South Sudan

Integrated Disease Surveillance and Response (IDSR)

• The completeness for IDSR reporting at the county level was 64% in week 10 of 2019. The completeness for EWARS reporting from IDPs was 75%.

• The latest EVD alerts that was reported from Tambura on 14th March 2019 has been investigated and Ebola virus (all species), Marburg, and RVF ruled out on PCR testing.

• Two (2) new measles outbreaks have been confirmed in the country in week 10, 2019. An outbreak was confirmed in Aweil South County following laboratory confirmation of four (4) suspected measles samples. The second outbreak was declared in Melut County after three (3) suspected measles samples tested positive for measles IgM antibodies.

• Four rubella outbreaks confirmed in Aweil Center (3 rubella IgM positive cases); Bor South (4 rubella IgM positive cases); Gogrial West (5 rubella IgM positive cases); and Yirol East (3 rubella IgM positive cases).

• A reactive vaccination campaign targeting 76,024 children aged between 6-59 months in Gogrial West was conducted between 11th March 2019 and 16th March 2019. According to preliminary data representing 84% of all the data that was expected, 71,849 (94.5%) children have been vaccinated.

• A team of MoH, WHO and IPs visited Kuerdeng on 11th February 2019 to conduct investigation of a suspected AWD and ABD outbreak in Kuerdeng. The six (6) AWD samples collected during the mission have all tested negative for *vibrio cholerae*. No organisms were isolated on culture. The one (1) acute diarrhea bloody diarrhea sample’s result is pending. Findings from analysis of water samples indicated that the water was unfit for human consumption. Re-establishment of basic health and WASH services, and provision of surge HR was recommended to implementing partners.

• A new suspected HEV case has been reported from Bentiu PoC in week 10, 2019. Cumulatively, 22 suspected HEV cases have been reported in Bentiu PoC since the beginning of 2019.

• Considering 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 PERFORMANCE

For the Integrated Disease Surveillance (IDSR) network and Early warning alert and response network (EWARN)
Completeness for IDSR reporting at the county level was 64% in week 10, 2019 and cumulatively at 67% for 2019.
Timeliness for IDSR reporting at the county level was 61% in week 10 and cumulatively at 59% for 2019.
The graph shows completeness for the weekly IDSR reporting at the county level.
Counties that submitted their IDSR reports in week 10, 2019 are shown in green in map 1a.

Counties that did not submit their IDSR reports in week 10, 2019 are shown in grey in map 1a.
Both the completeness and timeliness for EWARS reporting stand at 75% for week 10, while the cumulative completeness and timeliness are 75% and 73% respectively for 2019.
EVENT-BASED SURVEILLANCE

Alert management including detection; reporting; verification; risk assessment; & risk characterization
Out of 55 alerts that were received in week 10, 87% were verified, 15% were risk assessed and 15% required a response.
In epi week 10 of 2019, Measles (12), bloody diarrhea (11) and AWD (6) were the three most frequently reported infectious diseases.
Alert by disease and county in W10 2019

Measles cases in Malakal and Renk
- Two (2) samples from Malakal Town tested positive for measles while 11 samples tested positive for rubella IgM antibodies.
- One (1) sample from Renk tested positive for measles IgM antibodies.
- Partners in Renk and Malakal advised to enhance their surveillance, conduct active case search and collect more samples.

AWD cases in Kuardeang, Fangak South
- A report of increasing cases of acute watery diarrhea and acute bloody diarrhea in Kuardeang, South Fangak since week 4, 2019.
- A team of MoH, WHO and IPs visited Kuardeang on 11th February 2019 to conduct investigation of a suspected AWD and ABD outbreak in Kuardeang.
- Six (6) AWD samples collected during the mission have all tested negative for vibrio cholerae. No organisms were isolated on culture.
- The one (1) acute diarrhea bloody diarrhea sample’s result is pending.
- Findings from analysis of water samples indicated that the water was unfit for human consumption.
- Re-establishment of basic health and WASH services, and provision of surge HR was recommended to implementing partners.

Suspected Meningitis Case in Yirol West
- One suspected meningitis case has been reported in Yirol West County. Sample was collected pending air transportation to Juba next week.
The Figures show comparison of alerts by hazard reported in week 09 and 10, and the cumulative number of alerts triggered in 2019 by hazard.
The table shows the cumulative alerts by risk assessment state in 2019.

Of the 253 alerts reported in 2019; 233 (92.1%) alerts were verified and five (2.0%) underwent risk assessment.
OUTBREAKS IN 2019

Major suspected and confirmed outbreaks in South Sudan in 2019
Confirmed Outbreaks South Sudan – As at 18th March 2019

- The map shows outbreaks confirmed in 2019.
- The active outbreaks include: HEV in Bentiu PoC; Yellow Fever in Nzara; Measles in Abyei, Rubella in Malakal PoC; Measles in Juba; Measles in Pibor; Measles in Gogriel West; Rubella in NBG; Measles in Mayom, Aweil South and Melut.
Suspected Outbreaks South Sudan – As at 18th March 2019

- New alerts in the week
  - Suspected Measles outbreak in Yirol East, Bentiu PoC
  - Whooping Cough in Jur River County, Awerial, Juba
  - AWD and ABD in Old Fangak and Aweil North
## Response | Summary of major ongoing outbreaks

### Ongoing epidemics

<table>
<thead>
<tr>
<th>Aetiological 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>
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<tr>
<td>Rubella</td>
<td>Malakal PoC</td>
<td>25/10/2018</td>
<td>0</td>
<td>178 (0.08)</td>
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<td>No</td>
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<tr>
<td>Yellow Fever</td>
<td>Nzara</td>
<td>23/11/2018</td>
<td>0</td>
<td>1 (0.001)</td>
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<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Hepatitis E</td>
<td>Bentiu PoC</td>
<td>03/01/2018</td>
<td>1</td>
<td>22 (0.011)</td>
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<td>No</td>
<td>Yes</td>
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<tr>
<td>Measles</td>
<td>Abyei</td>
<td>12/02/2018</td>
<td>0</td>
<td>316 (0.40)</td>
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<tr>
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<td>Juba</td>
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<td>48 (0.01)</td>
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<td>Yes</td>
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<td>Pibor</td>
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<td>0</td>
<td>97 (0.025)</td>
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<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
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<td>0</td>
<td>0</td>
<td>35 (0.028)</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
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<tr>
<td>Measles</td>
<td>Mayom</td>
<td>17/01/2019</td>
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<td>19 (0.010)</td>
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<td>12</td>
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<td>Melut</td>
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<td>Bor South</td>
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<td>5</td>
<td>5</td>
<td>5 (0.001)</td>
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<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>N/A</td>
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<td>Rubella</td>
<td>Yirol East</td>
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<td>3</td>
<td>3 (0.003)</td>
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<td>No</td>
<td>Yes</td>
<td>Yes</td>
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</tr>
</tbody>
</table>

### Ongoing outbreaks in week 10, 2019
1. Rubella Malakal PoC
2. Yellow Fever in Nzara county
3. Hepatitis E Virus (Bentiu PoC);
4. Measles in Abyei
5. Measles in Juba
6. Measles in Pibor
7. Measles in Gogriel West
8. Rubella in NBG
9. Measles in Mayom
10. Measles in Aweil South
11. Measles in Melut
12. Rubella in Bor South, Gogrial West and Yirol East
ACTIVE OUTBREAKS AND PUBLIC HEALTH EVENTS

Brief epidemiological description and public health response for active outbreaks and public health events
A measles outbreak has been confirmed in Melut following laboratory confirmation of three (3) suspected samples.

There are nine (9) suspected cases out of which three (3) cases have not been verified yet. The three cases to be traced and verified on 20th March 2019.

Among the six (6) that have been verified
  - All are < 5 years with mean age of 1.3 years (SD=0.3)
  - All residing in Paloch Payam
  - No deaths reported
  - Four of them reported being fully immunized

Engagement between partners and SMoH ongoing to develop a response plan.
Confirmed Measles Outbreak in Rumbek Center

Introduction

• An outbreak was confirmed in Aweil South after four samples collected from suspected measles cases tested positive for measles IgM antibodies in week 11.
• Six (6) samples were received out of which four (4) tested positive for measles and one (1) tested positive for rubella.
• Aweil South borders Gogriel West, a county with confirmed ongoing measles outbreak.
• Suspected measles cases are also being reported from Aweil North, Aweil East and Aweil West.
  - In Aweil East, three samples were received out of which two (2) tested positive for measles. There are six (6) suspected cases listed in Aweil East.
  - In Aweil West, one suspected case was confirmed positive for measles. In addition, there six (6) suspected cases who were confirmed positive for rubella.
  - One (1) sample from Aweil Centre tested positive for measles. Aweil Centre has an ongoing confirmed rubella outbreak.

Descriptive Epidemiology for measles cases in Aweil South

• There are 12 suspected cases reported from Aweil South. The first cases reported that their illness began in week 05, 2019.
• No deaths have been reported.
• Out of the 12 cases, 10 (83.3%) are children < 5 years.
• Half (6) of the cases are residing in Nyocawany Payam.
• Seven (58.3%) reported not receiving measles vaccination prior to their illness.

Recommended response

1. A response plan which includes a reactive vaccination campaign is being developed through engagement between SMoH and the partners.
2. Other recommended interventions include active case search by surveillance officers in the health facilities and communities, quality case management to improve outcome, and continuation with enhanced surveillance and routine EPI activities.
3. The health facilities and partners in Aweil East, Aweil West, Aweil North and Aweil Centre are advised to collect more samples from suspected and to increase awareness among health workers and communities to enhance identification of suspected cases.
Confirmed Measles outbreak – Mayom

Descriptive Epidemiology
• Nineteen (19) suspected measles cases were reported in Mayom between week 03, 2019 and week 08, 2019.
  • Three cases have been confirmed positive for Measles IgM antibodies
  • No deaths have been reported
• The payams with the most cases are Pup (7) and Mankien (5) Payam
• Majority (89.4%) of the cases are children < 5 years of age
• Only two (10.5%) cases reported ever receiving a vaccination against measles before their illnesses

Recommended response
1. A reactive vaccination campaign targeting 37,193 children aged 6-59 months in 10 payams in Mayom started on 6th and ended on 12th March 2019
   1. 53434 (143.7%) children were vaccinated as at end of day 6. Data for some difficult to reach areas are not available yet
2. Other recommended interventions include active case search in the health facilities and communities, case management, routine surveillance and social mobilization
Confirmed Measles outbreak – Pibor

Descriptive Epidemiology
- A total of 61 suspected measles cases have been reported as at mid week 9, 2019.
  - Six cases have been confirmed positive for Measles IgM antibodies
  - No deaths have been reported
- Most of the cases are from Gumuruk (15) and Pibor (33) contributing about 79% (48) of all the cases
- About 61% (37) of the cases are children <5 years
- Majority of the cases (86.7%) of all the cases have either no history of prior vaccination against Measles or don’t know their vaccination status.

Recommended response
1. A reactive vaccination campaign targeting 47,328 children aged 6 months to 15 years in all the payams started on 4th March 2019
   1. A total of 13882 (30%) children vaccinated
   2. The campaign lasted for 5 days with a mop-up exercise conducted on the 6th day
   3. About 4,000 children had been vaccinated by MSF-OCB before the campaign started
2. The challenges that had contributed to the low coverage include erroneous target population, inadequate social mobilization and communities’ reluctance to bring their children for vaccination
3. Partners advised to map out areas with low vaccination coverage and prioritize them either for a mop-up campaign or support the health facilities in those locations to implement enhanced routine vaccination.
Confirmed Measles outbreak – Gogrial West

Descriptive Epidemiology

- Ninety seven (97) suspected Measles cases reported between week 01, 2019 and week 09, 2019.
  - Three (3) cases are laboratory-confirmed
  - One death reported in week 8
- Most of the cases are from Alek West Payam with 55 (56.7%) suspected cases.
- More than half (53.6%) of the cases are younger than 5 years
- Most (94.7%) of the cases reported no history of receiving Measles vaccination prior to the illness

Recommended response

1. A reactive vaccination campaign targeting 76024 children aged between 6-59 months in the 9 payams was conducted between 11th March 2019 and 16th March 2019
   - According to preliminary data representing 84% of all the data that was expected, 71,849 (94.5%) children have been vaccinated
2. Continue with active case search, surveillance, case management and routine immunization
confirmed measles outbreak in rumbek center

Descriptive Epidemiology
• A total of 48 suspected measles cases were reported from Juba as at end of week 10.
  • Most cases are from Juba 15 (31.3%) and Khator 13 (27.1%) payams
  • Ten (10) confirmed cases; 6 from Khator, 3 from Amarat and 1 from Rejaf
  • Three (CFR 6.3%) deaths reported; two (2) from Amarat and One (1) from Khator. All the deaths are among <5 children.
• A majority of the cases are children < 5 years, 42 (87.5%) while 36 (75%) are male
• The new cases are coming from Rejaf, N. Bari and Juba payams

Recommended response
1. A reactive vaccination campaign covering three payams of Juba, Khator and Rejaf started on 11th February, 2019 and ended on 17th February, 2019 where 11712 (21%) children were vaccinated.
   1. Active case search in health facilities and communities to ascertain presence of additional cases being seen in the facilities and communities to inform the next course of action is ongoing
2. Increase community awareness through social mobilization both in the communities and at the health facilities
3. Continue with surveillance and routine immunization
Confirmed Measles outbreak – Abyei

**Background**
- Measles has been present in the area throughout the year, with about one suspected seen per week.

**Descriptive Epidemiology**
- A total of 316 suspected cases reported between week 7, 2018 and week 09, 2019. Of all the cases, 306 (96.8%) were reported between week 49, 2018 - 52, 2018, triggering declaration of an outbreak.
- Six (6) cases were confirmed between week 49-52, 2018.
- No deaths reported.
- Among the cases with age and sex recorded, majority of the cases are children <5 years accounting for 67.7% (212). Males are more than females accounting for 53.5% (169). Sex and age variable was missing for three cases.
- Rumammer county had the most cases with 219 (69.3%).

**Recommended response**
- A reactive vaccination was conducted between week 04 and 05, 2019 targeting four counties of Abyei, Rumammer, Alal and Mijak achieving an overall coverage of 88% (13335/15204).
  - A slow reduction in number of measles cases was observed from week 07, 2019 to week 10, 2019.
- Strengthening of routine immunization activities that includes both static and outreach activities.
- Continue with surveillance, health education and sensitization.

### Age groups

<table>
<thead>
<tr>
<th>Age groups</th>
<th>Female</th>
<th>Male</th>
<th>Total</th>
<th>Percentage, Cumulative %</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;1</td>
<td>50</td>
<td>52</td>
<td>102</td>
<td>32.6%</td>
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<td>1-4</td>
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<td>10-14</td>
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<td>15+</td>
<td>21</td>
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<td>50</td>
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</tr>
<tr>
<td>Total cases</td>
<td>144</td>
<td>169</td>
<td>313</td>
<td>100.0%</td>
</tr>
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</table>
Yellow Fever Update: Sakure Payam, Nzara county, Gbudue state

Epidemiological update
• Yellow Fever outbreak declared following PCR confirmation of a case on 19 Dec 2018
• WHO supported the MoH to conduct an outbreak investigation, and active case search both in the health facilities and in the community
• 35 samples collected by investigation team during active case search and contact tracing

Entomological update
• Overall, the entomological assessments in Sakure, Nzara, and Yambio towns showed no evidence of Aedes species mosquitoes and the stegomyia entomological outbreak indices for the three towns were all below the WHO epidemic thresholds. This is attributed to the current dry season and hence the greatly reduced breeding and mosquito populations at this time of the year.

Laboratory update
• Out of the 36 samples tested:
  • One (1) sample was PCR confirmed for Yellow Fever virus
  • Two (2) samples out of the 35 samples collected during active case search tested presumptively Yellow Fever IgM positive were eventually confirmed PRNT positive for yellow fever.
  • The two (2) Yellow Fever samples that initially tested presumptively IgM positive for Yellow Fever virus was confirmed plaque reduction neutralization test (PRNT) positive for Yellow Fever.
  • The other 33 samples tested negative for Yellow Fever.
  • The PCR positive case and the two YF PRNT positive cases all originate from Sakure payam in Nzara Payam, Gbudue state

Recommendations and Ongoing Activities
• WHO developed a reactive yellow fever vaccination campaign microplan targeting 19,578 individuals aged 9 months to 65 years in Sakure payam, Nzara county, Gbudue state.
• The vaccination microplan was submitted to the ICG on 19th February and approved on 21st Feb 2019
• A total of 21,416 doses of yellow fever vaccines are expected to arrive in South Sudan on 6th March 2019.
• Preparation of campaign reporting tools, field manuals and other necessary tools is ongoing
• Approval from the MoH has been obtained and the campaign is expected to start after all the preparation activities are completed
• The campaign dates will be 25th to 29th March 2019
**Response | Confirmed epidemics**

**Hepatitis E, Bentiu PoC**

- There has been persistent transmission of HEV in Bentiu PoC
- A total of 22 suspected HEV cases have been reported in Bentiu PoC since the beginning of 2019. One (1) new case was reported in week 10.
- There were 159 HEV cases reported in 2018
- None of the cases were admitted
- All the recent cases have recovered
- Males and females are equally affected
- Age groups 1-4 years had the most cases with 7 cases (31.8%).
- Out of the 11 females cases that were reported, one (1) cases is aged 15-44 years
  - At risk of adverse outcomes when infected in the 3rd trimester of pregnancy
- Use of unsafe drinking water likely to be source of infection
- Social mobilization to raise awareness on modes of transmission, symptoms and where to seek for care
- Case identification and follow up in the communities and WASH interventions are recommended.

### HEV cases in Bentiu PoC, week 01-10, 2019

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<th>Epi week, 2019</th>
<th>Number of cases</th>
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<td>4</td>
</tr>
<tr>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
</tr>
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<td>4-5</td>
<td>3</td>
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<td>6-7</td>
<td>3</td>
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<td>8-9</td>
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<td>1</td>
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<td>Total cases</td>
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### Age groups, 2019

<table>
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<th>Female, n</th>
<th>Male, n</th>
<th>Total, n</th>
<th>Percent, %</th>
<th>Cumulative %</th>
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<td>&lt;1 year</td>
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<td>11</td>
<td>11</td>
<td>22</td>
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</table>
Malaria trends

Current malaria trends
Malaria was the leading cause of morbidity and mortality accounting for 51.6% of all morbidities and 39.0% of all mortalities in week 10, 2019. The trend analyses showed at least 5 counties in three state hubs having malaria trends that are significantly higher than the expected levels. Counties with malaria trends that exceeded the threshold (third quartile of trends for the period 2013-2017) include:

1. Aweil hub (Aweil East, Aweil West)
2. Kwajok hub (Tonj South, Gogrial West)
3. Juba hub (Yei)

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
In 2018, at least 16 alerts met the case definition and therefore underwent verification and follow up investigation by the rapid response teams. During 2018, at least 13 alerts that met the case definition were investigated and had samples obtained for laboratory testing will testing negative for Ebola virus disease and other hemorrhagic fevers safe for one alert in Sakure, Nzara county that was confirmed yellow fever positive.
### Ebola alerts investigated in 2019

<table>
<thead>
<tr>
<th>Date</th>
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<th>Deaths</th>
<th>Payam</th>
<th>County</th>
<th>eRDT</th>
<th>eGeneXpert</th>
<th>ePCR</th>
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<td>27 Jan 19</td>
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<td>0</td>
<td>Nimule</td>
<td></td>
<td>ND</td>
<td>-ve</td>
<td>-ve</td>
<td>Investigated on 27 Jan 2019</td>
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<tr>
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<td>Nimule</td>
<td></td>
<td>ND</td>
<td>-ve</td>
<td>-ve</td>
<td>Investigated on 30th Jan 2019</td>
</tr>
<tr>
<td>09 Feb 19</td>
<td>1</td>
<td>0</td>
<td>Juba</td>
<td></td>
<td>Nd</td>
<td>-ve</td>
<td>-ve</td>
<td>Investigated on 09th Feb 2019</td>
</tr>
<tr>
<td>21st Feb 19</td>
<td>1</td>
<td>1</td>
<td>Yambio</td>
<td></td>
<td>Nd</td>
<td>-ve</td>
<td>-ve</td>
<td>Investigated on 21st Feb 19</td>
</tr>
<tr>
<td>25th Feb 19</td>
<td>1</td>
<td>0</td>
<td>Yambio</td>
<td></td>
<td>Nd</td>
<td>-ve</td>
<td>-ve</td>
<td>Investigated on 25th Feb 19</td>
</tr>
<tr>
<td>26th Feb 19</td>
<td>1</td>
<td>0</td>
<td>Yambio</td>
<td></td>
<td>Nd</td>
<td>-ve</td>
<td>-ve</td>
<td>Investigated on 26th Feb 19</td>
</tr>
<tr>
<td>14th Mar 19</td>
<td>1</td>
<td>0</td>
<td>Tambura</td>
<td></td>
<td>Nd</td>
<td>-ve</td>
<td>-ve</td>
<td>Investigated on 14th Mar 19</td>
</tr>
</tbody>
</table>

- The latest EVD alerts that was reported from Tambura on 14th has been investigated and Ebola Zaire virus ruled out on PCR testing.
- Blood samples have been obtained from seven (7) Ebolavirus alerts; seven (7) samples tested negative for Ebolavirus and other viral hemorrhagic fevers including RVF, Marburg; Yellow Fever; and CCHF.
Brief on the Ebola situation in DR Congo and updates on EVD preparedness in South Sudan
Ebola update DRC 16th Mar 2019

Current situation
- Currently in 32nd week of the outbreak
- 951 Cases [886 confirmed & 65 probable]
- 598 Deaths [533 confirmed & 65 probable]
- 74 Health workers [26 dead]

Response update
- 4715 contacts under surveillance [84-86% followed up]; 86 917 vaccinated
- 2 provinces [North Kivu & Ituri]
- 19 health zones [14 North Kivu & 5 Ituri]
- 80 cases in last 21 days; Katwa (45), Butembo (18), Mandima (7), Kalunguta (3), Kyondo (2), Masereka (2), Lubero (1), Beni (1) and Biena (1).

Source: WHO Ebola situation report
Summary
Total confirmed cases: 860
Total probable cases: 65

Highest number of confirmed cases at the Health Zone level is found in Katwa HZ: 257 cases

Highest number of confirmed cases at the Health Area level is found in Muchanga HA: 57 cases
- Trends in case incidences reflect an outbreak that is continuing with moderate intensity.

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
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 https://www.afro.who.int/publications/weekly-update-ebola-virus-disease-evd-preparedness-south-sudan
The electronic EWARS platform captures points of entry screening data and enables summarizing number of travelers screened on weekly basis. In week 10 of 2019, 12,678 individuals were screened at various screening points in the country.
MAJOR SUSPECTED AND CONFIRMED OUTBREAKS & EVENTS REPORTED IN 2019

Listing of the major suspected and confirmed outbreaks and public health events reported in 2018-2019
<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>20/10/2018</td>
<td>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>12/10/2018</td>
<td>measles</td>
<td>82 (3)</td>
<td>Rumbek East</td>
<td></td>
<td>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. 82 cases including 9 confirmed cases and 3 death (CFR 3.6%) reported. Cases reported from six payams with most originating from Aduel; Atiaba, and Mathian kok. Majority of the cases, 55 (67%), were children &lt; 5 years of age. A total of 9 samples tested positive for measles IgM on 22 November 2018</td>
</tr>
<tr>
<td>24/12/2018</td>
<td>Dog bites</td>
<td>8</td>
<td>Bentiu</td>
<td>Bentiu PoC</td>
<td>A cluster of cases of dog bites has been reported in Bentiu PoC. Eight (8) cases have been seen at health facilities between 24\textsuperscript{th} Dec 2018 and 28\textsuperscript{th} Dec 2018. Majority (75%) of the cases are children aged 5-12 years. None of the cases are symptomatic and no deaths were reported. Most of the dogs implicated are stray dogs who attacked unproved. Four (4) of the dogs were reported as being acting suspiciously and died within 15 days of the attacks. Of all the 8 cases reported, 5 (63%) received passive immunization with immunoglobulins, 2 (25%) received rabies vaccine and 6 (75%) received tetanus toxoid</td>
</tr>
</tbody>
</table>
## Outbreaks in 2019

<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>06/01/2019</td>
<td>Malaria alerts</td>
<td>counties with trends significantly higher than expected</td>
<td>6</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 East, Aweil West and Aweil North)</td>
</tr>
<tr>
<td>27/10/2018</td>
<td>Rubella</td>
<td>155</td>
<td>Malakall PoC</td>
<td></td>
<td>A total of 155 suspected rubella cases have been reported since week 43. No deaths reported. 41 cases are laboratory confirmed</td>
</tr>
<tr>
<td>31/12/2019</td>
<td>HEV</td>
<td>169</td>
<td>Bentiu PoC</td>
<td></td>
<td>At least 169 suspect cases of Hepatitis E (HEV) have been reported in Bentiu PoC in 2018. Of all the cases, 18 suspect cases were confirmed using PCR. The eight (8) cases were reported between week 50-52 tested positive on RDT testing. One (1) mortality (CFR 0.65%) in 2018. Results are pending.</td>
</tr>
<tr>
<td>06/01/2019</td>
<td>Acute Watery Diarrhea</td>
<td>467</td>
<td>Malakal PoC &amp; Malakal Town</td>
<td></td>
<td>An increase in AWD cases in Malakal PoC and Malakal Town reported from week 51, 2018. Overall, 467 AWD cases to date. In Malakal PoC, a total of 333 cases (70 in week 51, 224 in week 52 and 39 in week 01). In Malakal Town, 134 cases (49 in week 52 and 85 in week 01). Assossa, Jalaba and Malakal Payams had the most number of cases. No mortalities reported.</td>
</tr>
<tr>
<td>06/01/2019</td>
<td>Measles</td>
<td>202</td>
<td>Abyei</td>
<td></td>
<td>Measles has been present in the area throughout the year, with about one suspected case seen per week. A total of 45 suspected cases reported between week 7, 2018 and week 02, 2019. The number of cases increased from week 50, 2018. Of all the cases, 35 (76%) were reported between week 51, 2018-02, 2019. Five (5) confirmed cases were reported between week 51-52, 2018. No deaths reported</td>
</tr>
<tr>
<td>27/01/2019</td>
<td>EVD</td>
<td>1</td>
<td>Nimule</td>
<td></td>
<td>An alert was reported on 27th Jan, 2019. The cases, 30-year-old male, was investigated, sample collected which tested negative on GeneXpert and PCR testing.</td>
</tr>
<tr>
<td>27/01/2019</td>
<td>Measles</td>
<td>3</td>
<td>Juba</td>
<td>Kator and Amarat</td>
<td>Twenty-one (21) cases reported as from week 01, 2019. Five cases confirmed positive for Measles IgM antibodies. Two deaths have been reported.</td>
</tr>
<tr>
<td>Date of report</td>
<td>Disease suspected</td>
<td>Number cases (deaths)</td>
<td>County</td>
<td>Payam</td>
<td>Status of investigations</td>
</tr>
<tr>
<td>----------------</td>
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<td>-------------------------</td>
</tr>
<tr>
<td>21/01/2019</td>
<td>Chicken Pox</td>
<td>0</td>
<td>Awerial</td>
<td>Puluk</td>
<td>38 suspected cases of chicken pox all coming from Mingkaman in Puluk Payam.</td>
</tr>
<tr>
<td>30/01/2019</td>
<td>EVD</td>
<td>1</td>
<td>Nimule</td>
<td></td>
<td>An alert was reported on 30th Jan, 2019. The cases, 30year old patient, was investigated, sample collected which tested negative on GneneXpert and PCR testing.</td>
</tr>
<tr>
<td>17/01/2019</td>
<td>Measles</td>
<td>1</td>
<td>Gogriel West</td>
<td></td>
<td>97 suspected, three positive for IgM</td>
</tr>
<tr>
<td>31/01/2019</td>
<td>Measles</td>
<td>0</td>
<td>Aweil Center</td>
<td></td>
<td>About 12 suspected Measles cases have been reported from Aweil Center as at 31st January, 2019. Eight cases tested positive for rubella. There are now 35 cass.</td>
</tr>
<tr>
<td></td>
<td>Measles</td>
<td>0</td>
<td>Yirol East</td>
<td>Shambe</td>
<td>25 suspected Measles cases have been reported in Shambe in Yirol East. They have not been investigated or sample collected because of insecurity in the area</td>
</tr>
<tr>
<td>17/01/2019</td>
<td>Measles</td>
<td>0</td>
<td>Pibor</td>
<td>Gumuruk</td>
<td>Five suspected cases out of which three tested positive for Measles IgM antibodies</td>
</tr>
<tr>
<td>17/01/2019</td>
<td>Measles</td>
<td>0</td>
<td>Mayom</td>
<td></td>
<td>Five suspected cases out of which three tested positive for Measles IgM antibodies</td>
</tr>
<tr>
<td>15/03/2019</td>
<td>Measles</td>
<td>0</td>
<td>Aweil South</td>
<td></td>
<td>Twelve (12) suspected cases reported in the county, following which 4 samples tested positive for measles</td>
</tr>
<tr>
<td>15/03/2019</td>
<td>Measles</td>
<td>0</td>
<td>Melut</td>
<td></td>
<td>Three samples tested positive for measles out of six samples tested</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