South Sudan

Integrated Disease Surveillance and Response (IDSR)

Epidemiological Update W08 2019 (Feb 18, 2018- Feb 24, 2019)

Ministry of Health
Republic of South Sudan

World Health Organization
South Sudan

- The completeness for IDSR reporting at the county level was 63% in week 8 of 2019. The completeness for EWARS reporting from IDPs was 82%.
- _____
- The two EVD alerts that were reported from Yambio on 25th and 26th February 2019 have both tested negative for Ebola Zaire virus on GeneXpert and PCR testing. The two samples also tested negative for Marburg, CCHF and RVF on PCR. _____
- In epidemiological week 8 of 2019, Measles (7), AWD (7) and malaria (5) were the three most frequently reported infectious diseases. _____
- A micro-plan for a reactive measles vaccination campaign in Mayom County targeting 37, 193 children aged 6-59 months is planned to begin on 6th March 2019 . Similar campaigns have started on 4th March 2019 in Pibor County and expected to start on 6th March 2019 in Gogriel West County. There is a reported shortage of measles vaccines for emergency campaigns in the country.
- _____
- A report of increasing cases of acute watery diarrhea and acute bloody diarrhea in Kuerdeng, South Fangak since week 4, 2019 (week of 21 Jan 2019) has been received. A total of 290 AWD and ABD cases including two deaths among adults have been reported from Kuerdeng since week 4, 2019. A multidisciplinary team led by MoH attempted to travel to Fangak to conduct an investigation and provide the initial response but the plan was cancelled last minute following hesitation by UNHAS to fly to Kuerdeng. An alternative plan to deliver supplies to the facilities and transport samples back for laboratory testing is underway. _____
- A total of 20 suspected HEV cases have been reported in Bentiu PoC since the beginning of 2019. There were two (2) new cases reported in week 8. _____
- 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.
- _____

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SURVEILLANCE PERFORMANCE

For the Integrated Disease Surveillance (IDSR) network and Early warning alert and response network (EWARN)

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Table 1 | IDSR surveillance performance indicators by county (W8 2019)

Hub	Reporting # counties	# reports received # reports	Performance Completeness	Timeliness
Aweil	5	5	100%	100%
Bentiu	9	5	56%	44%
Bor	11	10	91%	91%
Juba	6	1	17%	17%
Kwajok	7	3	43%	43%
Malakal	13	8	62%	62%
Rumbek	8	8	100%	100%
Torit	8	0	0%	0%
Wau	3	0	0%	0%
Yambio	10	10	100%	100%
South Sudan	80	50	63%	61%

Table 2 | Summary of key IDSR surveillance indicators

W8	Cumulative (2019)	
80	-	Number of counties
63%	62%	Completeness
61%	56%	Timeliness

Table 3 | IDSR report submissions

| W8	Cumulative (2019)	
50	444	total submissions
9	0	submissions by mobile
41	0	submissions by web

- Completeness for IDSR reporting at the county level was 63% in week 8, 2019 and cumulatively at 62% for 2019.
- Timeliness for IDSR reporting at the county level was 61% in week 8 and cumulatively at 56% for 2019.
- Out of the 59 reports submitted, 9 (18%) reports were submitted via mobile phones.

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Figure 1 | Trend in IDSR completeness over time
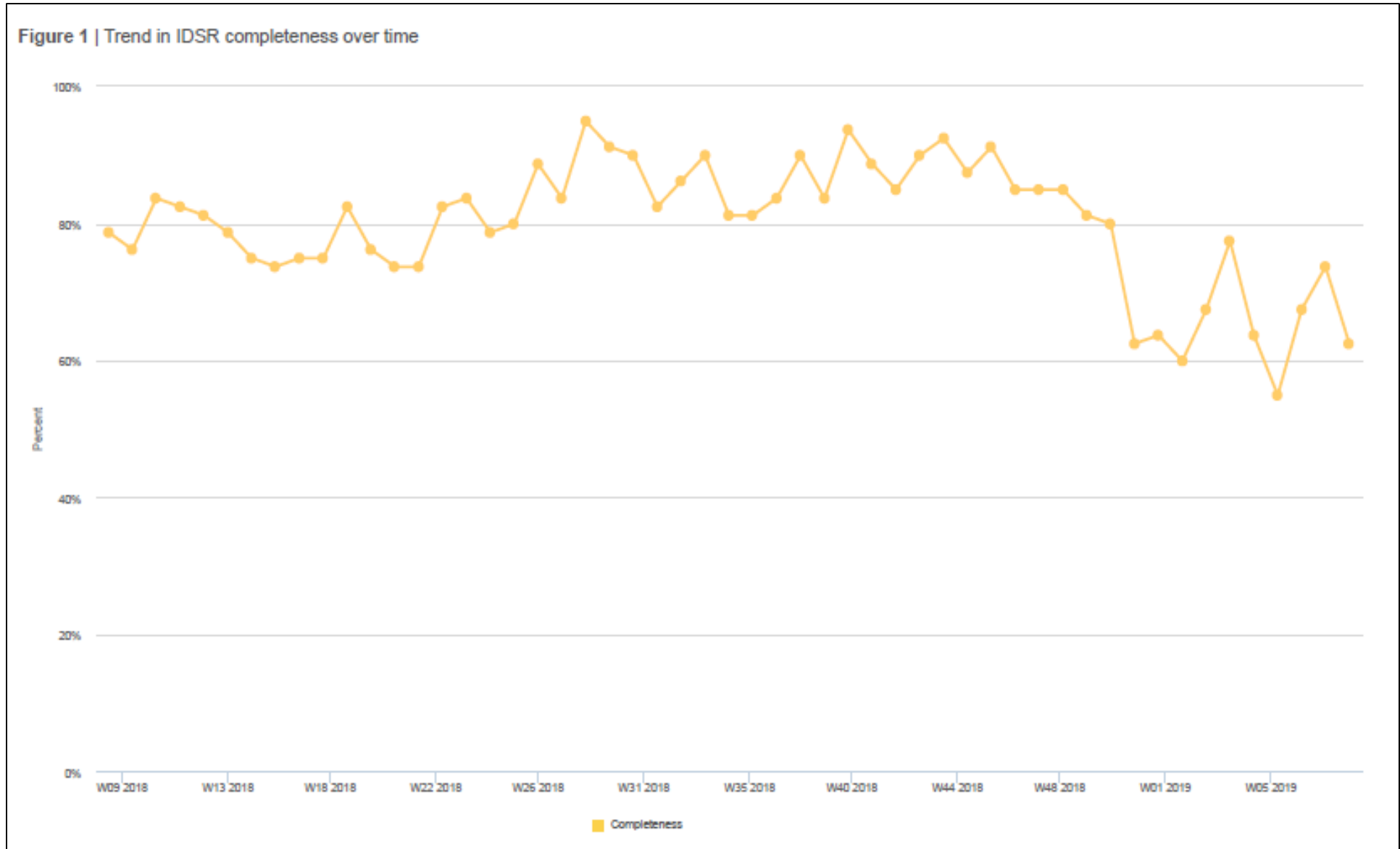
The graph shows completeness for the weekly IDSR reporting at the county level.

Map 1a | Map of IDSR completeness by county (W8 2019)

Map 1b | Map of IDSR completeness by county (2019)
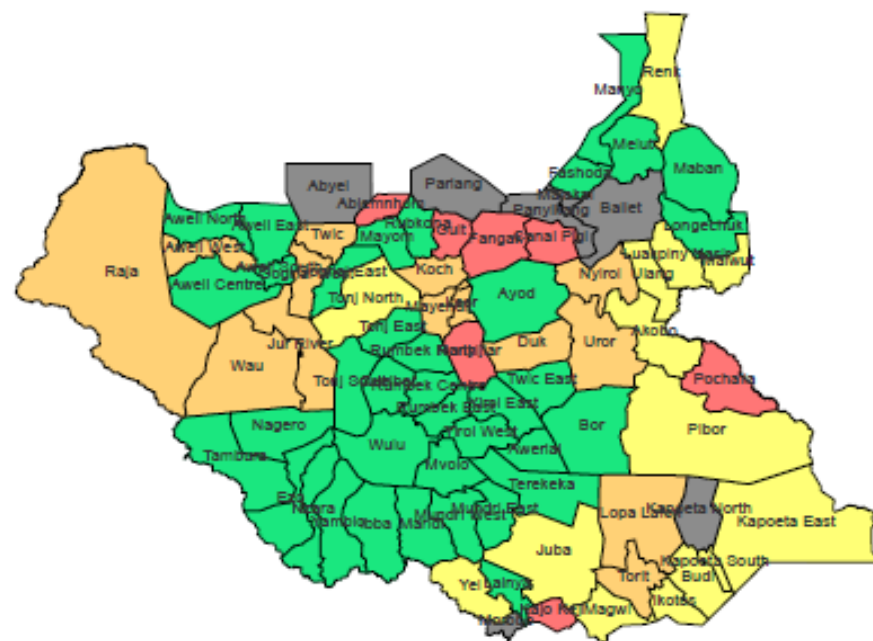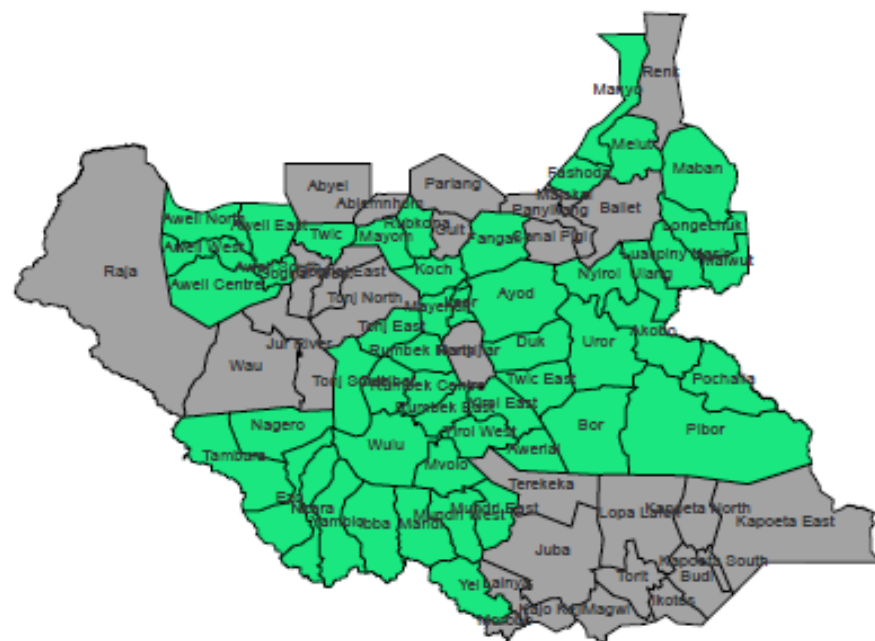
- Counties that submitted their IDSR reports in week 08, 2019 are shown in green in map 1a.

- Counties that did not submit their IDSR reports in week 08, 2019 are shown in grey in map 1a.

Table 4 | EWARS surveillance performance indicators by partner (W8 2019)

Partner	Performance		Reporting	
	# sites	# reports received	Completeness	Timeliness
CMD	3	3	100%	100%
GOAL	2	2	100%	100%
HLSS	1	1	100%	100%
IMA	7	7	100%	100%
IMC	5	5	100%	100%
IOM	10	10	100%	100%
IRC	1	1	100%	100%
Medair	2	1	50%	50%
MSF-E	2	1	50%	50%
MSF-H	3	1	33%	33%
SMC	6	4	67%	67%
UNIDO	1	1	100%	100%
UNKEA	2	2	100%	100%
World Relief	1	1	100%	100%
TRI-SS	2	0	0%	0%
LIVEWELL	4	4	100%	100%
Total	56	46	82%	80%

Table 5 | Summary of key EWARS surveillance indicators

W8	Cumulative (2019)	
56	-	Number of EWARS reporting sites
82%	74%	Completeness
80%	71%	Timeliness

Table 6 | EWARS report submissions

W8	Cumulative (2019)	
46	404	total submissions
2	18	submissions by mobile
44	386	submissions by web

- The completeness and timeliness for EWARS reporting stand at 82% and 80% respectively for week 08, while the cumulative completeness and timeliness are 74% and 71% respectively for 2019.

EVENT-BASED SURVEILLANCE

Alert management including detection; reporting; verification; risk assessment; & risk characterization

Table 7 | Alert performance indicators by Hub

Hub	W8		Cumulative (2019)	
	# alerts	% verif.	# alerts	% verif.
Aweil	3	100%	10	90%
Bentiu	2	100%	24	92%
Bor	5	100%	16	75%
Juba	6	17%	43	67%
Kwajok	0	0%	7	43%
Malakal	2	100%	18	78%
Rumbek	2	100%	21	100%
Torit	1	100%	6	50%
Wau	1	100%	26	65%
Yambio	2	100%	25	100%
South Sudan	24	79%	196	79%

Table 8 Summary of key alert indicators

W8	Cumulative (2019)	
24	196	Total alerts raised
79%	79%	% verified
0%	0%	% auto-discarded
13%	5%	% risk assessed
4%	2%	% requiring a response

Out of 24 alerts that were received in week 08, 79% were verified, 13% were risk assessed and 4% required a response.

Table 9 | Alert performance indicators by event

Event	W8		Cumulative (2019)	
	# alerts	% verif.	# alerts	% verif.
Indicator-based surveillance				
Malaria	5	100%	27	89%
AWD	7	29%	262	72%
Bloody Diarr.	2	100%	32	65%
Measles	7	100%	74	82%
Meningitis	0	0%	0	0%
Cholera	0	0%	4	100%
Yellow Fever	0	0%	1	100%
Guinea Worm	0	0%	5	60%
AFP	1	100%	58	50%
VHF	0	0%	0	0%
Neo. tetanus	0	0%	0	0%
Event-based surveillance				
EBS total	2	100%	11	100%

Table 10 | Event risk assessment

W8	Cumulative (2019)	
0	2	Low risk
0	0	Medium risk
1	2	High risk
1	1	Very high risk

In epi week 8 of 2019, Measles (7), AWD (7) and malaria were the three most frequently reported infectious diseases.

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Alert by disease and county in W08 2019

Counties/Facilities	AWD	Bloody Diarrhea	Guinea Worm	AFP	EBS	Malaria	Measles	Total Alerts
Malakia PHCC	1							1
African Inland Church PHCC	1							1
St Kizito PHCC	1							1
LiveWell_SS Vurveth Mobile Clinic	2							2
Aweil South				1			1	2
Kubi PHCU	1							1
Mayom		1						1
Aweil Centre					1			1
Awerial					1			1
Ayod						1		1
Mundri East						1		1
Nzara						1		1
Torit Civil Hospital						1		1
LiveWell_SS Gumuruk Mobile Clinic						1		1
El-Sabah Children Hospital							1	1
IOM Wau PoC Clinic							1	1
Malakal PoC Hospital MSF SP							1	1
Duk							1	1
MSF-E Malakal Town PHCC							1	1
MSF-H Bentiu PoC Hospital							1	1
Total Grand	6	1	0	1	2	5	7	22

AWD cases in Old Fangak
- **A report of increasing cases of acute watery diarrhea and acute bloody diarrhea in Kuerdeng, South Fangak since week 4, 2019 (week of 21 Jan 2019) has been received.**
- **A total of 290 AWD and ABD cases including two deaths among adults have been reported from Kuegeng since week 4, 2019.**
- **Main payams and Bomas affected – Kuerdeng, Jikuat, Dhornor, Nyadin, Old Fangak, Wanchoat that are served by Nyadin PHCC (CMA), Kuerdeng PHCU (CMA).**
- **The affected areas are swampy; no WASH interventions; and movement of people to cattle and fishing camps during the dry season**
- **Response**
  - **A multidisciplinary team led by MoH planned to fly to Kuerdeng to conduct an investigation and provide the initial response on 2nd Feb 2019 but the planned trip was cancelled following hesitation by UNHAS to fly to Kuerdeng.**

Suspected Measles cases in Bor
- **Ten (10) suspected measles cases have been reported in Bor. Eight cases were reported in week 7, 2019. Half of the cases are children < 5 years. The mean age of the cases was 5.5 years (SD=3.5. The cases are from Malual Chaat in Kolnyang (5), Ngeil in Bor town (3) and Anyidi (2). Five samples have been collected with pending results. Four samples tested positive for Rubella IgM antibodies**
- **Two suspected measles cases reported from Duk. Samples have been collected for laboratory-confirmation.**

Suspected Guinea Worm case in Pibor
- **The case was investigated and Guinea Worm ruled out on laboratory testing.**
- **Rubella in Gogriel West: Four confirmed rubella cases**

Alerts by hazard in week 07 and 08, 2019

Number of cases

wk 7 wk 8

Acute Watery Diarrhoea | AFP | Bloody Diarrhoea | EBS | Guinea Worm | Measles | Malaria

Number of Alerts by disease, South Sudan,from week 01 to 08, 2019
n=162 alerts

Number of alerts

Acute Watery Diarrhoea | AFP | Bloody Diarrhoea | Cholera | EBS | Guinea Worm | Malaria | Measles | Yellow Fever
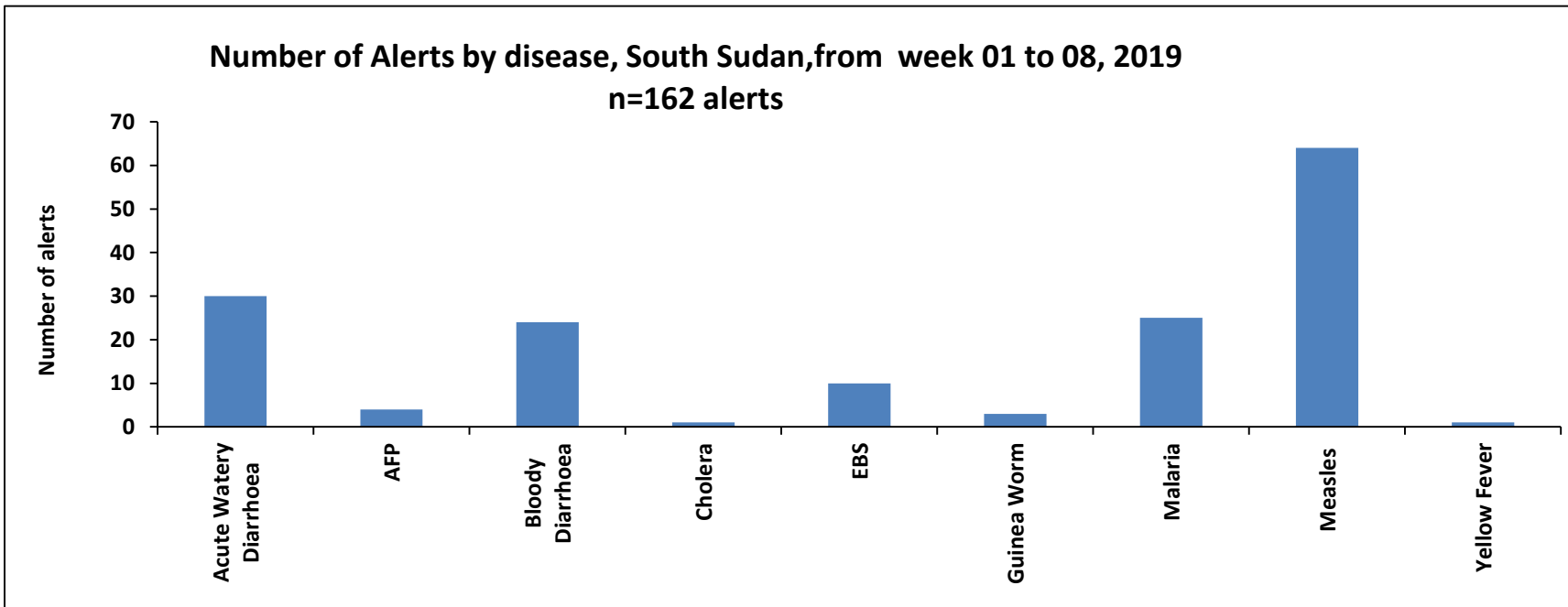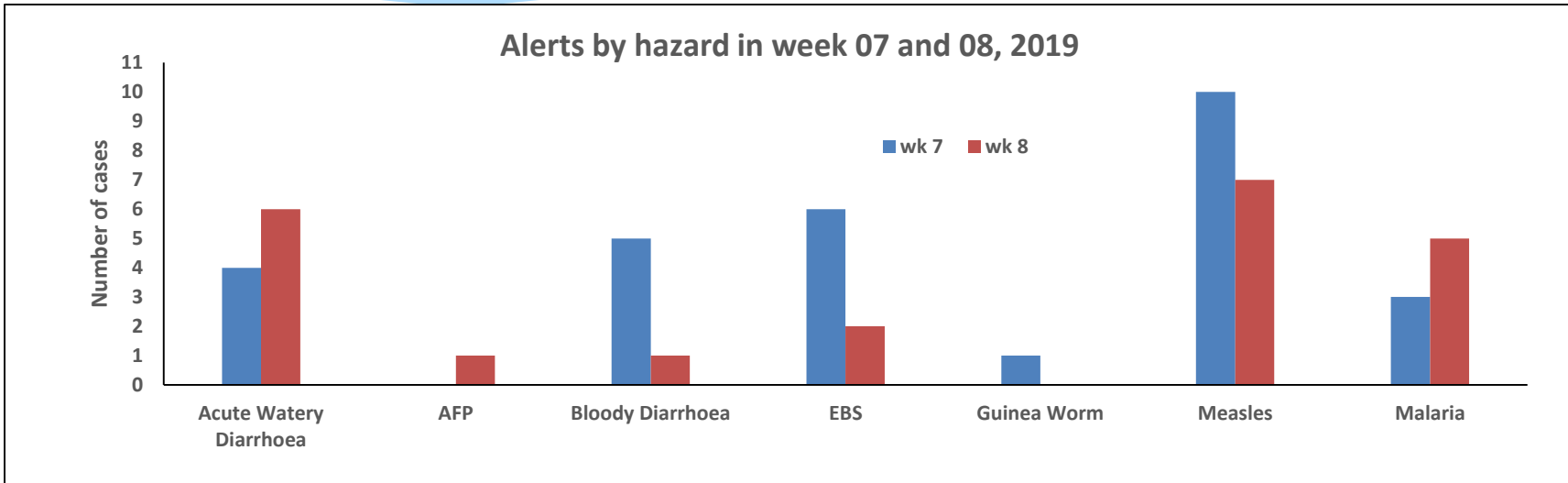
The Figures show comparison of alerts by hazard reported in week 07 and 08, and the cumulative number of alerts triggered in 2019 by hazard.

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County	OUTCOME	RISK ASSESSED	VERIFICATION	Total Alerts
Acute Watery Diarrhoea		1	29	30
AFP			4	4
Bloody Diarrhoea		2	22	24
EBS	2		8	10
Guinea Worm			3	3
Yellow Fever			1	1
Measles	3	2	59	64
Cholera			1	1
Malaria			25	25
Total Alerts	5	5	152	162

- The table shows the cumulative alerts by risk assessment state in 2019
- Of the 162 alerts reported in 2019; 152 (93.8%) alerts were verified and three (1.9%) underwent risk assessment..

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OUTBREAKS IN 2019

Major suspected and confirmed outbreaks in South Sudan in 2019

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Confirmed Outbreaks South Sudan – As at 4ᵗʰ March 2019

- The map show outbreaks confirmed in 2019
- The active outbreaks include: HEV (Bentiu PoC; measles in Bor PoC; Measles in Rumbek East; 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
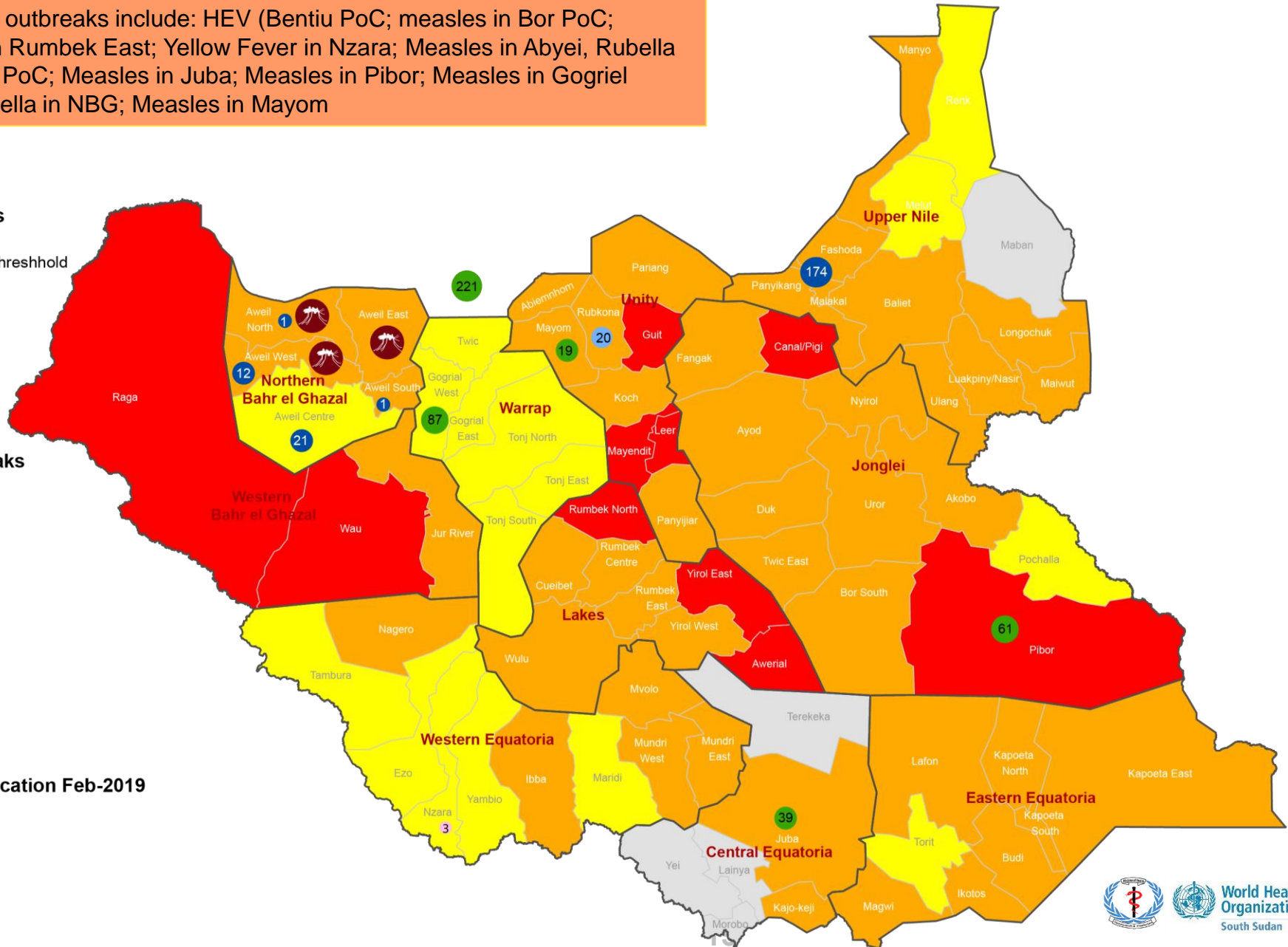
Outbreak diseases

- Malaria -above threshhold
- Measles
- Rubella
- Hepatitis E
- Yellow Fever

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

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Suspected Outbreaks South Sudan – As at 4th March 2019

- Map shows suspect outbreaks reported in 2019
- New alerts in the week
  - Suspected rabies in Bentiu PoC and Nzara
  - Suspected meningitis in Lankien, Leer, Mundri, Cuei-Bet, Jur River County
  - Suspected Measles outbreak in Yirol East, Bentiu PoC, Bor and Twic
  - Suspected Chicken Pox in Awerial
  - Whooping Cough in Jur River County and Awerial
  - AWD in Old Fangak
  - Chicken Pox in Pochalla

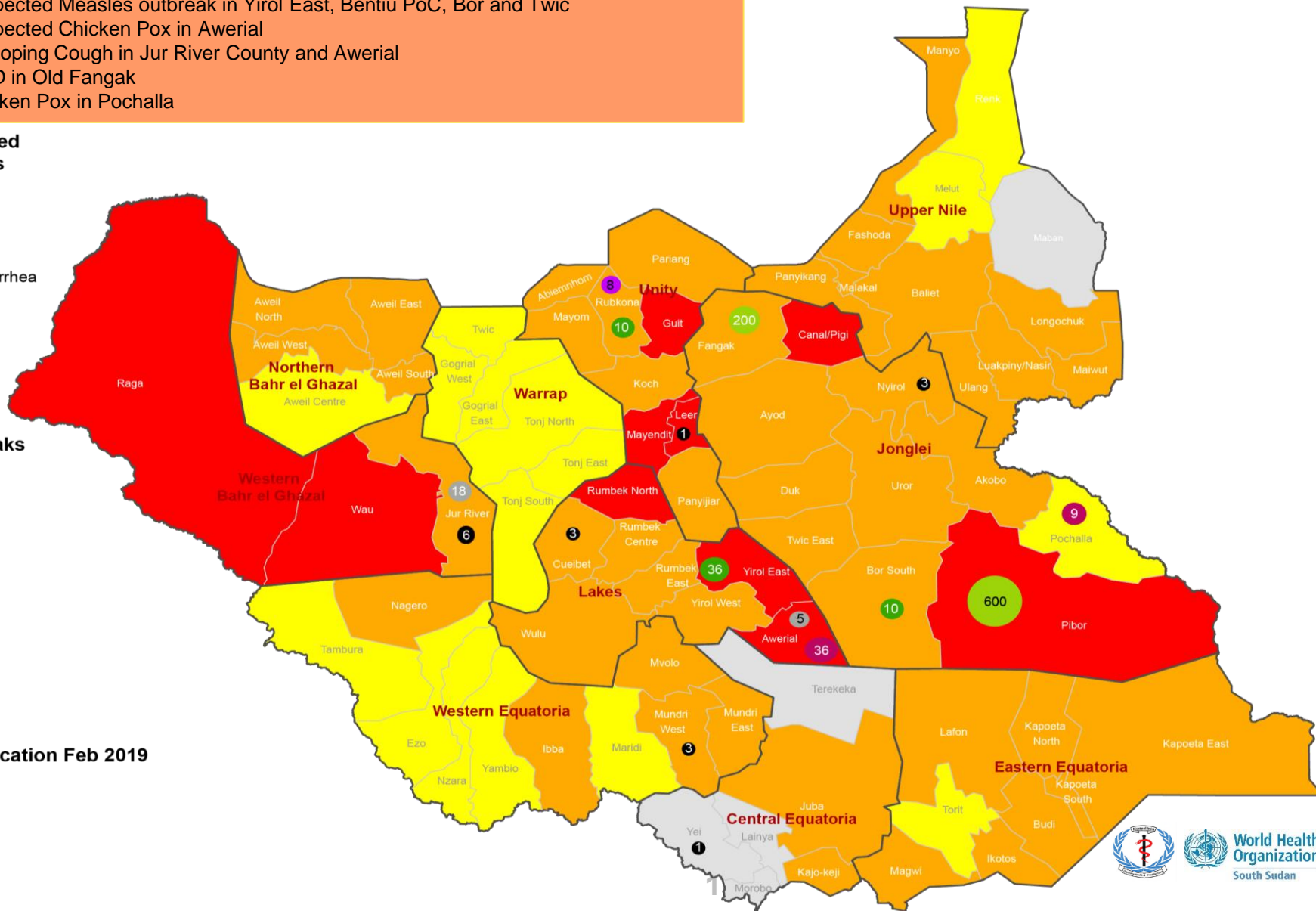**Week- 08 Suspected Outbreak diseases**

- ● Meningitis
- ● Measles
- ● Acute Watery Diarrhea
- ● Rabies probable
- ● Pertusis
- ● Chiken 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

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Response | Summary of major ongoing outbreaks

| Aetiological agent	Location (county)	Date first reported	New cases since last bulletin	Cumulative cases to date (attack rate %)	Interventions			
					Case management	Vaccination	Health promotion	WASH
Ongoing epidemics								
Rubella	Malakal PoC	25/10/2018	4	178 (0.08)	Yes	No	Yes	N/A
Yellow Fever	Nzara	23/11/2018	0	1 (0.001)	Yes	No	Yes	N/A
Measles	Rumbek East	09/10/2018	0	82 (0.043)	Yes	No	Yes	N/A
Measles	Bor PoC	20/10/2018	0	3 (0.15)	Yes	No	Yes	N/A
Hepatitis E	Bentiu PoC	03/01/2018	2	20 (0.011)	Yes	No	Yes	Yes
Measles	Abyei	12/02/2018	81	302 (0.38)	Yes	No	Yes	N/A
Measles	Juba	15/01/2019	1	40 (0.01)	Yes	Yes	Yes	N/A
Measles	Pibor	17/01/2019	0	61 (0.015)	Yes	Yes	Yes	N/A
Measles	Gogriel West		10	97 (0.025)	Yes	Yes	Yes	N/A
Rubella	Aweil Center/NBG		0	35 (0.028)	Yes	No	Yes	N/A
Measles	Mayom	17/01/209	0	19 (0.010)	Yes	Yes	Yes	N/A

Ongoing outbreaks in week 08, 2019
1. Rubella Malakal PoC
2. Yellow Fever in Nzara county
3. Measles in Rumbek East county
4. Measles in Bor PoC
5. Hepatitis E Virus (Bentiu PoC);
6. Measles in Abyei
7. Measles in Juba
8. Measles in Pibor
9. Measles in Gogriel West
10. Rubella in NBG
11. Measles in Mayom

ACTIVE OUTBREAKS AND PUBLIC HEALTH EVENTS

Brief epidemiological description and public health response for active outbreaks and public health events

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Confirmed Measles outbreak – Mayom

Measles cases in Mayom, week 03-08, 2019
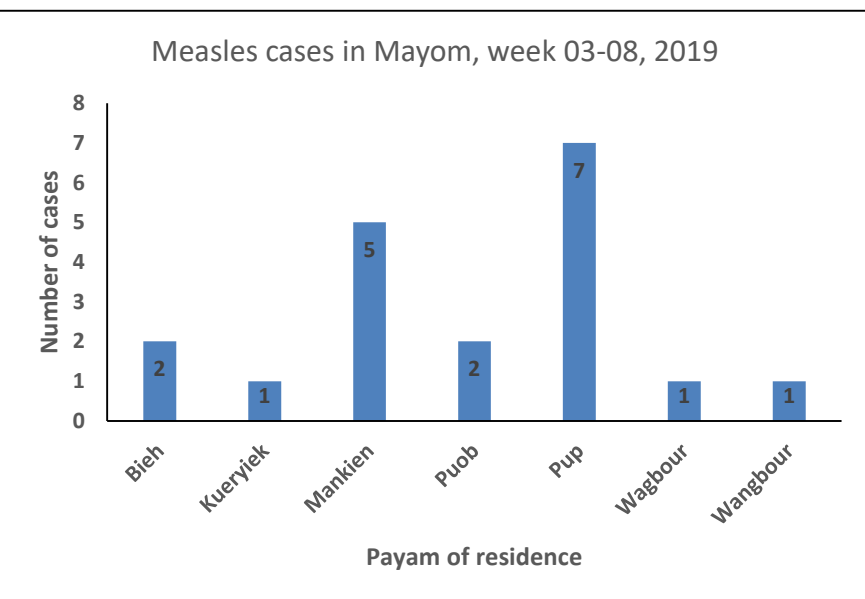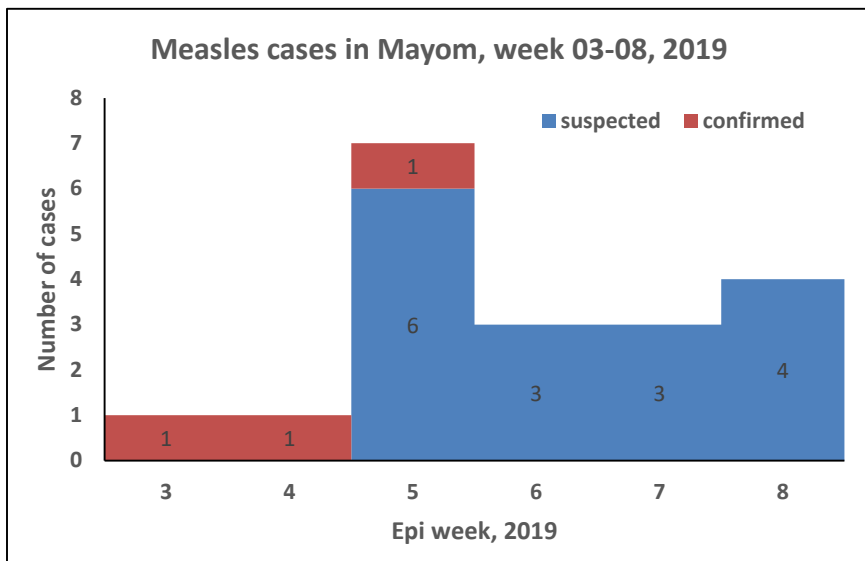
Age groups	Female	Male	Total	Percentage, %	Cumulative %
<1	1	1	2	10.5	10.5
1-4	9	6	15	78.9	89.4
5-9	2	0	2	10.5	100.0
10-14	0	0	0	0.0	100.0
15+	0	0	0	0.0	
Total cases	12	7	19	100.0	

### Measles cases in Mayom, week 03-08, 2019

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 micro-plan for reactive vaccination campaign targeting 37, 193 children aged 6-59 months in 10 payams in Mayom has been finalized
   1. Vaccines for the campaign have been approved with the campaign planned to start on 6th March 2019
2. Other recommended interventions include active case search in the health facilities and communities, improving case management and routine surveillance through training of health workers, and quality social mobilization
3. Continuation with routine surveillance and immunization

Confirmed Measles outbreak – Pibor
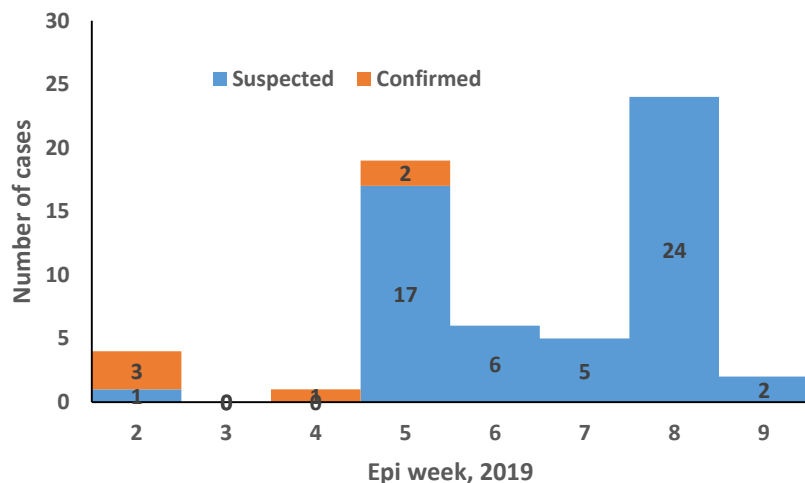
Measles cases in Pibor, week 02-09, 2019
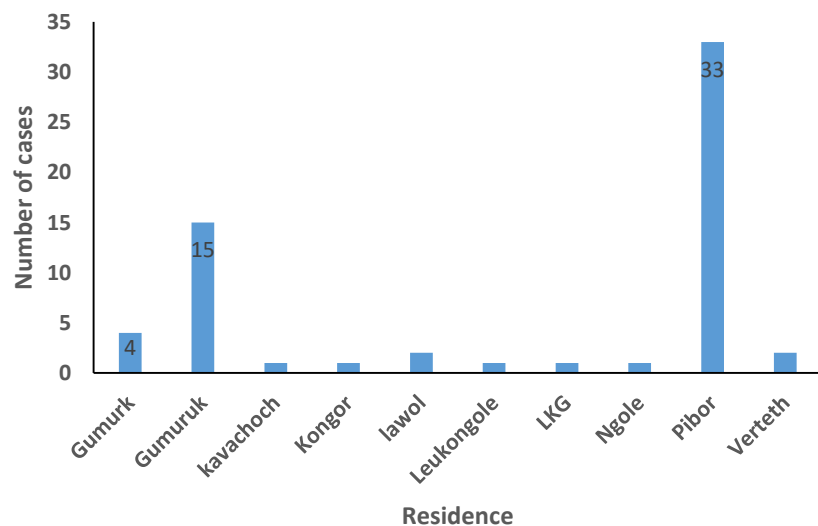
Age groups	Female	Male	Total	Percentage, %	Cumulative %
<1	1	2	3	4.9	4.9
1-4	13	21	34	55.7	60.6
5-9	13	6	19	31.1	91.8
10-14	1	2	3	4.9	96.7
15+		2	2	3.3	100.0
Total cases	28	33	61	100.0	

Measles cases in Pibor, week 02-09, 2019

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 has started on 4th March 2019
2. Active case search in the health facilities and communities
3. Training of health workers on surveillance and case management
4. Continue with surveillance, routine immunization and increasing community awareness

Confirmed Measles outbreak – Gogrial West
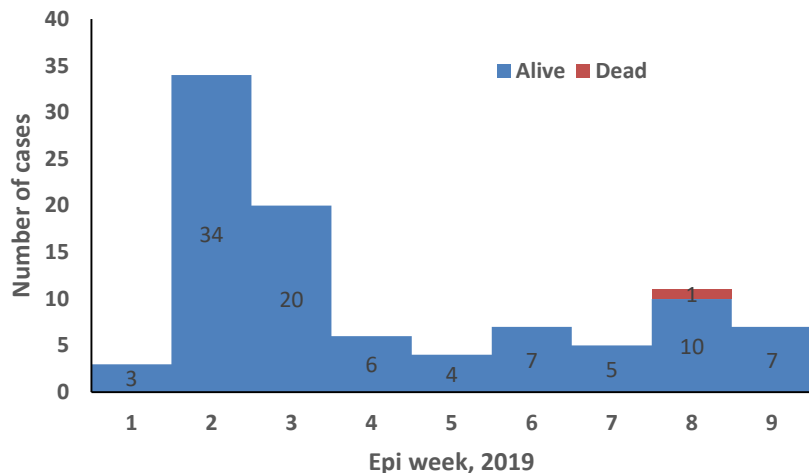
Measles in Gogriel West, week 01-09, 2019
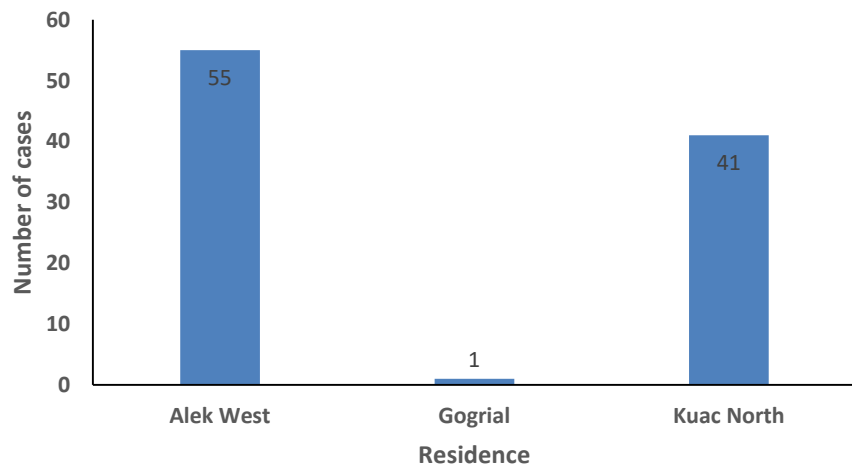
Age groups	Female	Male	Total	Percentage, %	Cumulative %
<1	7	7	14	14.4	14.4
1-4	13	25	38	39.2	53.6
5-9	13	13	26	26.8	80.4
10-14	6	5	11	11.3	91.7
15+	5	3	8	8.2	100.0
Total cases	44	53	97	100.0	

Measles cases in Gogriel West, week 01-09, 2019
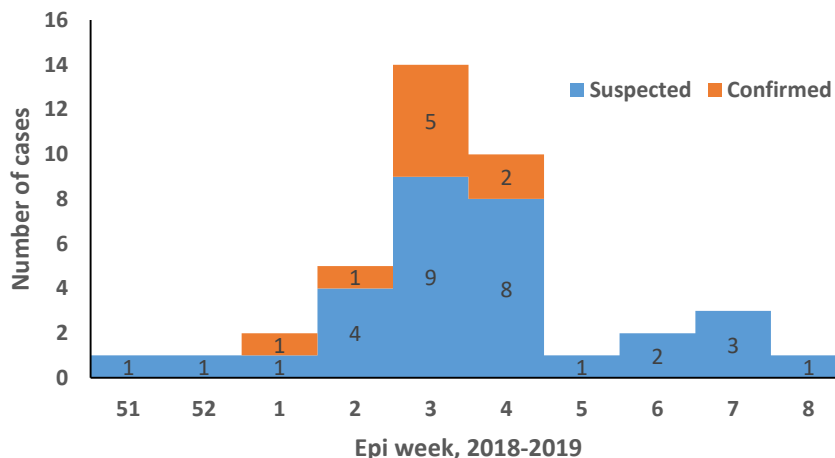

Descriptive Epidemiology

- 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 is planned to start on 06th March 2019
   1. Population targeted for the campaign was revised to include only <5 children following reported shortage of measles vaccines in the country
2. Active case search in the health facilities and communities
3. Increase community awareness through social mobilization
4. Continue with surveillance, case management and routine immunization

Confirmed Measles outbreak – Juba

Measles cases in Juba, week 51, 2018-08, 2019
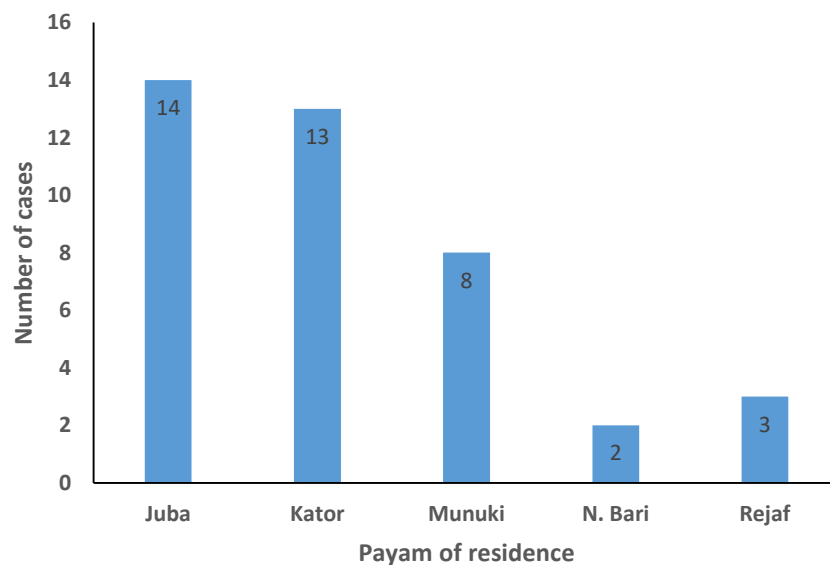
Age groups	Female	Male	Total	Percentage, %	Cumulative %
<1	3	12	15	37.5	37.5
1-4	7	14	21	52.5	90.0
5-9		1	1	2.5	92.5
10-14	1	1	2	5.0	97.5
15+		1	1	2.5	100.0
Total cases	11	29	40	100.0	

Measles in Juba, week 51,2018-08, 2019

Descriptive Epidemiology

- A total of 40 suspected measles cases were reported from Juba as at end of week 7.
  - Most cases are from Juba 14 (35%) and Khator 13 (32.5%) payams
  - Ten (10) confirmed cases; 6 from Khator, 3 from Amarat and 1 from Rejaf
  - Three (CFR 7.5%) 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, 36 (90%) while 29 (74.4%) are male

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 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 whether to conduct a campaign for the rest of the Juba or not is ongoing
2. Distribution of case definitions to health facilities and health workers
3. Increase community awareness through social mobilization
4. Continue with surveillance and routine immunization

Confirmed Measles outbreak – Abyei

Measles in Abyei, 2018-2019
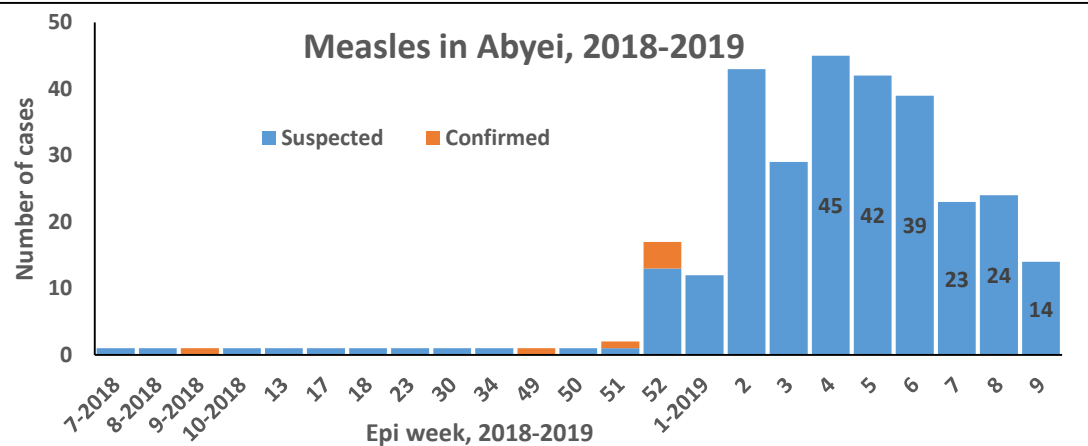
Age groups	Female	Male	Total	Percentage, %	Cumulative %
<1	50	49	99	33.0	33
1-4	44	62	106	35.3	68.3
5-9	13	7	20	6.7	75.0
10-14	13	15	28	9.3	84.3
15+	21	27	48	16.0	100.3
Total cases	141	159	300	100.0	

Background

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

Descriptive Epidemiology

- A total of 302 suspected cases reported between week 7, 2018 and week 09,2019. Of all the cases, 292 (96.7%) were reported between week 49, 2018-09, 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 68.3% (205). Males are more than females accounting for 53.2% (159). Sex and age variable was missing for two cases.

- Rumammer county had the most cases with 217 (71.9%)

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).
  - Reduction in number of measles cases was observed from week 07, 2019 to week 09, 2018
- Strengthening of routine immunization activities that includes both static and outreach activities
- Continue with surveillance, health education and sensitization

Confirmed Rubella outbreak – Malakal PoC

Rubella cases in Malakal, week 43, 2018-07, 2019

Rubella cases in Malakal, week 43, 2018-07, 2019
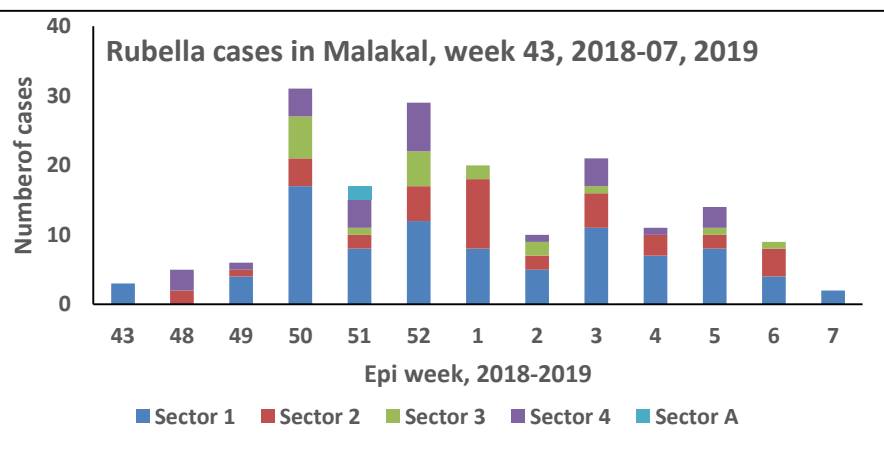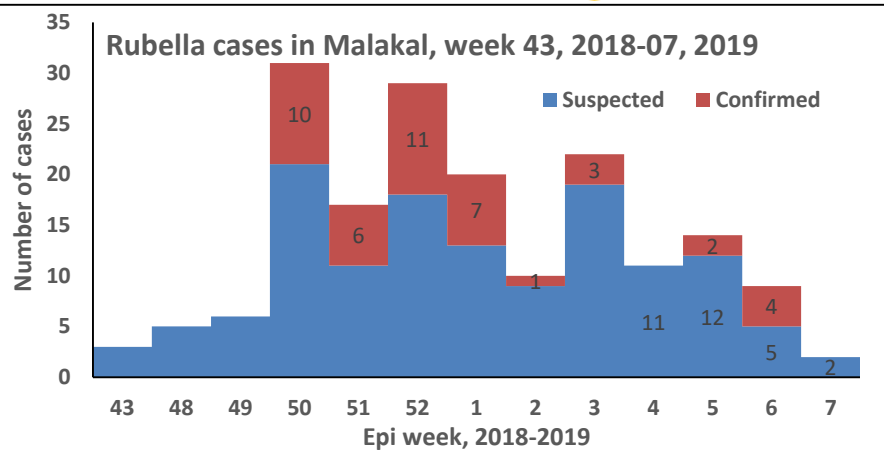
Age Groups	Female, n	Male, n	Total, n	Percent, %	Cumulative %
<5	49	75	124	69.7	69.7
5-9	31	14	45	25.3	95.0
10-14	2	5	7	3.9	98.9
15+		2	2	1.1	100.0
Total	82	96	178	100.0	

Background
- Suspect measles cases reported from Sector 1; Block 1 of Malakal PoC starting 27 Oct 2018. The initial three samples were IgM negative for measles and rubella.

Descriptive Epidemiology
- A total of 178 suspected rubella cases have been reported since week 43-07, 2019
- No deaths reported
- A majority of cases are children <5 years, 124 (69.7%)
- More males, 96 (53.9%) than females affected
- There are no cases reported among females within reproductive age groups (15-49 years)
  - Rubella infection in pregnancy associated with congenital rubella syndrome,
- The outbreak started in sector 1 which remains the most affected sector
- 44 cases are laboratory confirmed

Recommended response
1. Continue line listing and analyzing the epidemiology to describe the high-risk groups
   1. Women of reproductive age group, 15-49 years
2. Provide supportive symptomatic care to new cases
3. Sensitize the communities to enhance routine immunization.

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Rubella cases in NBG, week 01-06, 2019

Rubella cases in NBG, week 01-06, 2019

Age Groups	Female, n	Male, n	Total, n	Percent, %	Cumulative %
<5	6	12	18	51.4	51.4
5-9	4	6	10	28.6	80.0
10-14	3	4	7	20.0	100.0
15+	0	0	0	0.0	
Total	13	22	35	100.0	

Rubella outbreak – Aweil Center County
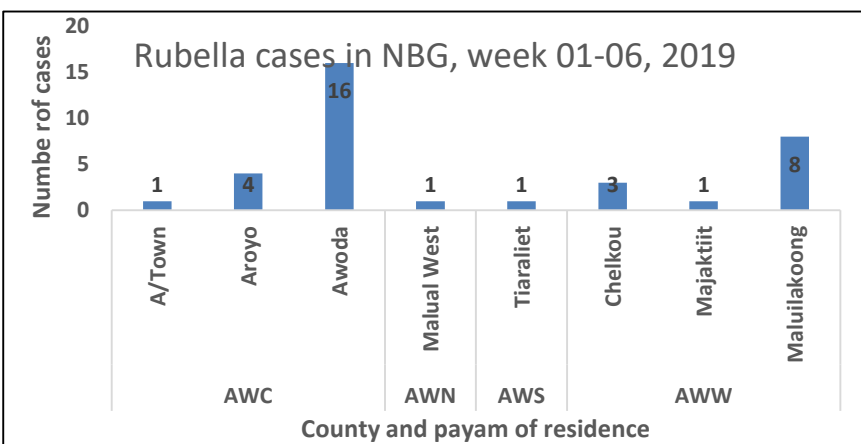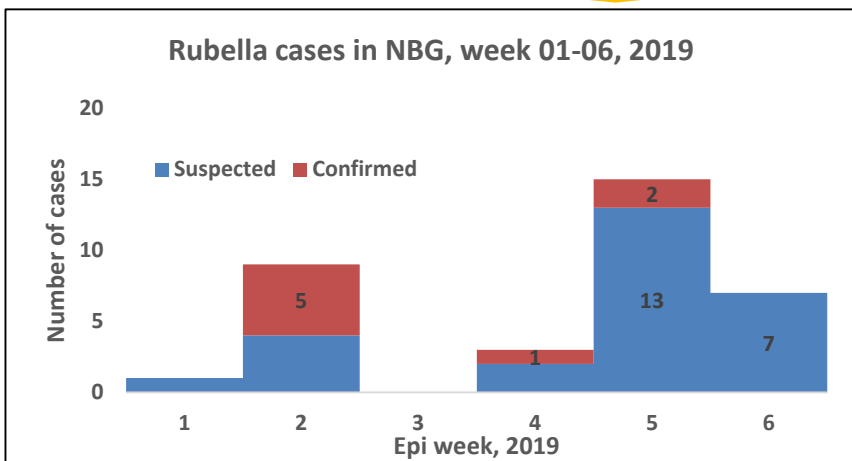
Background
- Suspected Measles cases were reported from Aweil Center of Aweil state. As at end of week 6, 2019 there were 35 suspected cases. Eight (8) samples have tested positive for rubella IgM antibodies.

Descriptive Epidemiology
- A total of 35 cases as at the end of 6, 2019. All the cases are children < 15 years of age.
- More males than females as 63% (22) of cases are males
- No deaths reported
- There are no cases reported among females within the reproductive age groups (15-49 years)
- Awoda Payam in Aweil Center had the most cases with 16 (45.7%) cases

Recommended response
1. Supportive symptomatic management of the cases
2. Continue with routine immunization and community awareness.
3. Perform descriptive analysis to monitor for infection among pregnant mothers and females in the reproductive age.

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Yellow Fever Update: Sakure Payam, Nzara county, Gbudue state

Epidemiological update
- Yellow Fever outbreak declared following PCR confirmation of a case on19 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

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Hepatitis E, Bentiu PoC

Hepatitis Evirus cases in Bentiu PoC, week 01-08, 2019
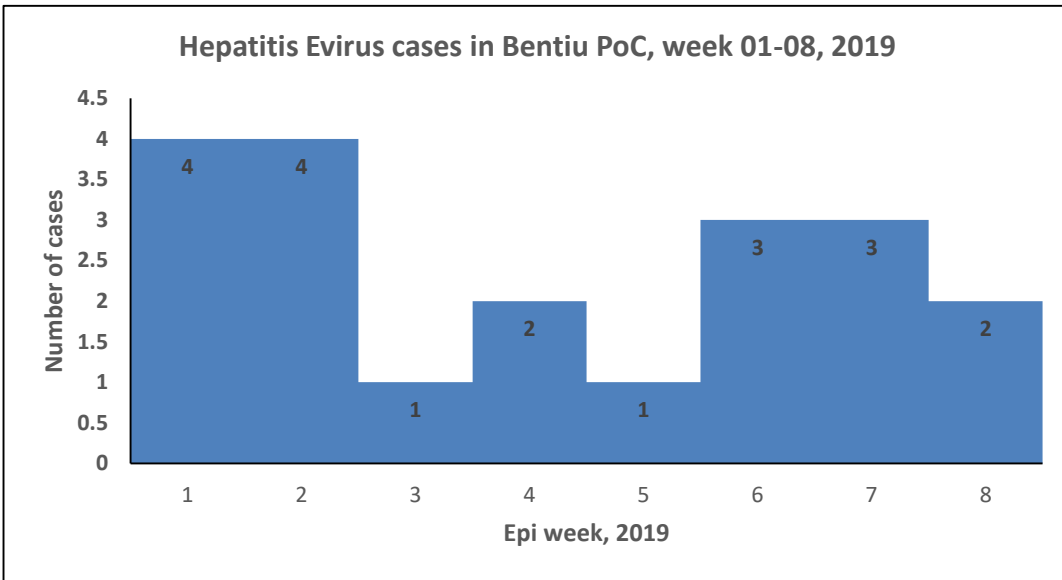
Age groups	Female, n	Male, n	Total, n	Percent, %	Cumulative %
<1 year	0	0	0	0	0
1-4 years	4	2	6	30	30
5-9 years		1	1	5	35
10-14 years	3	2	5	25	60
15-44 years	1	5	6	30	90
45+years	2		2	10	100
Total cases	10	10	20	100	

Bentiu PoC

- There has been persistent transmission of HEV in Bentiu PoC
- A total of 20 suspected HEV cases have been reported in Bentiu PoC since the beginning of 2019. Two (2) new cases reported in week 8.
- There were 159 HEV cases reported in 2018
- None of the cases were admitted
- All the recent cases have recovered
- Equal number of females and males were affected
- Age groups 1-4 years (30%) and 15-44 years (30%) had the most cases.
- Out of the 10 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
- Dissemination of key HEV messages - on radio [Kondial FM & Bentiu FM] and through community sensitizations.
- Case identification and follow up in the communities and WASH interventions are recommended.

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Malaria trends

Current malaria trends

Malaria was the leading cause of morbidity and mortality accounting for 48% of all morbidities and 22.2% of all mortalities in week 08, 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. **Kwajok hub (Twic, Tonj South,Tonj East)**
2. **Aweil hub(Aweil East)**
3. **Rumbek hub(Rumbek East)**

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

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EVD Alert from Yambio on 26th February 2019

- A report of a suspected case was received by world vision from Gangura on Tuesday 26th February, 2019.
- The suspected case is a 1.5 years old male Congolese child who lives with the father in Bitima in DRC, while the mother lives in South Sudan.
- There was no history of him (M.T.) or his father travelling to Ebola hotspot in DRC.
- However, his aunt died three (3) weeks ago of an undiagnosed disease and had signs of bleeding from the gums before she died in Bitima. No other family member is ill or has died after the death of this aunt.
- The child started having fever on Friday, 22nd February, 2019. This was followed by bleeding from the nose, body pains, vomiting and diarrhea. Mother alleged that she visited Nabiapai PHCU to seek medical attention although record of their visit at the facility
- The suspected case is alert but looks ill.
- Rapid diagnostic test for malaria was negative for malaria parasite
- An investigation was initiated immediately in the community to verify the report, look for additional cases; health educate the community about case definition and reporting; and to initiate public health actions, that could prevent spread of infectious agent.
- A total of 4 contact have been identified so far. The father and other relatives are in Bitima, Congo
- Two samples were collected for GeneXpert in Juba and PCR in UVRI in Entebbe, Uganda, both of which were negative for Ebola Zaire virus and other VHFs.

Ebola alerts investigated in 2018

Date	Cases	Deaths	Payam	County	eRDT	eGeneXpert	ePCR	Comments
28May	1	0	Makpandu	Yambio	ND	ND	-ve	Reported in refugee camp
8Sep	1	1	Bakiwiri	Yambio	ND	ND	-ve	Did not meet case definition
26Sep	1	1	N/Bari	Juba	ND	ND	-ve	Community death
3Oct	1	1	Yei town	Yei	ND	ND	ND	Never traced (?false alert)
12Oct	1	0	Rumbek	Rumbek Center	ND	-ve	-ve	Recent travel from DR Congo
14Oct	1	0	Gumbo	Juba	ND	-ve	-ve	Did not meet case definition
18Oct	1	1	Mundri East	Mundri East		ND	-ve	Reported by Lui hospital
21Oct	1	1	Yambio	Yambio	ND	ND	-ve	Recovered & discharged
29Oct	2	0	Nimule	Pageri	ND	ND	ND	Alerts discarded
11Nov	1	1	Loka	Lainya	ND	-ve	-ve	Investigated 11 Nov
23 Nov	1	0	Sakure	Nzara	ND	-ve	-ve	Confirmed for Yellow Fever
29 Nov	1	1	Yambio	Yambio	ND	-ve	-ve	Investigated on 29 Nov
03 Dec	1	0	Renk South	Renk	ND	-ve	-ve	Investigated 4 Dec
15 Dec	1	0	Rejaf	Rejaf	ND	-ve	-ve	Investigated 15 Dec
25 Dec	1	0	Yambio Town		ND	-ve	-ve	Investigated 25 Dec

- 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

Date	Cases	Deaths	Payam	County	eRDT	eGeneXpert	ePCR	Comments
27 Jan 19	1	0	Nimule		ND	-ve	-ve	Investigated on 27 Jan 2019
30 Jan 19	1	0	Nimule		ND	-ve	-ve	Investigated on 30th Jan 2019
09 Feb 19	1	0	Juba		Nd	-ve	-ve	Investigated on 09th Feb 2019
21st Feb 19	1	1	Yambio		Nd	-ve	-ve	Investigated on 21st Feb 19
25rd Feb 19	1	0	Yambio		Nd	-ve	-ve	Investigated on 25th Feb 19
26th Feb 16	1	0	Yambio		Nd	-ve	-ve	Investigated on 26th Feb 19

- The latest EVD alerts that was reported from Yambio on 25th and 26th February 2019 have been investigated on Ebola Zaire virus ruled out on PCR testing.
- Blood samples have been obtained from six (6) Ebolavirus alerts; six(6) samples tested negative for Ebolavirus and other viral hemorrhagic fevers including RVF, Marburg; Yellow Fever; and CCHF

EBOLA VIRUS DISEASE[EVD] PREPAREDNESS IN SOUTH SUDAN

Brief on the Ebola situation in DR Congo and updates on EVD preparedness in South Sudan

World Health Organization
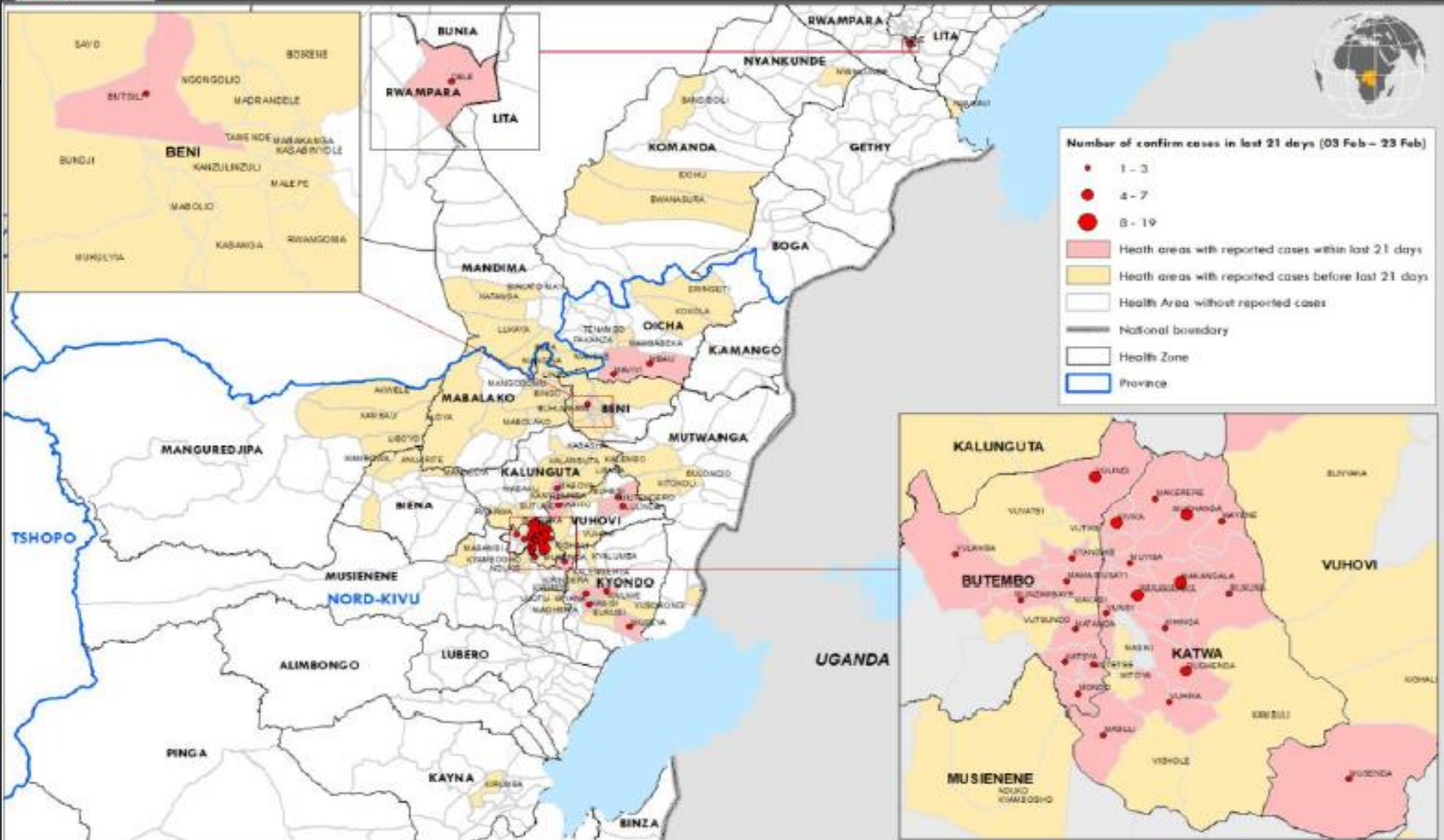South Sudan

Ebola update DRC 27th Feb 2019

Current situation

- Currently in 28th week of the outbreak
- 885 Cases [820 confirmed & 65 probable]
- 555 Deaths [490 confirmed & 65 probable]
- 69 Health workers [54 confirmed; 21 dead]

Response update

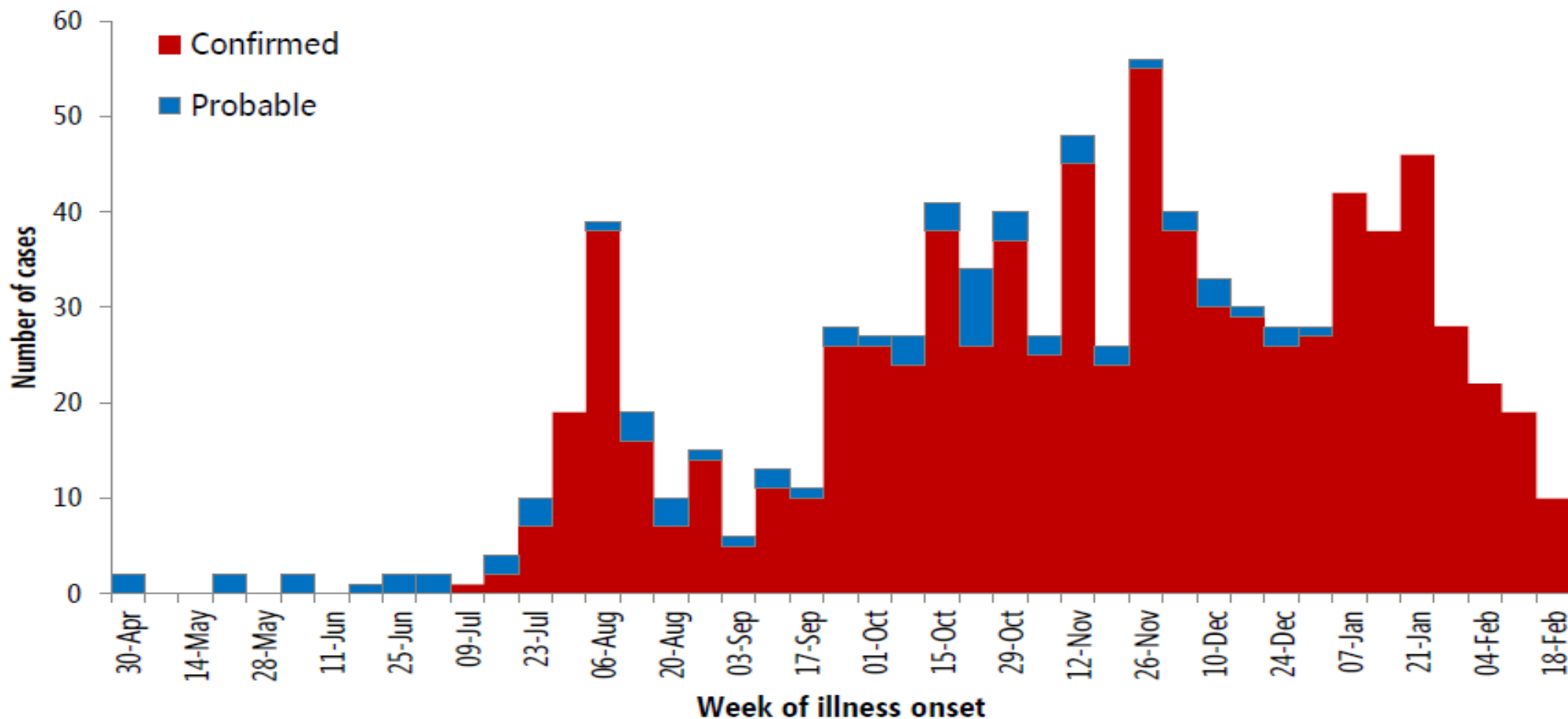- 5 219 contacts under surveillance [80-86% followed up]; 83 755 vaccinated

Affected health zones

- 2 provinces [North Kivu & Ituri]
- 19 health zones [14 North Kivu & 5 Ituri]
- 73 cases in last 21 days; Katwa (43), Butembo (18), Kyondo (4), Vuhovi (3), Kalunguta (2), Oicha (1), Beni (1), and Rwampara (1)1.

Source: WHO Ebola situation report

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Source: WHO Ebola situation report

EVD trends & case distribution in DR Congo

- Trends in case incidence reflect that the outbreak is continuing, with most recent cases reported in the major urban centres of Katwa and Butembo, with 84% (61/73) of cases reported in the last three weeks (4-24 February 2019)

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

Year: 2019

Week number: W8   From: 2019-02-18   To: 2019-02-24

Name of PoE	Passengers Screening Information			EVD Alerts		
	# screened	# isolated	# under Voluntary Home Quarantine	# reported	# validated	# suspects
Bangangai	769	0	0	0	0	0
Basukangbi	1,421	0	0	0	0	0
Bazi Border	1,182	0	0	0	0	0
Ezo	2,793	0	0	0	0	0
Gangura Border	1,138	0	0	0	0	0
James Dico	165	0	0	0	0	0
Juba International Airport	3,252	0	0	0	0	0
Kaya	2,589	0	0	0	0	0
Kaya Border	0	0	0	0	0	0
Khorijo	2,721	0	0	0	0	0
Makpandu	244	0	0	0	0	0
Maridi Airstrip	17	0	0	0	0	0
Nimule Airstrip	23	0	0	0	0	0
Nimule Border	41,545	0	0	0	0	0
Okaba	1,100	0	0	0	0	0
Panjala Docking River	574	0	0	0	0	0
Pure	2,310	0	0	0	0	0
Sakure Border	548	0	0	0	0	0
Saila Musala	0	0	0	0	0	0
Sangua 1	307	0	0	0	0	0
Tikori	191	0	0	0	0	0
Wau Airport	0	0	0	0	0	0
Yambio Airport	225	0	0	0	0	0
Yei Airport	20	0	0	0	0	0
Yei RRC	16	0	0	0	0	0
South Sudan	**63,150**	**0**	**0**	**0**	**0**	**0**

The electronic EWARS platform captures points of entry screening data and enables summarizing number of travelers screened on weekly basis. In week 08 of 2019, 63, 150 individuals were screened at various screening points in the country.

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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

Date of report	Disease suspected	Number cases (deaths)	County	Payam	Status of investigations
20/10/2018	Measles	3	Bor South	Bor PoC	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.
24/11/2018	Yellow Fever	1	Nzara	Sakure	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.
12/10/2018	measles	82 (3)	Rumbek East		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 < 5 years of age A total of 9 samples tested positive for measles IgM on 22 November 2018
24/12/2018	Dog bites	8	Bentiu	Bentiu PoC	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

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Outbreaks in 2019

Date of report	Disease suspected	Number cases (deaths)	County	Payam	Status of investigations
06/01/2019	Malaria alerts	counties with trends significantly higher than expected	6		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
27/10/2018	Rubella	155	Malakall PoC		A total of 155 suspected rubella cases have been reported since week 43. No deaths reported. 41 cases are laboratory confirmed
31/12/2019	HEV	169	Bentiu PoC		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. Resulst are pending.
06/01/2019	Acute Watery Diarrhea	467	Malakal PoC & Malakal Town		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.
06/01/2019	Measles	202	Abyei		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
27/01/2019	EVD	1	Nimule		An alert was reported on 27th Jan, 2019. The cases, 30year old male, was investigated, sample collected which tested negative on GneneXpert and PCR testing.
27/01/2019	Measles	3	Juba	Kator and Amarat	Twenty-one (21) cases reported as from week 01, 2019. Five cases confirmed positive for Measles IgM antibodies. Two deaths have been reported.

Outbreaks in 2019

Date of report	Disease suspected	Number cases (deaths)	County	Payam	Status of investigations
21/01/2019	Chicken Pox	0	Awerial	Puluk	38 suspected cases of chicken pox all coming from Mingkaman in Puluk Payam.
30/01/2019	EVD	1	Nimule		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.
17/01/2019	Measles	1	Gogriel West		97 suspected, three positive for IgM
31/01/2019	Measles	0	Aweil Center		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.
	Measles	0	Yirol East	Shambe	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
17/01/2019	Measles	0	Pibor	Gumuruk	Five suspected cases out of which three tested positive for Measles IgM antibodies
17/01/209	Measles	0	Mayom		Five suspected cases out of which three tested positive for Measles IgM antibodies

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