td>A newswire indicates the Mayor of Pariang in Ruweng State has appealed to the Ministry of Health to establish some health conditions affecting people in the oil producing area. bit.ly/2ELndTP #SouthSudan. Initial verification details to follow</td>
</tr>
<tr>
<td>31Mar2018</td>
<td>Suspect meningitis /malaria</td>
<td>12(08)</td>
<td>Gogrial West</td>
<td>Kuach South</td>
<td>On 28th Mar 2018; the Director Gogrial West reported community deaths in Kuach South that were verified by the RRT on 29 Mar 2018. The clinical and lab tests on suspect cases were consistent with malaria and the cases responded to treatment with ACTs. All the deaths were 10 years and above and 50% of the deaths were 20 years and above. Given the dramatic nature of symptoms, the other differential diagnosis to keep an eye on is epidemic meningitis. No new cases reported in weeks 14 and 15.</td>
</tr>
<tr>
<td>12/Apr/18</td>
<td>pertussis</td>
<td>18(00)</td>
<td>Fangak</td>
<td>Bei</td>
<td>Suspect pertussis cases have been reported by Mandeang PHCU and Kuephone PHCU in Fangak county. At least 11 suspect cases have been reported from Bei payam and another 7 suspect cases from Jiath. The response instituted by the partner CMA - entails treatment of cases and prophylaxis to close contacts and enhancing routine immunization for the infants.</td>
</tr>
<tr>
<td>22/05/18</td>
<td>cholera</td>
<td>2</td>
<td>Lopa</td>
<td>Imehejk</td>
<td>Two suspect cholera cases reported from Imhehejk, Lopa from 22May18; the index ate cold food at a local market; direct RDT positive for cholera; all two samples negative for cholera after culturing in NPHL.</td>
</tr>
<tr>
<td>21/05/2018</td>
<td>measles</td>
<td>40</td>
<td>Rumbek Center</td>
<td>Teyau</td>
<td>Eight suspect measles cases reported from Teyau, Rumbek Centre - MMT dispatched for the investigation. Specimens obtained. Outbreak confirmed &amp; reactive vaccination done.</td>
</tr>
<tr>
<td>23/05/18</td>
<td>measles</td>
<td>2</td>
<td>Mayom</td>
<td>Tam &amp; Wangbur</td>
<td>Two suspect measles cases reported from Mayom (Tam &amp; Wangbur payams) samples sent to Juba by MSF-CH</td>
</tr>
<tr>
<td>16/05/18</td>
<td>measles</td>
<td>1</td>
<td>Torit</td>
<td>Nyong</td>
<td>One suspect measles case reported from Nyong payam in Torit. Specimen collected</td>
</tr>
<tr>
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<tr>
<td>30/05/2018</td>
<td>Acute jaundice</td>
<td>01(00)</td>
<td>Torit</td>
<td>Torit town</td>
<td>On 30 May 2018, a 2year and eight month child was admitted to Torit Hospital with fever, yellow eyes, and vomiting. Specimen obtained for testing and sent to Juba. First test results in week 26; showed the sample was negative for HEV by PCR. Further tests were IgM negative for YF, ZIKV, CHIK, WNV and DEN.</td>
</tr>
<tr>
<td>28/05/2018</td>
<td>Measles</td>
<td>2 (00)</td>
<td>Awerial</td>
<td></td>
<td>Two suspect measles cases reported and investigated in Awerial county. Samples have been collected and shipped to Juba for laboratory testing.</td>
</tr>
<tr>
<td>26/06/2018</td>
<td>Measles</td>
<td>14</td>
<td>Yirol East</td>
<td></td>
<td>Fourteen suspect measles cases have been reported and investigated in Adior payam. Samples have been collected for testing.</td>
</tr>
<tr>
<td>26/06/2018</td>
<td>Measles</td>
<td>1</td>
<td>Yirol West</td>
<td></td>
<td>One suspect measles cases was reported in week 26.</td>
</tr>
<tr>
<td>10/06/2018</td>
<td>Measles</td>
<td>18</td>
<td>Bentiu PoC</td>
<td></td>
<td>18 suspect measles cases were reported in Bentiu PoC from 10 June 2018. Samples have been obtained for laboratory testing.</td>
</tr>
<tr>
<td>28/06/2018</td>
<td>Measles</td>
<td>6</td>
<td>Jur River</td>
<td></td>
<td>New suspect Measles cases reported from (Thilij) village in Wau Bai payam in Jur River county, an investigation team dispatched on 28th June and they investigated &amp; collected 6 blood samples</td>
</tr>
<tr>
<td>02/07/2018</td>
<td>Measles</td>
<td>6(0)</td>
<td>Twic</td>
<td></td>
<td>Five suspected measles cases have been reported in Twic County. They were investigated and samples were collected pending transportation to Juba. Line-listing and investigation reports had been prepared.</td>
</tr>
<tr>
<td>13/07/2018</td>
<td>cholera</td>
<td>Deaths</td>
<td>Awerial</td>
<td>Magok</td>
<td>On 13th July; suspect cholera deaths were reported from Magok, Awerial county. Initial verification by MoH/WHO has not revealed suspect cholera deaths in the area. Further verification by the CHD revealed on additional information to confirm the alert.</td>
</tr>
<tr>
<td>25/07/2018</td>
<td>Acute Jaundice</td>
<td>3 (02)</td>
<td>Leer TPA</td>
<td>Leer Town</td>
<td>Three AJS (suspect HEV) deaths reported in Leer TPA are being investigated. Surveillance has been strengthened to detect and investigate subsequent cases; and WASH has been stepped up.</td>
</tr>
<tr>
<td>20/07/2018</td>
<td>measles</td>
<td>1</td>
<td>Aweil Center</td>
<td></td>
<td>A suspect measles case reported from Aweil Center county and investigated (sample collected for testing).</td>
</tr>
<tr>
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<tr>
<td>10/08/2018</td>
<td>Suspect measles &amp; pertussis</td>
<td>unspecified</td>
<td>Nyirol</td>
<td>Waat</td>
<td>On 10 Aug 2018, CMA reported a cluster of suspect measles and pertussis cases in Waat payam, Nyirol county. The area has not been reached with immunization (routine or supplementary) in the last one year. Emergency supportive response is underway and there are preparations to line list and collect samples from suspect cases.</td>
</tr>
<tr>
<td>8/08/2018</td>
<td>Suspect cholera</td>
<td>1</td>
<td>Juba</td>
<td>Juba</td>
<td>Suspect cholera case reported in EB clinic and referred to Juba Teaching hospital. Test results awaited.</td>
</tr>
<tr>
<td>8/08/2018</td>
<td>Animal bites (suspect rabies)</td>
<td>12</td>
<td>Yambio</td>
<td>Yambio town</td>
<td>Animal bites (suspect rabies) involving 12 cases including 2 children were reported in Yambio town and were attributed to stray dogs. A multisectoral meeting convened in Yambio and from the national level - human &amp; animal rabies vaccines are being shipped to support the response. IEC materials are being adapted to support rabies risk communication.</td>
</tr>
<tr>
<td>8/08/2018</td>
<td>Suspect Guinea worm</td>
<td>2</td>
<td>Aweil</td>
<td>Aweil town</td>
<td>Two suspected Guinea worm cases were reported and investigated in Aweil State hospital. There was no hanging worm found the patients are being monitored</td>
</tr>
<tr>
<td>24/08/2018</td>
<td>Suspect Guinea worm</td>
<td>1</td>
<td>Nyirol</td>
<td>Lankien</td>
<td>One suspect Guinea worm case reported in Lankien. The SSGWEP has been initiated to initiate detailed investigations into the suspect case</td>
</tr>
<tr>
<td>05/08/2018</td>
<td>Suspect HEV cases</td>
<td>8</td>
<td>Fangak</td>
<td>Fangak</td>
<td>From Fangak, one suspect HEV was reported in week 33. Since week31, a total of 7 HEV RDT positive cases have been reported from Fangak. All the cases have occurred in adults (one in a postpartum female). The cases appear to be occurring sporadically and are using River water (largely from Phow river). Community awareness and hygiene promotion are ongoing. Samples sent to Uganda for PCR testing.</td>
</tr>
<tr>
<td>17/08/2018</td>
<td>Suspect Yellow Fever</td>
<td>1 (01)</td>
<td>Pibor</td>
<td>Pibor Town</td>
<td>A 23 year old male presented to Pibor PHCC on 12/08/2018 with history of fever, yellowing of eyes, agitation, convulsions, vomiting, coma, and bleeding from 06/Aug/2018. Patient died and autopsy sample tested PCR negative for YF, DENV3 and DENV4. Further histochemical testing underway.</td>
</tr>
<tr>
<td>08/Sept/18</td>
<td>Suspect VHF</td>
<td>1</td>
<td>Yambio</td>
<td>Bakiwiri</td>
<td>One EVD alert reported and investigated by the rapid response team during the week in Bakiwiri Boma, Yambio county. The presentation was not consistent with EVD case definition and there was no epidemiological linkage to EVD case or the outbreak in DR Congo. Sample tested PCR negative for Ebola, Marburg, CCHF, RVF, and Sosuga.</td>
</tr>
</tbody>
</table>
### Response | Suspect outbreaks in 2018

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<tbody>
<tr>
<td>10/09/2018</td>
<td>Suspect cutaneous anthrax</td>
<td>6</td>
<td>Gogrial West</td>
<td>Kuach North</td>
<td>During week 37, a suspect case of subcutaneous anthrax was detected in Kuajok hospital. The case originated from Wun-acier village, Monjiooc Boma in Gogrial West County. Follow up investigations revealed five additional cases, with lesions suggestive of subcutaneous anthrax. There were no human deaths linked to this case cluster. Outbreaks of similar cases were reported in the neighboring villages in 2011, 2013, and 2015, suggesting that the disease is endemic in the villages and county as a whole.</td>
</tr>
<tr>
<td>10/09/2018</td>
<td>Malaria alerts</td>
<td>counties with trends significantly higher than expected</td>
<td>15</td>
<td></td>
<td>Counties with malaria trends that exceed the threshold (third quartile of trends for the period 2013-2017) include: Aweil hub (Aweil Center); Rumbek hub (Rumbek Center, Rumbek East, Rumbek North, Wulu, Yirol East, Yirol West); Kuajok hub (Abyei, Gogrial East, Tonj East, Tonj South, and Twic Mayardit); Bentiu hub (Mayom); and Juba hub (Terekeka).</td>
</tr>
<tr>
<td>20/08/2018</td>
<td>Suspect rabies</td>
<td>30</td>
<td>Torit</td>
<td>Nyong, Himo donte</td>
<td>Animal bite (suspect rabies) have been on the increase in Torit county with 30 cases (no deaths) reported since 20 Aug 2018. The cases are distributed evenly by gender. Nearly 70% of the cases were reported in children aged 0-19 years. Nyong and Himo donte are the most affected payams.</td>
</tr>
<tr>
<td>04/08/2018</td>
<td>Suspect measles</td>
<td>11 (0)</td>
<td>Yirol West</td>
<td>Yirol Town; Abang</td>
<td>Since 4 Aug 2018; at least 11 suspect measles cases have been reported in Yirol hospital (originating from Yirol Town and Abang). Six samples have been collected for laboratory testing.</td>
</tr>
<tr>
<td>26/09/2018</td>
<td>Suspect Ebola</td>
<td>1 (01)</td>
<td>Juba</td>
<td>Northern Bari</td>
<td>On 26/09/2018; the PHEOC received a call of a suspect Ebola death involving a 25 year old businessman and Ethiopian by Nationality; the illness of the case started on 24/08/2018 with fever, headache, and cough. He received treatment from a private clinic the same day and improved. Hence on 26/09/2018; he went to work but his condition changed suddenly; he started vomiting blood; collapsed and died as he was being rushed to the nearby clinic. The samples reached Uganda Virus Research Institute (UVRI) on 27th September 2018 and the results released by the laboratory on 28th September 2018 showed that the samples were negative for Ebola, Marburg, CCHF, RVF and Sosuga viruses by PCR.</td>
</tr>
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<tr>
<td>17/09/2018</td>
<td>Suspect rabies</td>
<td>10</td>
<td>Rubkona</td>
<td>Bentiu town</td>
<td>Suspect rabies have been reported in Bentiu town; MSF is supporting the management of cases but there is no rabies vaccine in stock to facilitate post-exposure prophylaxis</td>
</tr>
<tr>
<td>17/09/2018</td>
<td>Suspect measles</td>
<td>3</td>
<td>Wau; Jur River</td>
<td>Wau South; Jur River</td>
<td>Three suspect measles cases [one case in Agok village, Wau South Payam; and 2 suspect cases in Marial Ajieith village, Jur River] were investigated during the week and samples sent to Juba for testing. Laboratory results for 10 samples (from Jur River; Wau; &amp; Raja) were released on 10/10/2018; all tested measles and rubella IgM negative.</td>
</tr>
<tr>
<td>17/09/2018</td>
<td>Suspect pertussis</td>
<td>7</td>
<td>Jur River; Wau</td>
<td>Kuajiena; Udici; Wau South &amp; Wau North</td>
<td>From week 37, 2018, a cluster of seven suspect pertussis cases were reported from Chono PHCU and Mapel PHCC (Chono; Magala; &amp; Gango villages). Additional cases were identified in Wau North and Wau South payam. An investigation was undertaken on 28 Sept 2018; confirmed clinical presentation was consistent with pertussis. No form of vaccination has been undertaken in the population in the last three years since the area has been under opposition control. Regular primary health care and routine vaccination outreaches were recommended for the affected areas.</td>
</tr>
<tr>
<td>03/10/2018</td>
<td>Suspect Ebola virus disease</td>
<td>1 (01)</td>
<td>Yei</td>
<td>Yeitown</td>
<td>A suspect Ebola deaths was reported to the PHEOC on 3 Oct 2018; the rapid response team deployed to investigate the death on 4 Oct 2018; but were unable to locate the home or grave of the suspect death. Follow up investigations involving the community leaders have not yielded any additional information.</td>
</tr>
<tr>
<td>12/10/2018</td>
<td>Suspect Ebola virus disease</td>
<td>1</td>
<td>Rumbek Center</td>
<td>Rumbek Town</td>
<td>On 12 October 2018, an Ebola alert was reported from UNMIS Rumbek involving UNMISS staff that presented on the 10/10/2018 with fever and headache but without any wet symptoms. He tested positive for malaria but CBC and platelet counts were normal. He is currently on treatment for malaria and is confined to his home. The rapid response team has been constituted to investigate and collect samples for Ebola testing. Sample PCR negative for Ebola, Marburg, RVF, CCHF, and Sosuga viruses.</td>
</tr>
<tr>
<td>18/10/2018</td>
<td>Suspect Ebola virus disease</td>
<td>1 (01)</td>
<td>Mundri East</td>
<td>Mundri East</td>
<td>A suspect VHF case reported in Lui hospital on 12/10/2018. Symptoms included fever, abdominal pains, nose bleeding, hematemesis and coma. Died on 14/10/2018. No epidemiological link to similar cases. Sample collected and arrangements are underway to ship the sample to Juba. Sample tested PCR negative for Ebola, Marburg, RVF, CCHF, and Sosuga viruses.</td>
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<tr>
<td>07/01/2018</td>
<td>Suspect rabies</td>
<td>848</td>
<td>Abyei</td>
<td>Abyei</td>
<td>An increase in suspect rabies cases is reported in Abyei town where at least 848 animal bites have been reported (week 1-42, 2018). The most affected are children 10-19 years. Dog vaccination is currently underway by the South Sudan Veterinary Association.</td>
</tr>
<tr>
<td>10/07/2018</td>
<td>Suspect HEV</td>
<td>7 (02)</td>
<td>Abyei</td>
<td>Abyei</td>
<td>Suspect HEV cases have been reported in Abyei town with 7 cases including 6 HEV RDT positive cases and two deaths have been reported. An integrated Health-WASH assessment and response is planned.</td>
</tr>
<tr>
<td>21/10/2018</td>
<td>Ebola virus alert</td>
<td>1</td>
<td>Yambio</td>
<td>Yambio</td>
<td>The Ebola alert was reported from Yambio hospital on 21 Oct 2018. The case improved on treatment and has since been discharged on 25 Oct 2018. Sample PCR negative for Ebola, Marburg, RVF, CCHF, and Sosuga viruses.</td>
</tr>
<tr>
<td>26/10/2018</td>
<td>Suspect measles</td>
<td>3</td>
<td>Malakal PoC</td>
<td>Malakal</td>
<td>From 26th to 27th October 2018; three new suspect measles cases were reported in Malakal PoC. Samples collected for testing in Juba.</td>
</tr>
<tr>
<td>25/10/2018</td>
<td>Suspect Guinea worm</td>
<td>2</td>
<td>Gogrial West &amp; Tonj North</td>
<td>Gogrial West &amp; Tonj North</td>
<td>In week 42, two suspect Guinea worm cases were reported from Pankot village, Langkap Boma at Alabek Payam in Tonj North County; and Thurachol village, Ajiep Boma, Kuac North Payam in Gogrial West County. Sample PCR negative for Ebola, Marburg, RVF, CCHF, and Sosuga viruses.</td>
</tr>
<tr>
<td>29/10/2018</td>
<td>Ebola alert</td>
<td>2</td>
<td>Pageri</td>
<td>Nimule</td>
<td>Two Ebola alerts involving a 6 year old boy and a 9 year old boy that presented with malaria like symptoms and nose bleeding without any history of contact with a bleeding or severely ill case or travel to an Ebola area. The alerts were discarded as they did not meet the case definition.</td>
</tr>
<tr>
<td>09/11/2018</td>
<td>Measles</td>
<td>15 (1)</td>
<td>Rumbek East</td>
<td>Rumbek East</td>
<td>At least 15 measles cases including one death were reported in Rumbek East; an investigation team is being dispatched from Rumbek on 12/11/2018 to verify and investigate the reports. A total of 9 samples tested measles IgM positive on 22 Nov 2018. Reactive campaign planned.</td>
</tr>
</tbody>
</table>
## Response | Suspect outbreaks in 2018

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<tr>
<td>20/10/2018</td>
<td>Suspect measles</td>
<td>3</td>
<td>Bor South</td>
<td>Bor PoC</td>
<td>At least three suspect measles cases reported from Bor PoC since 20/10/2018. All tested measles IgM positive following tests done in Juba. Reactive measles campaign planned.</td>
</tr>
<tr>
<td>24/11/2018</td>
<td>Yellow Fever</td>
<td>1</td>
<td>Nzara</td>
<td>Sakure</td>
<td>A suspect Ebola case was reported from Sakure on 23/11/2018 and investigated by the rapid response team on 24/11/2018. Preliminary testing in Juba on 24/11/2018 were negative for Ebola Zaire following GeneXpert testing. Further testing of the sample was PCR negative for all Ebola species; Marburg; Rift Valley Fever, Crimean Congo Hemorrhagic Fever, and Sosuga viruses. The sample eventually tested PCR positive for Yellow Fever.</td>
</tr>
<tr>
<td>29/11/2018</td>
<td>Suspect Ebola</td>
<td>1 (01)</td>
<td>Yambio</td>
<td>Yambio</td>
<td>The case involved a 45 year old male who was brought dead to Yambio State Hospital mortuary where evidence of bleeding from the ears, nose, and mouth was identified. The deceased is a DR Congo (DRC) national that has been residing in Yambio with no history of travel to DRC in seven years. Preliminary GeneXpert testing was negative for Ebola Zaire and the sample has been shipped for confirmatory testing UVRI, Entebbe, Uganda.</td>
</tr>
</tbody>
</table>
This bulletin is produced by the Ministry of Health with Technical support from WHO

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Notes

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The data has been collected with support from the EWARS project. This is an initiative to strengthen early warning, alert and response in emergencies. It includes an online, desktop and mobile application that can be rapidly configured and deployed in the field. It is designed with frontline users in mind, and built to work in difficult and remote operating environments. This bulletin has been automatically published from the EWARS application.

More information can be found at http://ewars-project.org