

South Sudan

Integrated Disease Surveillance and Response (IDSR)

Epidemiological Update W16 2019 (Apr 15, 2019- Apr 21, 2019)



- The completeness for IDSR reporting at the county level was 63% in week 16 of 2019. The completeness for EWARS reporting from IDPs was 84%.

- Measles (16), bloody diarrhea (11), acute watery diarrhea (10) and malaria (10) were the top common alerts generated through EWARS in week 16, 2019

- Measles outbreaks have been declared on 24th April 2019 in Bentiu PoC and Malakal PoC after two samples from suspected measles cases turned positive for IgM antibodies in both PoCs. The partners operating in the PoCs are expected to spearhead vaccination exercises in the PoCs. There are now 11 counties and three PoC sites (Juba 1&3, Malakal and Bentiu) affected by the current wave of measles outbreak in the country.

- An EVD alert that was reported from Nabiapai Point of Entry (PoE) in Ezo on 22nd April 2019 has been investigated, isolated, samples collected for testing and declared free of Ebola virus (all species), Marburg, and RVF ruled out on PCR testing.

- Cumulatively, there are 39 Hepatitis E Virus cases reported in Bentiu PoC since the beginning of 2019. There were three (3) suspected cases in week 16, 2019.

- Since the beginning of 2019, a total of 208 Kala-azar cases including 6 deaths (CFR 2.9%) and 4 (1.9%) defaulters have been reported from 10 treatment centers. Of the 208 cases reported, 147 (70.7%) were new cases, 4 (1.9%) PKDL and 57 (27.4 %) relapses. In the corresponding period in 2018, a total of 831 cases including 23 deaths (CFR 2.8%) and 18 (2.2%) defaulters were reported from 21 treatment centers.

- 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)

Surveillance | IDSR surveillance indicators

Table 1 | IDSR surveillance performance indicators by county (W16 2019)

Hub	Reporting		Performance	
	# counties	# reports received / # reports	Completeness	Timeliness
Aweil	5	5	100%	100%
Bentiu	9	3	33%	11%
Bor	11	9	82%	82%
Juba	6	2	33%	33%
Kwajok	7	4	57%	57%
Malakal	13	10	77%	77%
Rumbek	8	3	38%	38%
Torit	8	3	38%	38%
Wau	3	1	33%	0%
Yambio	10	10	100%	100%
South Sudan	80	50	63%	59%

Table 2 | Summary of key IDSR surveillance indicators

W16	Cumulative (2019)	
80	-	Number of counties
63%	72%	Completeness
59%	56%	Timeliness

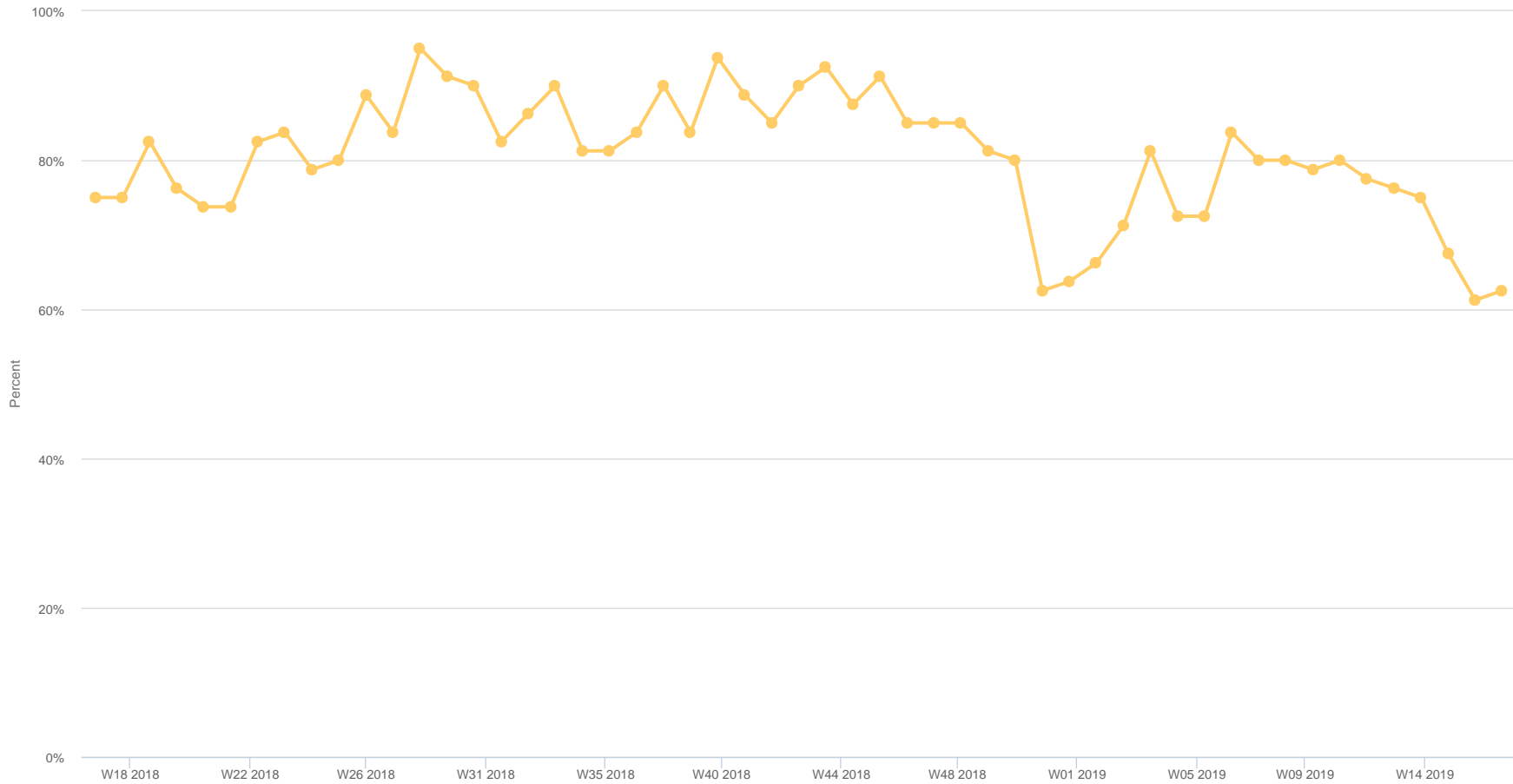
Table 3 | IDSR report submissions

W16	Cumulative (2019)	
50	976	total submissions
10	0	submissions by mobile
40	0	submissions by web

- The completeness and timeliness for IDSR reporting at the county level were 63% and 59% respectively in week 16, 2019 while the cumulative completeness and timeliness was 72% and 56% respectively for 2019.
- The rolling out of the mobile phones for reporting to the health facilities is ongoing. This has affected the completeness of the surveillance system as the reports from the health facilities are captured separately.

Surveillance | Trend in IDSR completeness

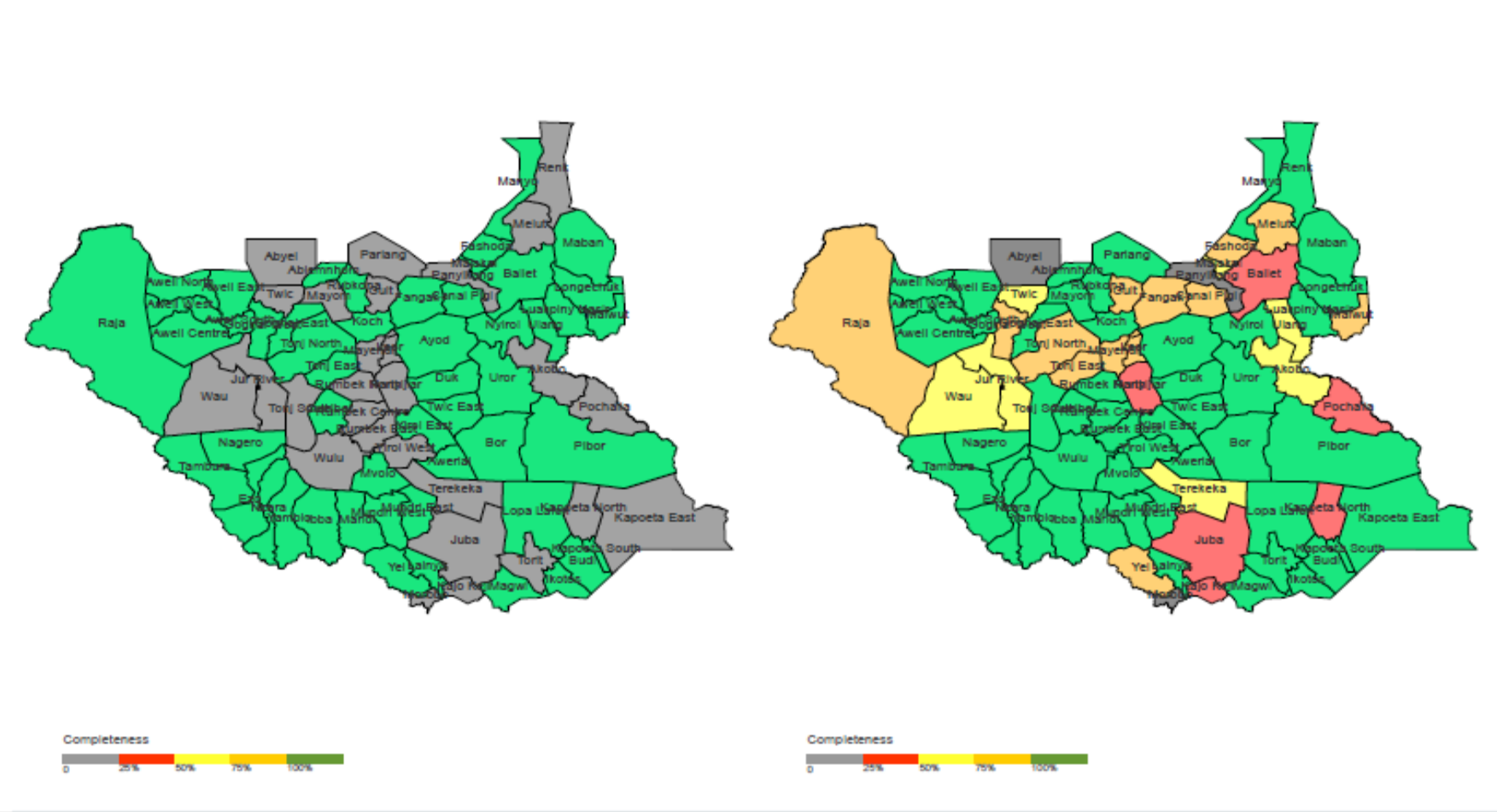
Figure 1 | Trend in IDSR completeness over time



The graph shows completeness for the weekly IDSR reporting at the county level

Map 1a | Map of IDSR completeness by county (W16 2019)

Map 1b | Map of IDSR completeness by county (2019)



- Counties that submitted their IDSR reports in week 16, 2019 are shown in green in map 1a.
- Counties that did not submit their IDSR reports in week 16, 2019 are shown in grey in map 1a.

Surveillance | EWARS surveillance indicators

Table 4 | EWARS surveillance performance indicators by partner (W16 2019)

Partner	Performance		Reporting	
	# sites	# reports received	Completeness	Timeliness
CMD	3	3	100%	100%
GOAL	2	2	100%	100%
HFO	2	2	100%	100%
HLSS	1	1	100%	100%
IMA	7	7	100%	100%
IMC	5	5	100%	100%
IOM	11	11	100%	100%
IRC	1	1	100%	100%
Medair	2	2	100%	100%
MSF-E	2	1	50%	50%
MSF-H	3	0	0%	0%
SMC	7	4	57%	57%
UNIDO	1	1	100%	100%
UNKEA	2	2	100%	100%
World Relief	1	1	100%	100%
TRI-SS	2	2	100%	100%
LIVEWELL	1	1	100%	100%
Total	57	48	84%	84%

Table 5 | Summary of key EWARS surveillance indicators

W16	Cumulative (2019)	
57	-	Number of EWARS reporting sites
84%	74%	Completeness
84%	71%	Timeliness

Table 6 | EWARS report submissions

W16	Cumulative (2019)	
48	744	total submissions
1	25	submissions by mobile
47	719	submissions by web

- Both completeness and timeliness for EWARS reporting by partners was 84% for week 16, while the cumulative completeness and timeliness were 74% and 71% respectively for 2019

EVENT-BASED SURVEILLANCE

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

Alert | Alert performance indicators

Table 7 | Alert performance indicators by Hub

Hub	W16		Cumulative (2019)	
	# alerts	% verif.	# alerts	% verif.
Aweil	4	100%	36	89%
Bentiu	3	67%	68	91%
Bor	4	0%	38	66%
Juba	5	40%	105	58%
Kwajok	2	0%	17	29%
Malakal	2	100%	47	85%
Rumbek	21	71%	256	86%
Torit	6	83%	82	78%
Wau	4	0%	66	52%
Yambio	12	67%	93	78%
South Sudan	63	60%	808	76%

Table 8 Summary of key alert indicators

W16	Cumulative (2019)	
63	808	Total alerts raised
60%	76%	% verified
0%	0%	% auto-discarded
5%	7%	% risk assessed
3%	5%	% requiring a response

- Out of 63 alerts received in week 16, a total of 60% were verified, 5% were risk assessed and 3% required a response.

Alert | Event risk assessment

Table 9 | Alert performance indicators by event

Event	W16		Cumulative (2019)	
	# alerts	% verif.	# alerts	% verif.
Indicator-based surveillance				
Malaria	10	70%	93	76%
AWD	11	73%	349	74%
Bloody Diarr.	11	73%	156	70%
Measles	16	44%	207	76%
Meningitis	0	0%	0	0%
Cholera	0	0%	25	76%
Yellow Fever	1	100%	10	100%
Guinea Worm	2	0%	32	59%
AFP	1	0%	80	85%
VHF	0	0%	7	86%
Neo. tetanus	0	0%	9	89%
Event-based surveillance				
EBS total	0	0%	20	80%

Table 10 | Event risk assessment

W16	Cumulative (2019)	
2	18	Low risk
23	23	Medium risk
1	12	High risk
0	3	Very high risk

- Measles (16), bloody diarrhea (11), AWD (10) and malaria (10) were the top common alerts generated through EWARS in week 16, 2019.

Counties	AJS	ARI	AWD	Bloody Diarrhoea	AFP	Guinea Worm	Yellow Fever	Malaria	Measles	Total Alerts
Rumbek Centre	1	2	1	1				1		6
Yambio		1								1
Cuiebet		1	1	2				1		5
Tumbura		1								1
Kapoeta South		1								1
Aweil west		1		1					1	3
Ayod		1						1		2
Juba		1							2	3
Terekeka			2							2
Rubkona			1						1	2
Mundri west			3					3	3	9
Kapoeta East			1	1			1			3
Wau					1				3	4
Twic east				1						1
Budi				1						1
Uror				1						1
Yirol east				1				1	1	3
Rumbek East				1				1		2
Tonj east						1				1
Yirol west								1	1	2
Wulu								1		1
Gogrial west									1	1
Malakal									2	2
Aweil east									1	1
										0
Total Grand	1	9	9	10	1		1	10	16	58

Suspected measles outbreak in Longochuk

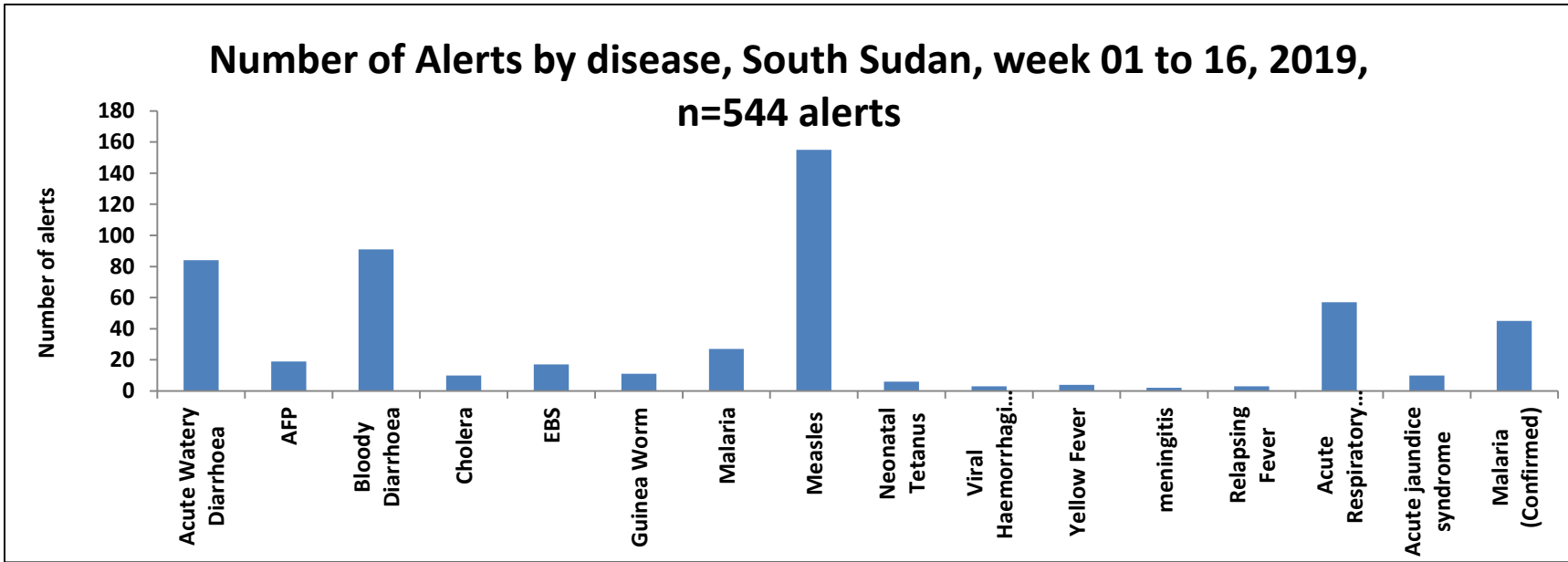
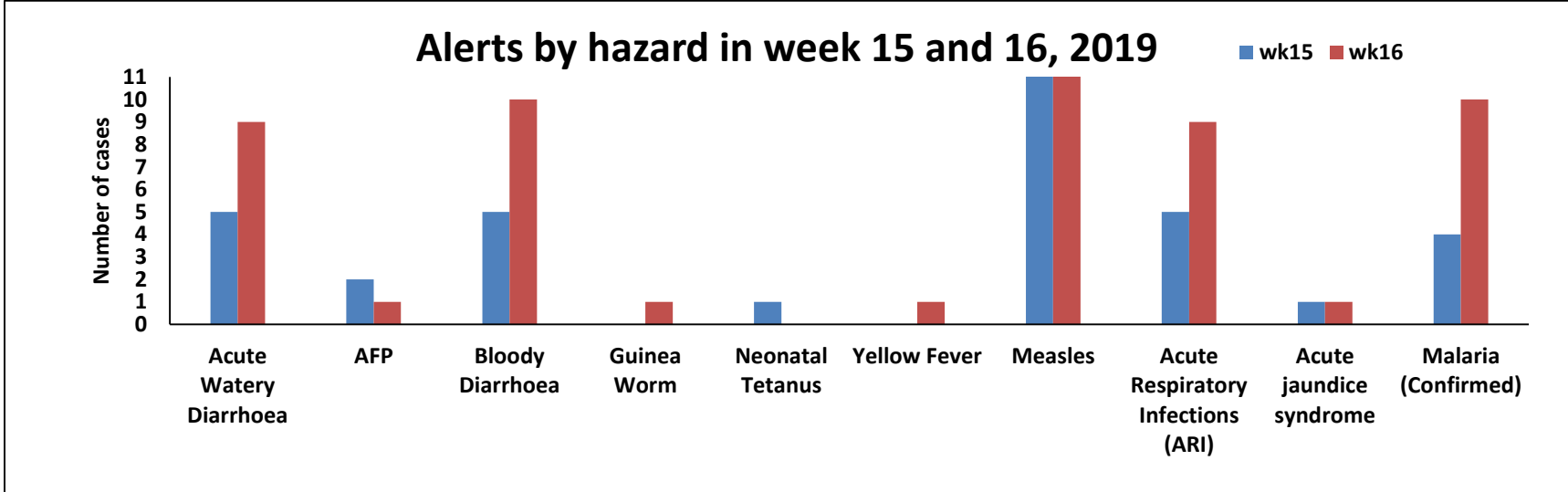
- Twenty six (26) suspected measles cases have been reported from Longochuk County; 22 cases from Mathiang Payam and four (4) cases from Watber Payam.
- No deaths have been reported.
- Recommendations:
 - Samples still pending
 - Continue with scaling up of the routine immunization and surveillance
 - Ensure proper case management that includes vitamin A supplementation and treatment of complications
 - Enhance community sensitization on vaccine preventable diseases including measles and rubella

Suspected Guinea Worm in Tonga

- A suspected Guinea Worm case has been reported from Tonga in Panyiekang.
- The patient is an adult female with a history of travel from Magenist of Fashoda state bordering South Kodufan, Sudan.
- An investigation visited the area but missed the case as the patient was reported to have moved to Old Fangak.
- Another team is attempting to track down the case a proper case investigation.

Yellow Fever Alert in Kapoeta East

- A yellow fever alert has been generated through EWARS by a health facility in Kapoeta East.
- County department and partners in Kapoeta East advised to conduct a follow up to verify the alert and collect samples if case definition is met.



The Figures show comparison of alerts by hazards reported in week 15 and 16, and the cumulative number of alerts triggered in 2019 by hazard.

Cumulative alerts by risk assessment stage in 2019

County	OUTCOME	RISK ASSESSED	VERIFICATION	Total Alerts
Acute Watery Diarrhoea	3	1	80	84
AFP			19	19
Bloody Diarrhoea	2	2	87	91
EBS	3		14	17
Guinea Worm			11	11
Neonatal Tetanus			6	6
Viral Haemorrhagic Fever			3	3
Yellow Fever			4	4
Measles	18	5	132	155
Cholera			10	10
Malaria			27	27
meningitis	2			2
Relapsing Fever			3	3
Acute Respiratory Infections (ARI)	5	1	51	57
Acute jaundice syndrome	2		8	10
Malaria (Confirmed)			45	45
Total Alerts	35	9	500	544

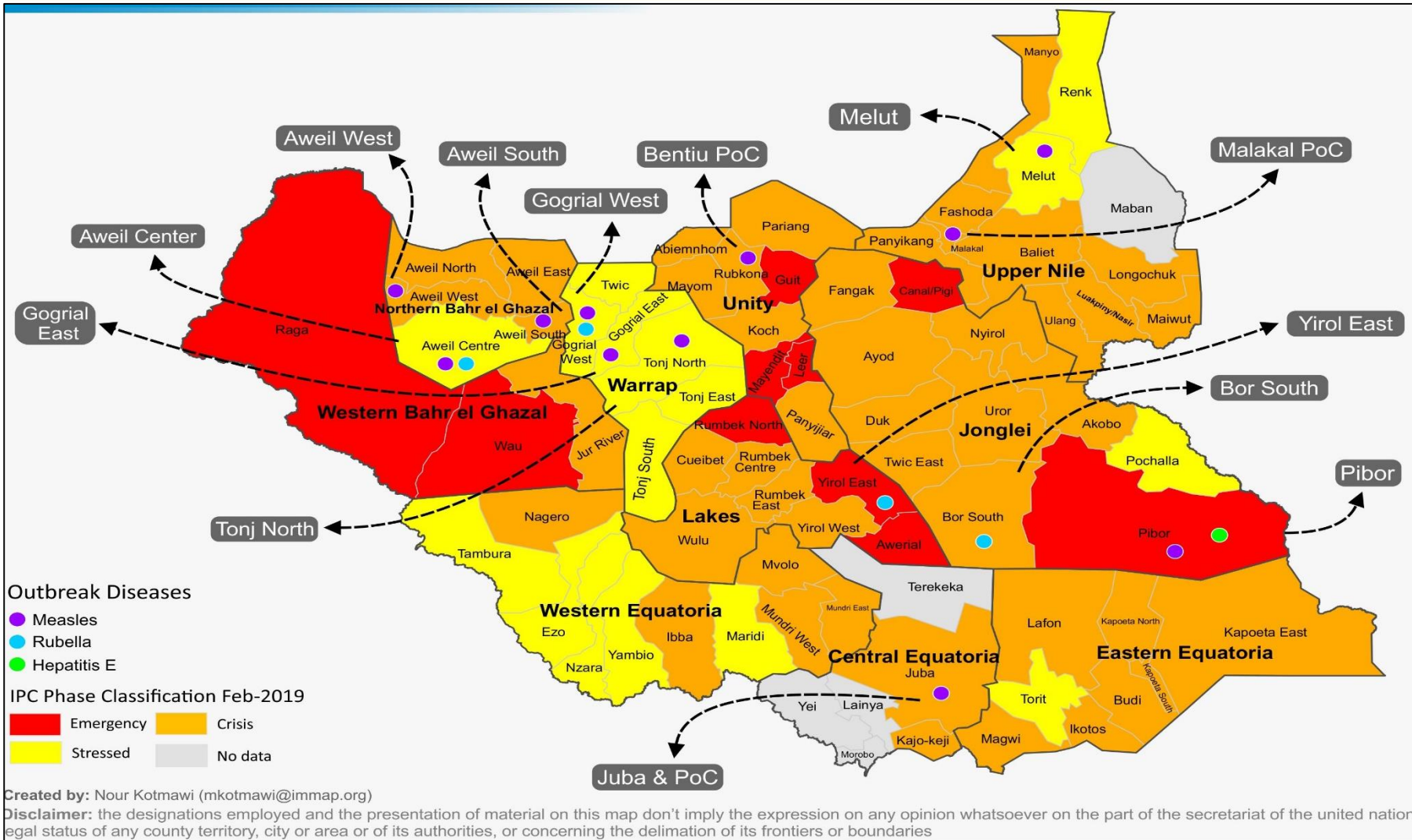
- The table shows the cumulative alerts by risk assessment status in 2019
- Of the 544 alerts reported in 2019; 500 (91.9%) alerts were verified and nine (1.7%) underwent risk assessment..

OUTBREAKS IN 2019

Major suspected and confirmed outbreaks in
South Sudan in 2019

Confirmed Outbreaks South Sudan – As at 30th April 2019

- The map show outbreaks confirmed in 2019
- The confirmed outbreaks include: HEV in Bentiu PoC; Yellow Fever in Nzara; Rubella in Bor South, Yirol East, Aweil Centre and Gogrial West; Measles in Juba; Measles in Pibor; Measles in Gogrial West; Measles in Aweil South, Melut, Tonj North, Gogrial East, Aweil West and Aweil Centre

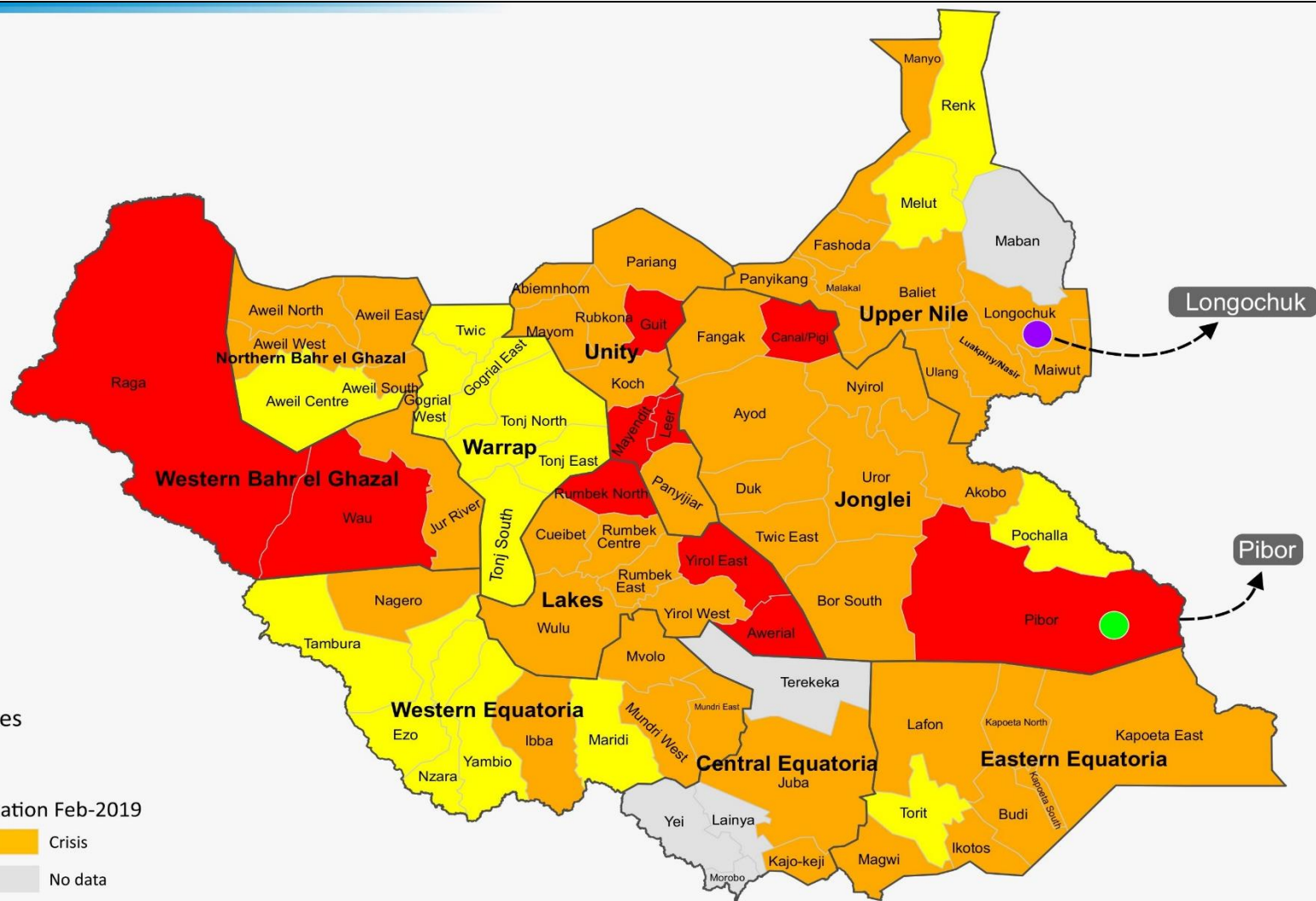


Created by: Nour Kotmawi (mktomawi@immap.org)

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Suspected Outbreaks South Sudan – As at 30th April 2019

- New alerts in the week
 - Suspected Measles outbreak in Longochuk
 - Suspected HEV in Pibor



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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								
Hepatitis E	Bentiu PoC	03/01/2018	2	36 (0.011)	Yes	No	Yes	Yes
Measles	Juba & PoC	15/01/2019	0	68 (0.01)	Yes	Yes	Yes	N/A
Measles	Pibor	17/01/2019	0	246 (1.1.0)	Yes	Yes	Yes	N/A
Measles	Gogrial West		0	156 (0.025)	Yes	Yes	Yes	N/A
Rubella	Aweil Center/NBG		0	35 (0.028)	Yes	No	Yes	N/A
Measles	Aweil South	15/03/2019	7	46 (0.012)	Yes	Yes	Yes	N/A
Measles	Melut	15/03/2019	0	9(0.008)	Yes	Yes	Yes	N/A
Rubella	Bor South		0	4 (0.001)	Yes	No	Yes	N/A
Rubella	Gogrial West		0	5 (0.001)	Yes	No	Yes	N/A
Rubella	Yirol East		0	3 (0.003)	Yes	No	Yes	N/A
Measles	Tonj North	2/04/2019	0	20 (0.01)	Yes	Yes	Yes	N/A
Measles	Gogrial East	4/04/2019	0	30 (0.003)	Yes	Yes	Yes	N/A
Measles	Aweil Centre	4/04/2019	1	8 (0.005)	Yes	Yes	Yes	N/A
Measles	Aweil West	4/04/2019	0	25 (0.01)	Yes	Yes	Yes	N/A
Measles	Bentiu PoC	24/04/2019	0	2 (0.01)	Yes	Yes	Yes	N/A
Measles	Malakal PoC	24/04/2019	1	2 (0.01)	Yes	Yes	Yes	N/A

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
Controlled epidemics								
Rubella	Malakal PoC	25/10/2018	0	178 (0.08)	Yes	No	Yes	N/A
Yellow Fever	Nzara	23/11/2018	0	3 (0.001)	Yes	Yes	Yes	N/A
Measles	Abyei	12/02/2018	0	306 (0.40)	Yes	Yes	Yes	N/A
Measles	Mayom	17/01/209	0	19 (0.010)	Yes	Yes	Yes	N/A

ACTIVE OUTBREAKS AND PUBLIC HEALTH EVENTS

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

Confirmed Measles outbreak – Bentiu PoC and Malakal PoC

Bentiu PoC

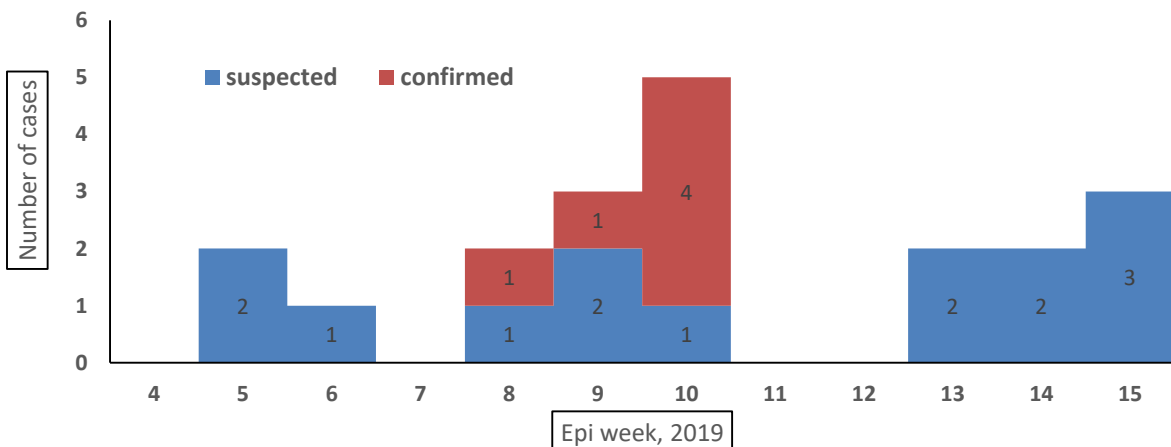
- Bentiu PoC has been reporting suspected measles/rubella cases since beginning of the year
 - None tested positive for measles IgM antibodies until week 15 when two tested positive for measles
 - The two confirmed measles cases reside in Sector 5
 - Between weeks 01-14, four (4) cases tested positive for rubella IgM antibodies

Malakal PoC

- Two measles confirmed cases
- **Recommendation**
 - Case investigation to establish whether the confirmed cases are residents of the PoCs or new arrivals into the PoCs.
 - Active case search to identify more cases within the community
 - Development of response plans and implementation of vaccination campaigns within the PoCs by the partners operating within the PoCs
 - Continue with routine immunization and community sensitization activities

Confirmed Measles outbreak – Tonj North

Measles cases in Tonj North, week 05-15, 2019



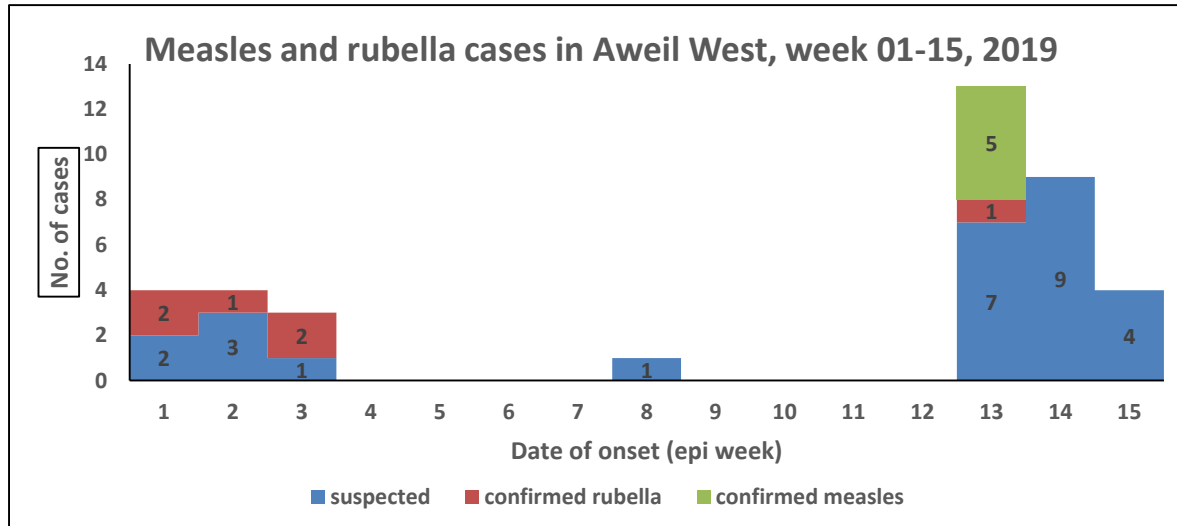
Outbreak description

- The Outbreak started on 2.2.2019 with cases detected in Akop PHCU, Tonj North. Six samples were collected and all tested positive for Measles IgM antibodies.
- Cumulatively, there are 20 cases as at end of week 15, 2019.
- Two deaths (CFR=10%) have been reported.
- All the cases are from Akop Payam with Akop (8), Paduoc (4), Ariik (3) and Aguoch (2) villages contributing most of the cases.
- Most (80%) of the cases are children < 5 years.
- Only one (5%) case was managed as an inpatient case.

Recommended response

- A micro-plan for a reactive vaccination campaign has been finalized and shared with partners supporting the campaign
 - 80,251 children aged 6-59 months targeted for vaccination
- All partners involved including the new HPF partners taking over the facilities in the county are expected to support this process to ensure timely response to the outbreak
- Active case search both in the facilities and communities to identify the missed cases and to establish the magnitude and extent of the outbreak
- Strengthen routine surveillance and immunization activities
- Training of health workers on case management of measles cases (supportive management including vitamin A supplementation)

Confirmed Measles and Rubella outbreak – Aweil West



Introduction

- Measles outbreak was confirmed on 4th April 2019 after 5 samples tested positive for measles.
- Aweil West County has been having rubella cases since early January, 2019. One sample tested positive for rubella in week 13, 2019.

Descriptive Epidemiology

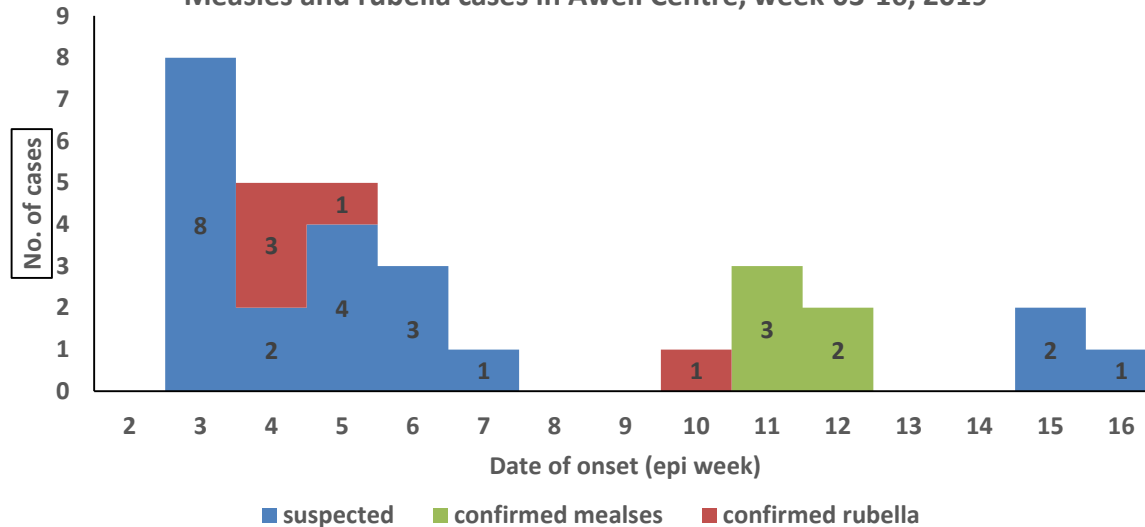
- Cumulatively, 38 mixed cases of measles and rubella have been line listed in Aweil West
- From the epicurve, it appears the first measles case became symptomatic in week 13, 2019.
 - It seems the measles outbreak started in week 13, 2019
 - There have been 26 suspected measles cases since then with five confirmed measles cases and one confirmed rubella case.
- Among the payams with suspected and confirmed measles cases since week 13 are: Aweil Town (13 cases), Gomjuer Center (10 cases), Mariem East (1 case), Mariem West (1 case) and Maluilakoong (1 case).
- The majority (72%) of the cases reported since week 13 are children < 5 years
- No deaths have been reported.

Recommended response

1. A collaborative effort needed at the state level to develop an appropriate response plan for the two outbreaks.
 1. This includes a reactive vaccination campaign for measles, and proper case management for the suspected cases of measles and rubella.
 2. A micro-plan targeting 28,488 children aged 6-59 months from Aweil West and Aweil Center has been developed and mobilization for support to implement the plan is ongoing.
 3. Partners who have been identified to support the campaign have finalized planning and campaign expected to start within a week
2. An Intensification of the surveillance activities to ascertain the magnitude and geographical extent of the outbreak
3. Scaling up of the routine immunization activities with clear plans to reach at risk populations in hard to reach areas
4. Monitoring of rubella infection among pregnant mothers is also recommended.

Confirmed Measles and Rubella outbreak – Aweil Centre

Measles and rubella cases in Aweil Centre, week 03-16, 2019



Recommended response

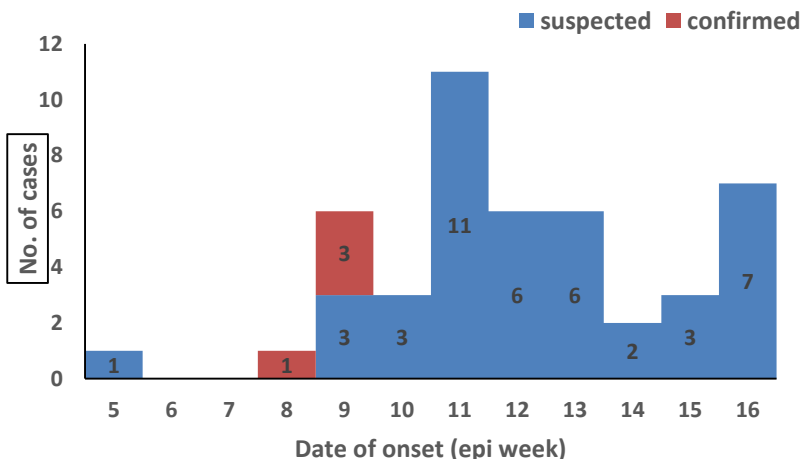
1. A collaborative effort needed at the state level to develop an appropriate response plan for the two outbreaks.
 1. This should include a reactive vaccination campaign for measles, and proper case management for the suspected cases of measles and rubella.
2. An Intensification of the surveillance activities to ascertain the magnitude and geographical extent of the outbreak
3. Scaling of the routine immunization activities with clear plans to reach at risk populations in hard to reach areas
4. Collection of more samples and active case search in Aweil East and North is recommended.

Introduction

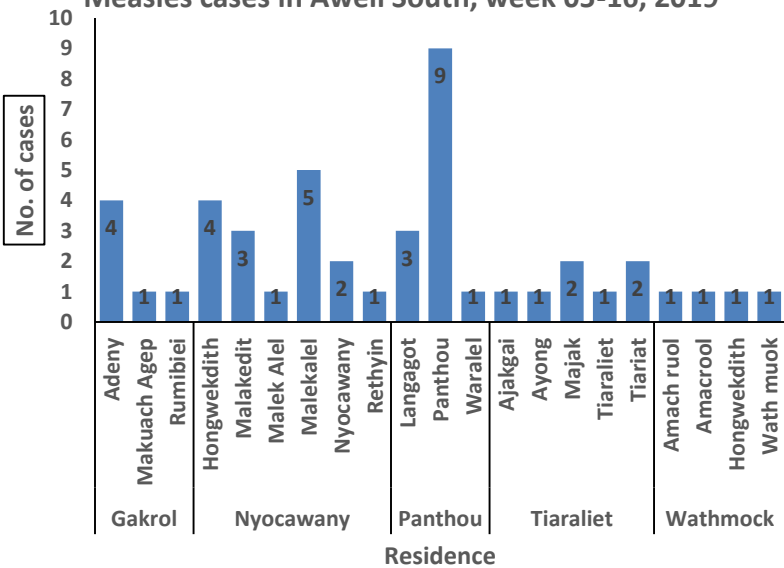
- A measles outbreak has been confirmed in Aweil Centre, a county with an ongoing rubella outbreak and an ongoing measles outbreak in a neighboring county of Aweil South.
- Thirty-one (31) cases line listed
 - Five (5) suspected cases confirmed positive for measles IgM antibodies. The samples tested negative for rubella IgM antibodies.
 - Five cases (5) tested positive for rubella IgM antibodies
 - Clinically, it may not be easy to differentiate suspected measles and suspected rubella cases in a setting with mixed infection of measles and rubella.
- The epicurve suggests that the measles outbreak started in week 11, 2019.
 - There have been eight (8) cases since then including the five (5) laboratory confirmed cases
- Additionally, two (2) cases tested positive for measles in Aweil East while five (5) cases tested positive for rubella in Aweil North. No cases tested positive for measles in Aweil North.

Confirmed Measles outbreak – Aweil South

Measles cases in Aweil South, week 05-16, 2019



Measles cases in Aweil South, week 05-16, 2019



Age groups	Female	Male	Total	Percentage, %	Cumulative %
<1	1	7	8	17.4	17.4
1-4	9	18	27	58.7	76.1
5-9	2	9	11	23.9	100.0
Total cases	12	34	46	100.0	

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
- Cumulatively, a total of 46 cases have been line listed. One case tested positive for rubella IgM antibodies.
- The index case has a history of travel to the neighboring Gogrieli West County which has a confirmed ongoing measles outbreak

Descriptive Epidemiology for measles cases in Aweil South

- The majority (76.1%) of cases are children <5 years
- Nyocawany Payam (16 cases) and Panthou Paym (13 cases) have the most cases contributing about 63% of all the cases
- Thirty one (67.4%) cases have not received measles vaccination prior to their illness

Recommended response

1. A micro-plan for a reactive vaccination campaign was developed where 22 071 children aged 6 months to 5 years are to be vaccinated
 - The campaign was completed with 24261 (116%) children being vaccinated
 - According to post-campaign evaluation conducted by independent monitors, the coverage based on the finger marking was 95.7%.
2. The health facilities and partners in Aweil East and Aweil North 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 – Gogrial East and Gogrial West

Descriptive Epidemiology

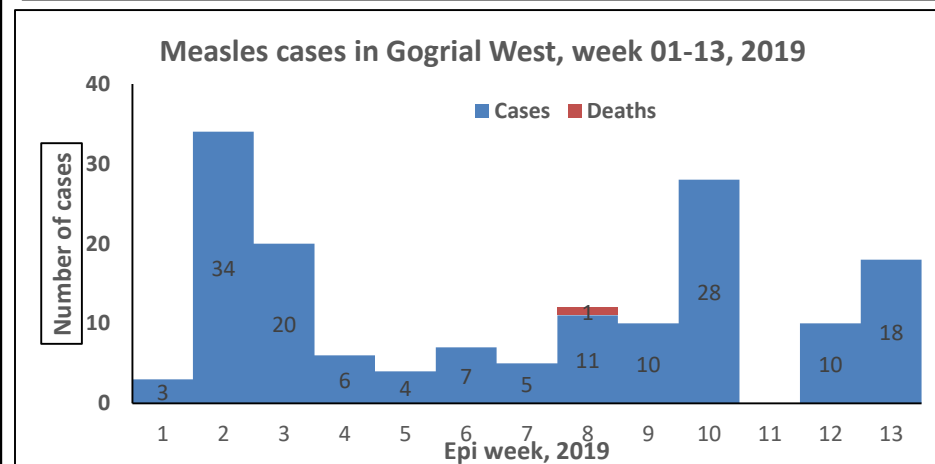
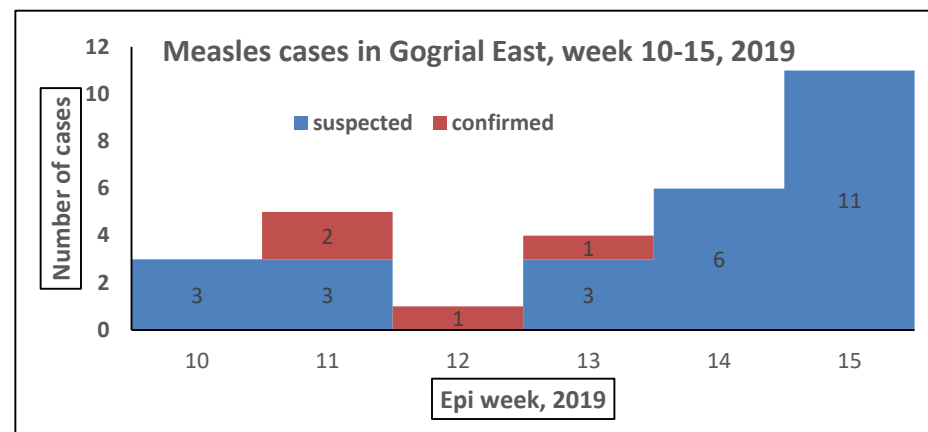
The measles outbreak in Gogrial East is active with 6 cases in week 14 and 11 cases in week 15.

There are 30 cases as at end of week 15, 2019. One death (CFR=3.3%) have been reported.

- Four (4) payams have been affected with Nyang (20) and Toch East (8) cases having most cases. A case has been reported from both Toch North and Toch West payams. Most (83.3%) of the cases are children < 5 years.
- Gogrial East borders Gogrial West County with an ongoing active outbreak for several weeks

In Gogrial West, there are 156 cases reported as at end of week 13 with one (1) death being reported in week 08,

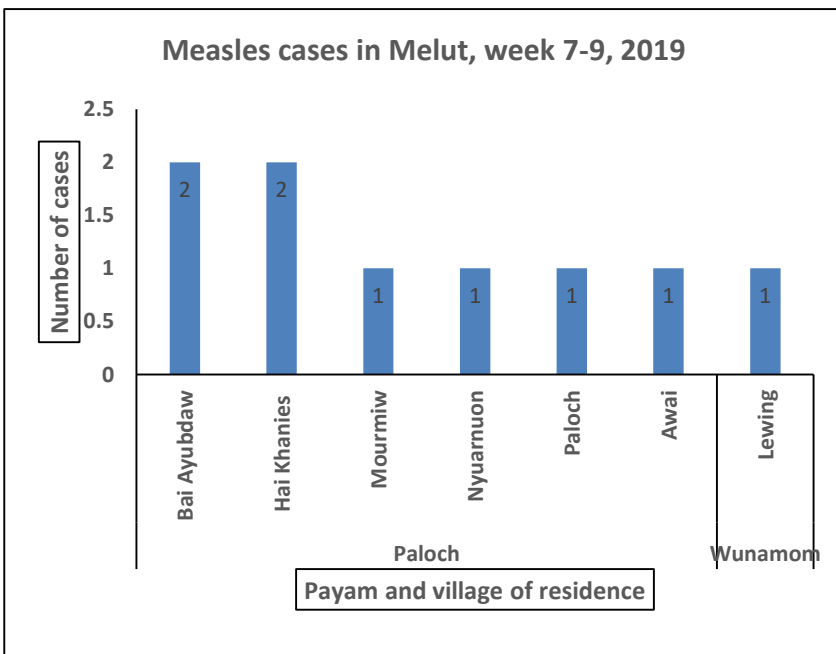
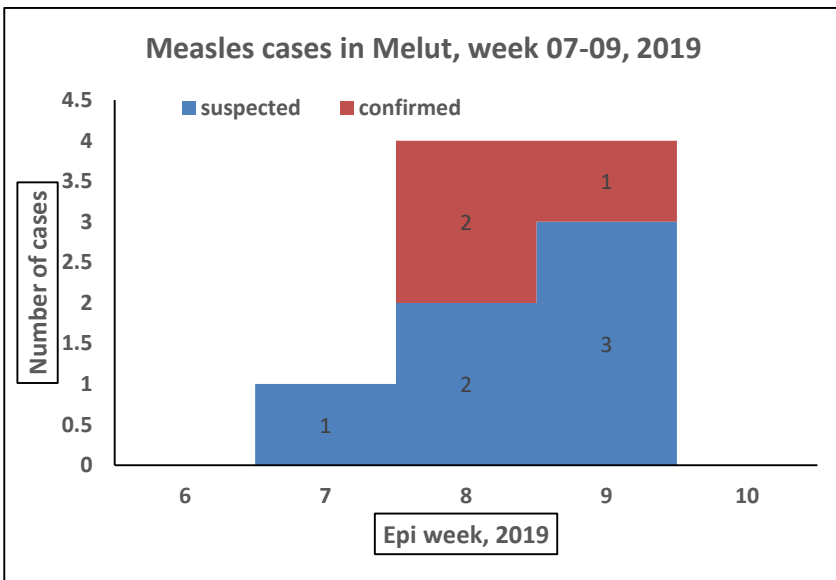
- Three (3) cases are laboratory-confirmed. Children < 5 years of age constituted 60% (103) of all the cases.
- The payams with most cases are Alek West (56 cases) and Kuach North (97 cases) accounting for over 98% of all the cases in the county.
- Most (82.1%) of the cases have never been vaccinated against measles indicating poor routine vaccination coverage in the county.



Recommended response

1. A focused response which includes vaccination campaign in the four affected payams, active case search to identify more cases and establish extend of the magnitude, and scaling up of routine vaccination activities
 1. The number targeted for vaccination is 62,535 children aged 6-59 months. The campaign expected to kick off within the week.
2. Continued strengthening of both routine surveillance and immunization in both counties
3. A reactive vaccination campaign targeting 76024 children aged between 6-59 months has been concluded in Gogrial West.
 - According to preliminary data over 193,958 (???) children aged 6 month to <15 years have been vaccinated.
 - The age groups targeted for vaccination was expanded to include 5-15 years according to earlier recommendation and vaccination of this group is ongoing

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.

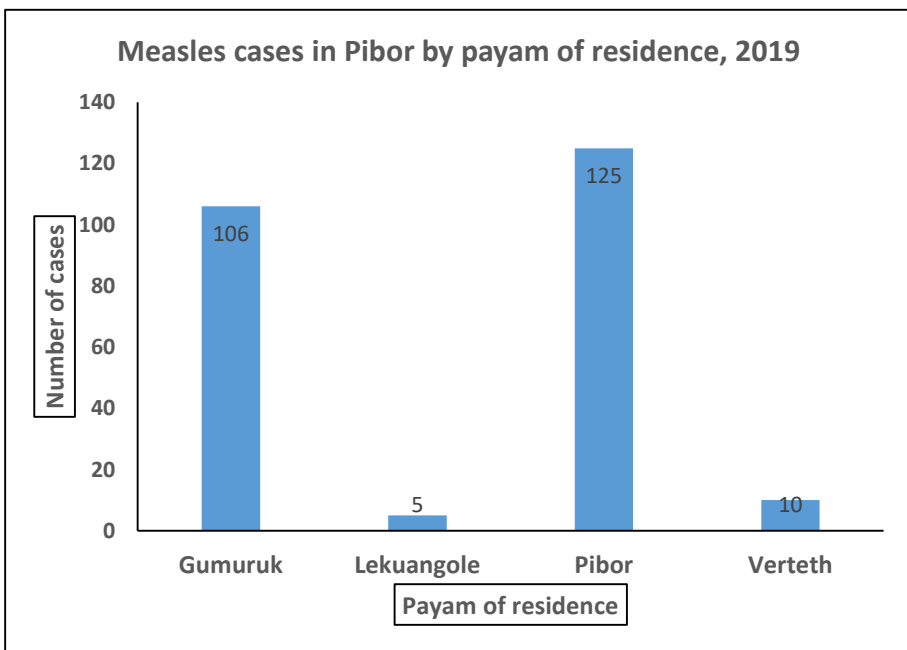
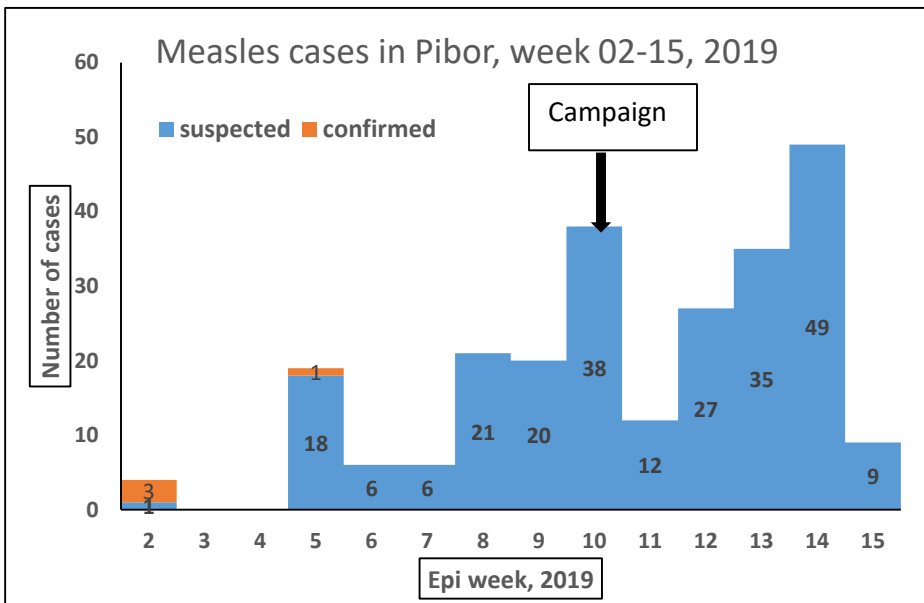
Descriptive Epidemiology for measles cases in Melut

- 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. Two payams affected out of the six payams.
- Six (66.7%) reported not receiving measles vaccination prior to their illness

Recommended response

- 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 is targeting 15,502 children aged 6 months to 5 years.
 - The campaign has been concluded. Updates from the team pending.
- Other recommended interventions include active case search by surveillance officers in the health facilities and communities, quality case management to improve outcome
- Intensification of the surveillance activities to ascertain the magnitude and geographical extent of the outbreak
- Scaling of the routine immunization activities and communication sensitization exercises
- 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 – Pibor



Age groups	Female	Male	Total	Percentage, %	Cumulative %
<1	18	19	37	15.0	15
1-4	58	69	127	51.6	66.6
5-9	28	20	48	19.5	86.1
10-14	8	4	12	4.9	91.0
15+	9	13	22	8.9	100.0
Total cases	121	125	246	100.0	

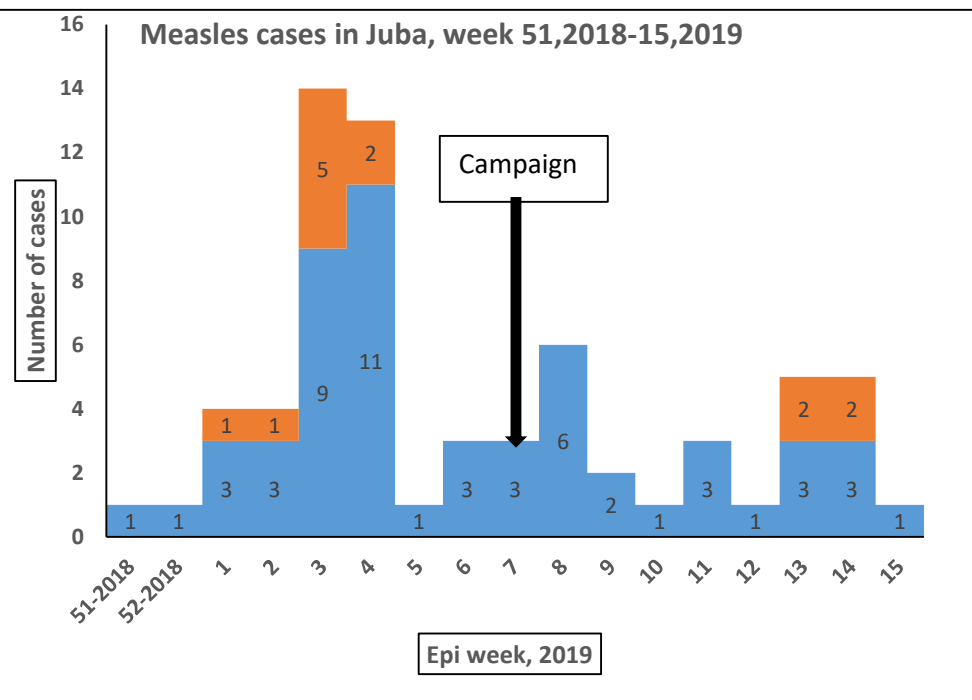
Descriptive Epidemiology

- Cumulatively a total of 246 measles cases have been reported as at end of week 15, 2019.
 - Nine (9) suspected case was reported in week 15, 2019
 - No deaths have been reported since the start of the outbreak
- Majority of the cases are from Pibor (125) and Gumuruk (106) contributing about 94% (231) of all the cases. The bomas with most cases in Pibor are Pibor (36) and Manyirany (10), and Tangnyang (26), Kelero (16) and Gumuruk (11) in Gumuruk Payam.
- About 67% (127) of the cases are children <5 years
- Upsurge in cases are noted in Epi weeks 12, 13 and 14 despite the initial drop in cases observed one (1) week after the reactive campaign

Recommended response

1. Collection of samples for confirmation from cases who were not vaccinated during the reactive campaign that was done in week 10, 2019
2. A reactive vaccination campaign targeting 47,328 children aged 6 months to 15 years in all the payams was conducted where a total of 13882 (30%) children vaccinated. About 4,000 additional children had been vaccinated by MSF-OCB before the campaign started.
3. Partners advised to continue strengthening routine immunization with focus on the areas with poor coverage during the emergency campaign

Confirmed Measles outbreak – Juba

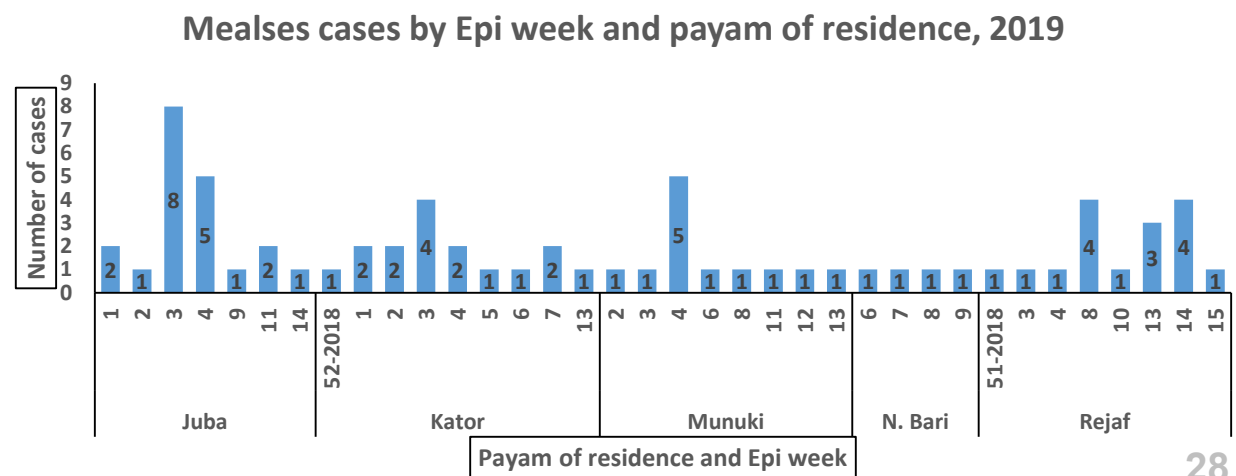


Descriptive Epidemiology

- A total of 68 measles cases reported from Juba as at end of week 15. This include five cases reported from Juba PoC (1 from PoC1 and 4 from PoC 3)
 - Nine cases identified during the active case exercise that was conducted to ascertain presence of more cases in the community
 - Thirteen lab confirmed cases including two (2) confirmed cases from Juba PoC 3.
 - Three (CFR 6.3%) deaths reported; two (2) from Amarat and One (1) from Khator. All the deaths are among <5 children.
- A majority (81%) of the cases are children < 5 years. Two of the case the PoC are children < 5years with the youngest being 9 months old.
- All the five payams continue having cases almost two months after the campaign.

Recommended response

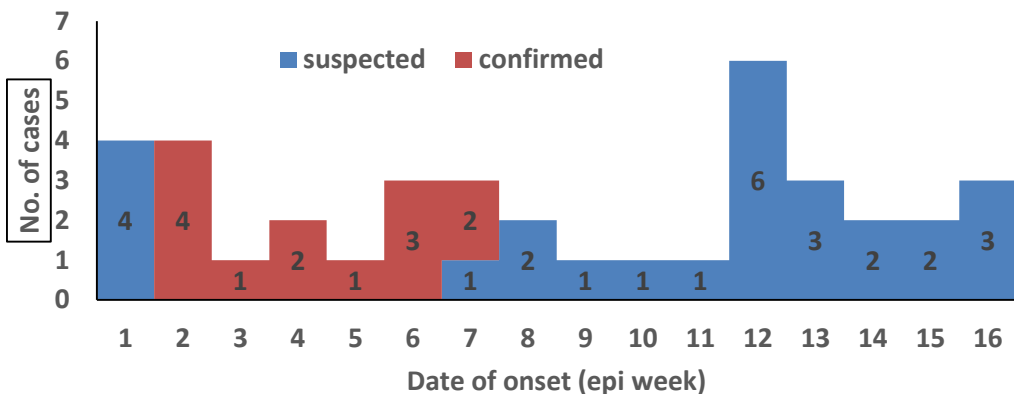
- A reactive vaccination campaign in Juba and the Poc 1&3 expected to start on 6th May 2019.



- Training for supervisors and vaccinators to be done on 3rd and 4th May respectively.
- 2. Enhance surveillance and routine immunization activities in all the areas
- 4. Increase community awareness about measles case management as some communities have been reported to be using traditional home remedies.
- 5. Continue verification and investigation of alerts and reports from the communities.

Hepatitis E, Bentiu PoC

HEV cases in Bentiu PoC, week 01-16, 2019



Bentiu PoC

- The persistent transmission of HEV in Bentiu PoC continues with cumulative caseload of 39 cases as at end of week 16, 2019
 - Thirteen (13) cases confirmed on PCR testing
 - Three new cases were reported in week 16, 2019
- All the cases were managed as outpatient cases except for two cases who were admitted on 23rd February, 2019 and 11th April, 2019
- The case admitted on 11th April 2019 died on 12th April 2019
- Over half (51.3%) of the cases are male.
- Age group 15-44 years had the most cases with 13 cases (33.3%).
- Of the 19 female cases, 4 (21.1) 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
- Recommended response
 - 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 %
1-4 years	6	4	10	25.6	25.6
5-9 years	1	5	6	15.4	41.0
10-14 years	5	3	8	20.5	61.5
15-44 years	5	8	13	33.3	94.8
45+years	2	0	2	5.1	100.0
Total cases	19	20	39	100.0	

Malaria trends

Current malaria trends

Malaria was the leading cause of morbidity and mortality accounting for 44.2% of all morbidities and 38.6% of all mortalities in week 16, 2019. The trend analyses showed at least 4 counties in two 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(Gogrial East,Gogrial West,Tonj East)**
- 2. Wau hub(Wau)**

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

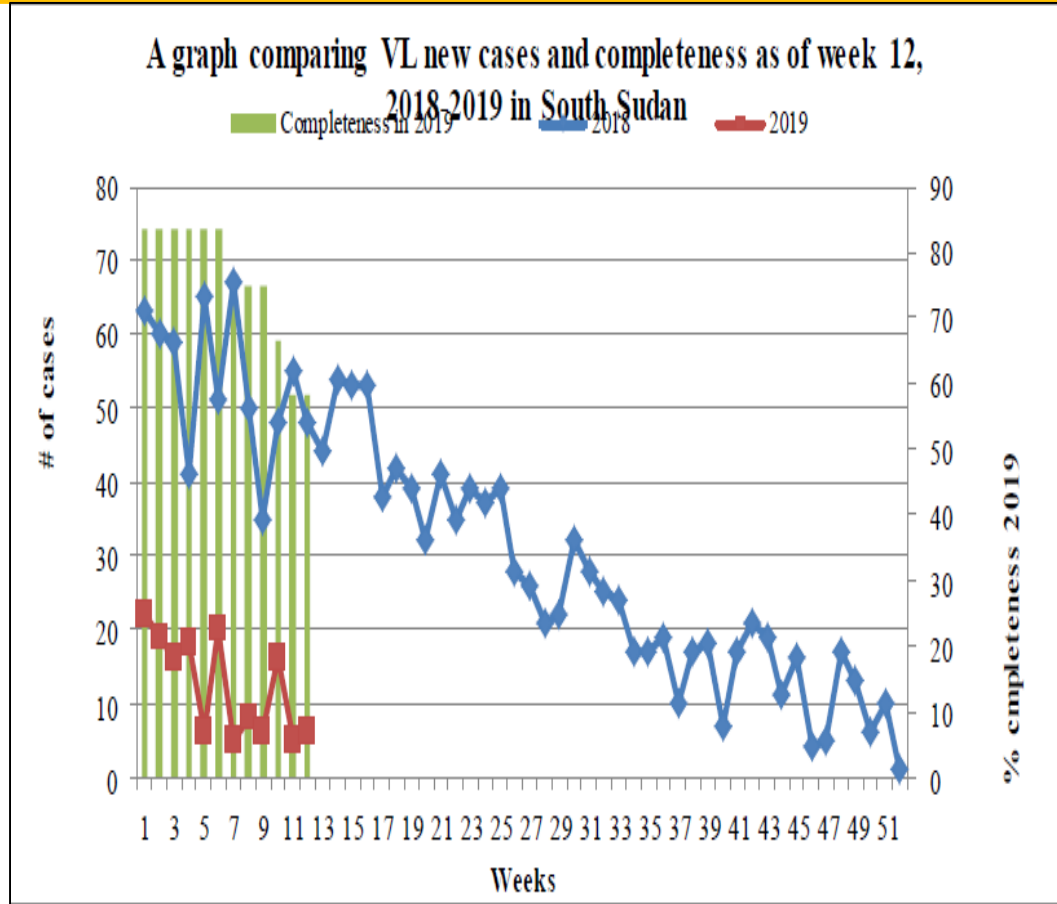
Visceral Leishmaniasis | Kala-azar

Kala-azar is endemic Upper Nile, Unity, Jonglei and Kapoeta.

In week 12, seven (7) health facilities reported **9** cases; **6 (66.7%)** new cases, and **3(33.3%)** relapses. One death and zero defaulters reported.

Since the beginning of 2019, a total of **208** cases including **6** deaths (CFR **2.9%**) and **4 (1.9%)** defaulters have been reported from 10 treatment centers. Of the 208 cases reported, **147(70.7%)** were new cases, **4(1.9%)** PKDL and **57(27.4 %)** relapses.

In the corresponding period in 2018, a total of **831** cases including **23** deaths (CFR **2.8%**) and **18 (2.2%)** defaulters were reported from 21 treatment centers.



A majority of cases were reported from Lankien (**96**) accounting for **46.1%** of the total cases. The other affected areas include KCH (**35**), Pagil (**27**) Chuil (**18**), and Narus (**14**).

The most affected groups included, males [**123** cases (**59.1%**)], those aged ≥ 15 years and above [**106 (51.0%)**] and children aged 5 - 14 years [**67** cases (**32.2**)]. A total of **35** cases (**16.8%**) occurred in children < 5 years.

The number of cases reported in 2018 was almost four times higher than the number of cases reported in 2019. However, the trend is more or less the same. The sharp drop is as a result of few health facilities reporting 5/14 in 2018.

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
30Oct	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 30 th Jan 2019
09 Feb 19	1	0	Juba		Nd	-ve	-ve	Investigated on 09 th Feb 2019
21 st Feb 19	1	1	Yambio		Nd	-ve	-ve	Investigated on 21 st Feb 19
25 rd Feb 19	1	0	Yambio		Nd	-ve	-ve	Investigated on 25 th Feb 19
26 th Feb 19	1	0	Yambio		Nd	-ve	-ve	Investigated on 26 th Feb 19
14 th Mar 19	1	0	Tambura		Nd	-ve	-ve	Investigated on 14 th Mar 19
22 nd Mar 19	1	0	Juba		Nd	-ve	-ve	Investigated on 22 nd Mar 19
26 th Mar 19	1	0	Ezo		Nd	-ve	-ve	Investigated on 26 th Mar 19
22 nd Apr 19	1	0	Ezo		Nd	-ve	-ve	Investigated on 22 nd Apr 19

- Blood samples have been obtained from 10 (10) Ebolavirus alerts; all 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

Ebola update DRC 24th Apr 2019

Current situation

- Currently in 34th week of the outbreak
- **1373** Cases [1307 confirmed & 66 probable]
- **890** Deaths [824 confirmed & 66 probable]
- **90** Health workers [33 deaths]

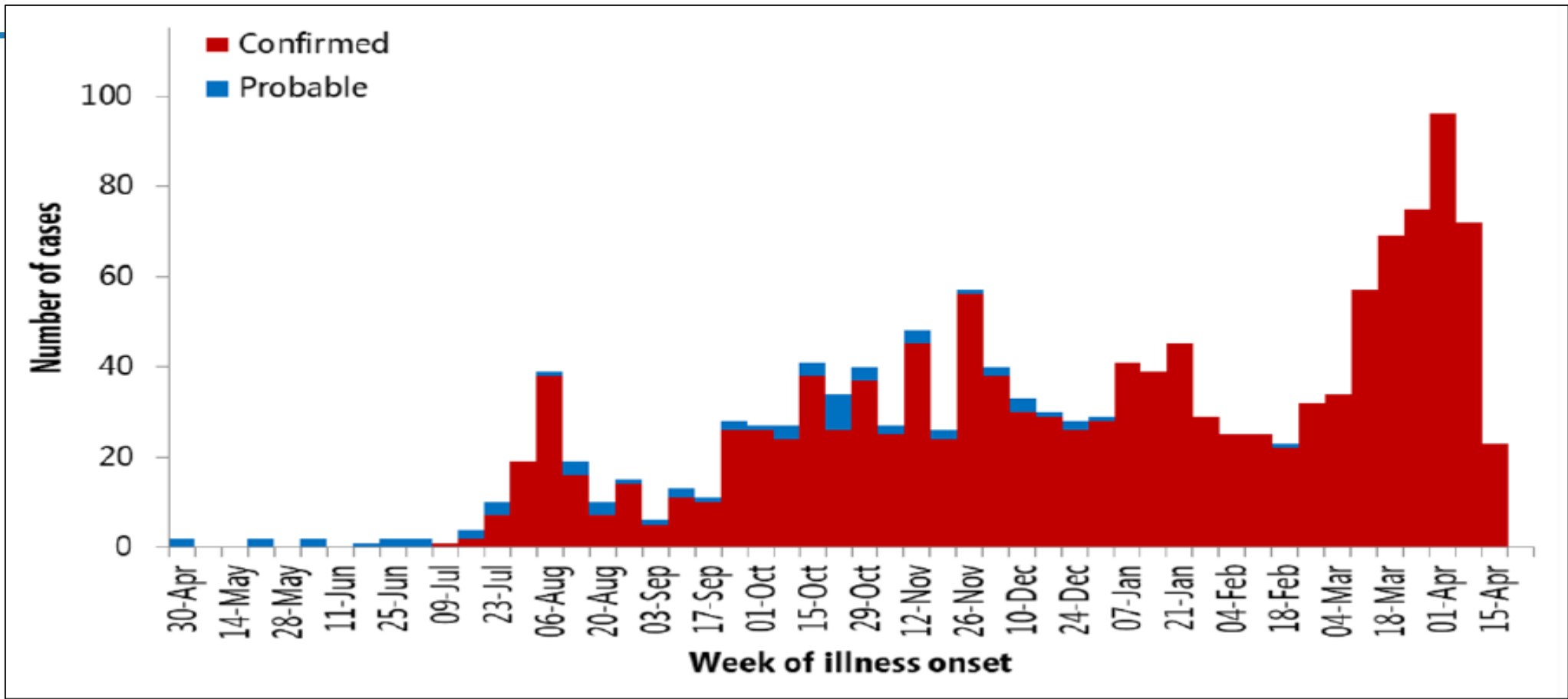
Response update

- **12 425** contacts under surveillance [>90% followed up]; 104 342 vaccinated

Affected health zones

- **2** provinces [North Kivu & Ituri]
- **19** health zones [14 North Kivu & 5 Ituri]
- **253** cases in last 21 days (2 - 22 April 2019); Katwa (130), Vuhovi (31), Butembo (29), Mandima (21), Beni (17), Mabalako (8), Kalunguta (6), Masereka (5), Musienene (3), Oicha (2), and Kyondo (1)

EVD trends & case distribution in DR Congo



- Active transmission with slight reduction noted in the past week because of reduced surveillance and case investigation activities following attack on a health in Butembo.

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 countries 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 have finalized the EVD contingency plan for the next six months of EVD preparedness and readiness in the country.
- Detailed preparedness update can be accessed <https://www.afro.who.int/publications/weekly-update-ebola-virus-disease-evd-preparedness-south-sudan>

Name of PoE	Passengers Screening Information			EVD Alerts		
	# screened	# Isolated	# under Voluntary Home Quarantine	# reported	# validated	# suspects
Kor Kaya PoE	2,320	0	0	0	0	0
Bangangal	0	0	0	0	0	0
Basukangbi	0	0	0	0	0	0
Bazi Border	1,555	0	0	0	0	0
Birigo	2,224	0	0	0	0	0
Dukudu-Olo	0	0	0	0	0	0
Ezo	0	0	0	0	0	0
Gangura Border	19	0	0	0	0	0
James Dico	0	0	0	0	0	0
Juba International Airport	0	0	0	0	0	0
Kaya	0	0	0	0	0	0
Kaya Border	2,786	0	0	0	0	0
Kenwa	2,313	0	0	0	0	0
Khorjo	1,609	0	0	0	0	0
Lasu	77	0	0	0	0	0
Makpandu	0	0	0	0	0	0
Maridi Airstrip	5	0	0	0	0	0
Nimule Airstrip	1	0	0	0	0	0
Nimule Border	32,287	0	0	0	0	0
Okaba	1,142	0	0	0	0	0
Panjala Docking River	479	0	0	0	0	0
Pure	3,470	0	0	0	0	0
Sakure Border	11	0	0	0	0	0
Salla Musala	2,321	0	0	0	0	0
Sangua 1	0	0	0	0	0	0
Tikori	0	0	0	0	0	0
Wau Airport	18	0	0	0	0	0
Yambio Airport	9	0	0	0	0	0
Yei Airport	9	0	0	0	0	0
Yei RRC	24	0	0	0	0	0
South Sudan	62,879	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 16, 52,679 travellers 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

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 24 th Dec 2018 and 28 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 unprovoked. 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

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. Result 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 27 th 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 30 th Jan, 2019. The cases, 30year old patient, was investigated, sample collected which tested negative on GneneXpert and PCR testing.
17/01/2019	Measles	1	Gogriol 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 31 st 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
17/01/2019	Measles	0	Mayom		Five suspected cases out of which three tested positive for Measles IgM antibodies
15/03/2019	Measles	0	Aweil South		Twelve (12) suspected cases reported in the county, following which 4 samples tested positive for measles
15/03/2019	Measles	0	Melut		Three samples tested positive for measles out of six samples tested
4/04/2019	Measles	0	Gogriol East		11 cases out of which four were laboratory confirmed for measles
4/04/2019	Measles	0	Aweil Centre		Five cases tested positive for measles

Date of report	Disease suspected	Number cases (deaths)	County	Payam	Status of investigations
2/04/2019	Measles	2	Tonj North		Six tested positive for measles
4/04/2019	Measles	0	Aweil West		10 positive for measles
24/04/2019	Measles	0	Bentiu PoC		Two tested positive for measles
24/04/2019	Measles	0	Malakal PoC		Two tested positive for measles

**This bulletin is produced by the Ministry of Health with
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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>

