South Sudan

Integrated Disease Surveillance and Response (IDSR)

The completeness for IDSR reporting at the county level was 57% in week 11 of 2019. The completeness for EWARS reporting from IDPs was 81%.

In epidemiological week 11 of 2019, malaria (11), AWD (9) and bloody diarrhea (9) were the three most frequently reported infectious diseases in the country.

The two most recently confirmed measles outbreaks in Melut and Aweil South counties are ongoing. There are nine (9) suspected measles cases in Melut although active case search for more cases in the facilities and in the communities are ongoing. In Aweil South, a total of 22 cases have been line listed following an active case search which was done after the outbreak confirmation. The index case has a history of travel to the neighboring Gogrial West County which has a confirmed ongoing measles outbreak.

The reactive measles vaccination campaign in Gogrial West is expected to continue for the next few weeks to vaccinate children aged >5 to <15 years after additional vaccines to cover this age group was availed. This was according to the initial recommendations based on the epidemiology of the reported cases however the age group was revised downwards for the initial phase of the campaign because of shortages of vaccine for emergency campaigns.

A reactive yellow fever vaccination campaign targeting 19,578 individuals aged 9 months to 65 years has started in Sakure payam, Nzara County on 25th March. The campaign is expected to run for five (days) and end on 29th March 2019. Yellow Fever outbreak was declared in Nzara County on 19th December 2018 following PCR confirmation of a suspected case from Nzara.

A new suspected HEV case has been reported from Bentiu PoC in week 11, 2019. Cumulatively, 23 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 57% in week 11, 2019 and cumulatively at 62% for 2019.

Timeliness for IDSR reporting at the county level was 57% in week 11 and cumulatively at 55% for 2019.
The graph shows completeness for the weekly IDSR reporting at the county level.
• Counties that submitted their IDSR reports in week 11, 2019 are shown in green in map 1a.
• Counties that did not submit their IDSR reports in week 11, 2019 are shown in grey in map 1a.
- Both the completeness and timeliness for EWARS reporting stand at 81% for week 11, while the cumulative completeness and timeliness are 67% and 66% respectively for 2019
EVENT-BASED SURVEILLANCE

Alert management including detection; reporting; verification; risk assessment; & risk characterization
Out of 57 alerts that were received in week 11, 60% were verified, 7% were risk assessed and 2% required a response.
In epi week 11 of 2019, malaria (11), AWD (9) and bloody diarrhea (9) were the three most frequently reported infectious diseases.
Sub-National Immunization Day (sNID)
- A sub-National Immunization Days (sNIDs) for Polio vaccination campaign targeting 69% of the country started on 12th March, 2019 and ended after four (4) days of vaccination. A National Immunization Days (NID) activity is scheduled to begin on 16th April 2019.

Suspected Guinea Worm case in Bor South
- A Guinea worm case was reported from Thiangyar in Makuach Payam, Bor South County during an integrated MdM/SMC outreach on 22nd March, 2019
The Figures show comparison of alerts by hazards reported in week 10 and 11, and the cumulative number of alerts triggered in 2019 by hazard.
The table shows the cumulative alerts by risk assessment status in 2019. Of the 310 alerts reported in 2019; 285 (91.9%) alerts were verified and five (1.9%) underwent risk assessment.
OUTBREAKS IN 2019

Major suspected and confirmed outbreaks in South Sudan in 2019
Confirmed Outbreaks South Sudan – As at 25th 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, Bor South, Yirol East and Gogrial West; Measles in Juba; Measles in Pibor; Measles in Gogriel West; Rubella in NBG; Measles in Mayom, Aweil South and Melut.
• 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

Week-08 Suspected Outbreak diseases
- Meningitis
- Measles
- Acute Watery Diarrhea
- Rabies probable
- Pertussis
- Chicken Pox

Number of outbreaks
- 1 - 5
- 6 - 10
- 11 - 50
- 51 - 100
- 101 - 200
- 201 - 300
- 301 - 400
- 401 - 500

IPC Phase Classification Feb 2019
- Emergency
- Crisis
- Stressed
- No data
# Summary of major ongoing outbreaks

<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><strong>Ongoing epidemics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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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>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>N/A</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>
<td>Yes</td>
<td>Yes</td>
<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>23 (0.011)</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</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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<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Measles</td>
<td>Juba</td>
<td>15/01/2019</td>
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<td>48 (0.01)</td>
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<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
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<td>Pibor</td>
<td>17/01/2019</td>
<td>0</td>
<td>61 (0.015)</td>
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<td>Yes</td>
<td>Yes</td>
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<td>Gogrial West</td>
<td>0</td>
<td>98</td>
<td>98 (0.025)</td>
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<td>Yes</td>
<td>Yes</td>
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<tr>
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<td>Aweil Center/NBG</td>
<td>0</td>
<td>35</td>
<td>35 (0.028)</td>
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<td>No</td>
<td>Yes</td>
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<tr>
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<td>Mayom</td>
<td>17/01/2019</td>
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<td>19 (0.010)</td>
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<td>10</td>
<td>22 (0.012)</td>
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<td>Melut</td>
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<td>3</td>
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<td>Yes</td>
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<tr>
<td>Rubella</td>
<td>Bor South</td>
<td>0</td>
<td>4</td>
<td>4 (0.001)</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Rubella</td>
<td>Gogrial West</td>
<td>0</td>
<td>5</td>
<td>5 (0.001)</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Rubella</td>
<td>Yirol East</td>
<td>0</td>
<td>3</td>
<td>3 (0.003)</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**Ongoing outbreaks in week 11, 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. Measles in Mayom
9. Rubella in NBG
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
Confirmed Measles outbreak – Melut

Introduction
- A measles outbreak has been confirmed in Melut following laboratory confirmation of three (3) suspected samples in week 11. There are nine (9) suspected measles although active case search for more cases in the facilities and in the communities are ongoing.

Descriptive Epidemiology for measles cases in Aweil South
- The first cases among the line listed cases reported that their skin rash started in week 07, 2019.
- No deaths have been reported
- Out of the 9 cases, 8 (88.9%) are children < 5 years. The mean age for the cases is 1.5 years (SD=1.3)
- The majority of the cases are from Paloch Payam with 8 (88.9%) cases out of the 9 cases
- Six (66.7%) reported not receiving measles vaccination prior to their illness

Recommended response
1. A response plans which includes a micro-plan for a reactive vaccination campaign has been developed through engagement between SMoH and the partners
   - The emergency campaign will be targeting 15,502 children aged 6 months to 5 years.
   - The number of doses of measles vaccine required are 17,082 doses
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 Malakal (2) and Renk (1) where laboratory confirmed cases have been reported are advised to enhance their surveillance as well as collecting more samples for testing.
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.
• Cumulative caseload of 22 cases have been line listed following an active case search which was done after the outbreak confirmation.
• The index case has a history of travel to the neighboring Gogriel West County which has an ongoing measles outbreak.
• Suspected measles cases are also being reported from Aweil North, Aweil East and Aweil West.

Descriptive Epidemiology for measles cases in Aweil South

• The majority (68.2%) of cases are children <5 years.
• Most of the cases are residing in Nyocawany Payam with 15 (68.2%) cases coming from four villages.
• Half (11) of the cases have not received measles vaccination prior to their illness.

Recommended response

1. A micro-plan for a reactive vaccination campaign has been developed where 22,071 children aged 6 months to 5 years are to be vaccinated.
   • The implementing partner in the county has communicated that they are unable to support the campaign. Health Cluster and WHO engaging the emergency responders to have one of them step in and support the campaign.
2. Other recommended interventions include active case search by surveillance officers in the health facilities and communities, case management,
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
   - 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 perform payam and village level analysis of the campaign coverage to identify areas with low vaccination coverage and prioritize them for either a mop-up campaign or scaling up of routine vaccination activities.
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
   - The campaign expected to continue for the next few weeks to vaccinate children >5 to <15 years after additional vaccines to cover this age group were availed. This was part of the initial recommendation based on the epidemiology of the cases.
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 (31.3%) and Khator (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.
2. 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
3. Increase community awareness through social mobilization both in the communities and at the health facilities
4. 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 - 10, 2019.
- Six (6) cases were confirmed between week 49-52, 2018, triggering declaration of an outbreak
- 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
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 reactive vaccination campaign is ongoing having started on 25th March 2019
Hepatitis E, Bentiu PoC

- There has been persistent transmission of HEV in Bentiu PoC since early 2018
- Cumulatively, there are 23 suspected HEV cases that have been reported in Bentiu PoC since the beginning of 2019. One (1) new case was reported in week 11.
- There were 159 HEV cases reported in 2018
- None of the cases were admitted
- All the recent cases have recovered
- Slightly more than half (52.2%) of the cases are males
- Age groups 1-4 years had the most cases with 7 cases (30.4%).
- Out of the 11 females cases that were reported, three (3) cases are 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.

### Age groups, Female, n, Male, n, Total, n, Percent, %, Cumulative %

<table>
<thead>
<tr>
<th>Age groups</th>
<th>Female, n</th>
<th>Male, n</th>
<th>Total, n</th>
<th>Percent, %</th>
<th>Cumulative %</th>
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<td>6</td>
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<td>15-44 years</td>
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<td>11</td>
<td>12</td>
<td>23</td>
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</table>
Malaria trends

Current malaria trends
Malaria was the leading cause of morbidity and mortality accounting for 49.7% of all morbidities and 61.7% of all mortalities in week 11, 2019. The trend analyses showed at least 6 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, Aweil North)
2. Kwajok hub (Tonj South, Tonj East)
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
Three EVD alerts reported in week 12, 2019

On 22\textsuperscript{nd} March 2019 an alert was received through hotline 6666 from a police officer at Mauna police station in Juba

- Rapid Response Team (RRT) responded to verify and investigate the alert
- The case KH is a 32 year old Congolese who arrived in Juba from DRC on 27\textsuperscript{th}, Feb. 2019
- Patient presented with history of fever, nose bleeding, gum bleeding, diarrhea, abdominal pain and muscles pain.
- A prisoner after being arrested for a criminal offence.
- There is no history of hunting or eating bush meat in the past three weeks.
- No family member is sick or has died in the last 21 days
- A total of 29 contacts including police officers, family members, and detainees have been line listed for follow up. Contacts have been advised stay in one place till the results are out.
- Blood sample was collected for analysis and results are being awaited

On 23\textsuperscript{rd} March 2019, an EVD alert received from AL-SABBAH Hospital of a 4 months old infant (male) who died in the hospital while under going treatment for severe malaria. After investigation, case did not meet the EVD case definition

An alert was received from Nimule on 24\textsuperscript{th} March 2019 about a patient at Olikwi PHCU who was investigated and later the alert was discarded.
**Confirmed Measles Outbreak in Rumbek Center**

- 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 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>
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<td>0</td>
<td>Makpandu</td>
<td>Yambio</td>
<td>ND</td>
<td>ND</td>
<td>-ve</td>
<td>Reported in refugee camp</td>
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<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>
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<tr>
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<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>3Oct</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>
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<tr>
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<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>
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<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>-ve</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>-ve</td>
<td>Investigated on 29 Nov</td>
</tr>
<tr>
<td>03 Dec</td>
<td>1</td>
<td>0</td>
<td>Renk South</td>
<td>Renk</td>
<td>ND</td>
<td>-ve</td>
<td>-ve</td>
<td>Investigated 4 Dec</td>
</tr>
<tr>
<td>15 Dec</td>
<td>1</td>
<td>0</td>
<td>Rejaf</td>
<td>Rejaf</td>
<td>ND</td>
<td>-ve</td>
<td>-ve</td>
<td>Investigated 15 Dec</td>
</tr>
<tr>
<td>25 Dec</td>
<td>1</td>
<td>0</td>
<td>Yambio Town</td>
<td></td>
<td>ND</td>
<td>-ve</td>
<td>-ve</td>
<td>Investigated 25 Dec</td>
</tr>
</tbody>
</table>
### Ebola alerts investigated in 2019

<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>27 Jan 19</td>
<td>1</td>
<td>0</td>
<td>Nimule</td>
<td></td>
<td>ND</td>
<td>-ve</td>
<td>-ve</td>
<td>Investigated on 27 Jan 2019</td>
</tr>
<tr>
<td>30 Jan 19</td>
<td>1</td>
<td>0</td>
<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>
<tr>
<td>22nd Mar 19</td>
<td>1</td>
<td>0</td>
<td>Juba</td>
<td></td>
<td>Nd</td>
<td>Pending</td>
<td>Pending</td>
<td>Investigated on 22nd Mar 19</td>
</tr>
</tbody>
</table>

- Blood samples have been obtained from eight (8) Ebolavirus alerts; seven (7) samples tested negative for Ebolavirus and other viral hemorrhagic fevers including RVF, Marburg; Yellow Fever; and CCHF while results for the latest suspected EVD case is pending.
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

### Affected health zones
- 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
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.

The electronic EWARS platform captures points of entry screening data and enables summarizing number of travelers screened on weekly basis. In week 11 of 2019, 12,814 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
## 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>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 24th Dec 2018 and 28th 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>
<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>
<td>-------------------</td>
<td>-----------------------</td>
<td>--------</td>
<td>-------</td>
<td>--------------------------</td>
</tr>
<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). Assosa, 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 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 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 GneneXpert and PCR testing</td>
</tr>
<tr>
<td>27/01/2019</td>
<td>Measles</td>
<td>3</td>
<td>Juba Kator and Amarat</td>
<td></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>
<td>-------------------</td>
<td>-----------------------</td>
<td>--------------</td>
<td>--------------</td>
<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, 30 year old patient, was investigated, sample collected which tested negative on Gnextpert 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

For more help and support, please contact:

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Notes

WHO and the Ministry of Health gratefully acknowledge the surveillance officers [at state, county, and health facility levels], health cluster and health pooled fund (HPF) partners who have reported the data used in this bulletin. We would also like to thank ECHO and USAID for providing financial support.

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