

# South Sudan

## Integrated Disease Surveillance and Response (IDSR)

Epidemiological Update W16 2018 (Apr 16- Apr 22)



- Completeness for IDSR reporting at county level was 55%. Completeness for EWARS reporting from IDP sites was 83%.

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- A total of 9 alerts were reported, of which 100% have been verified. 0 alerts were risk assessed and 0 required a response.

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- Rift Valley Fever outbreak - Yirol East with 55 suspect human cases including 6 confirmed; 3 probable; 26 non-cases; and 20 pending classification (with no samples collected). Nine confirmed animal cases (cattle).

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- Suspect rabies cases continue to be reported in Bentiu PoC with a cumulative of 139 suspect cases including 2 deaths reported since Dec 2017. Community engagement, social mobilization, and risk communication, preventive vaccination, and discussions on curbing stray dogs are underway.

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- Hepatitis E cases have been confirmed in Bentiu PoC and Old Fangak where a total of nine suspect cases have been reported. Out of the nine suspect cases; 7 have been confirmed IgM positive for HEV by ELISA (6 positive in Bentiu PoC and 1 positive in Old Fangak). The Ministry of Health and partners are working together to enhance surveillance, case investigation, sample collection, supportive clinical care, and WASH.

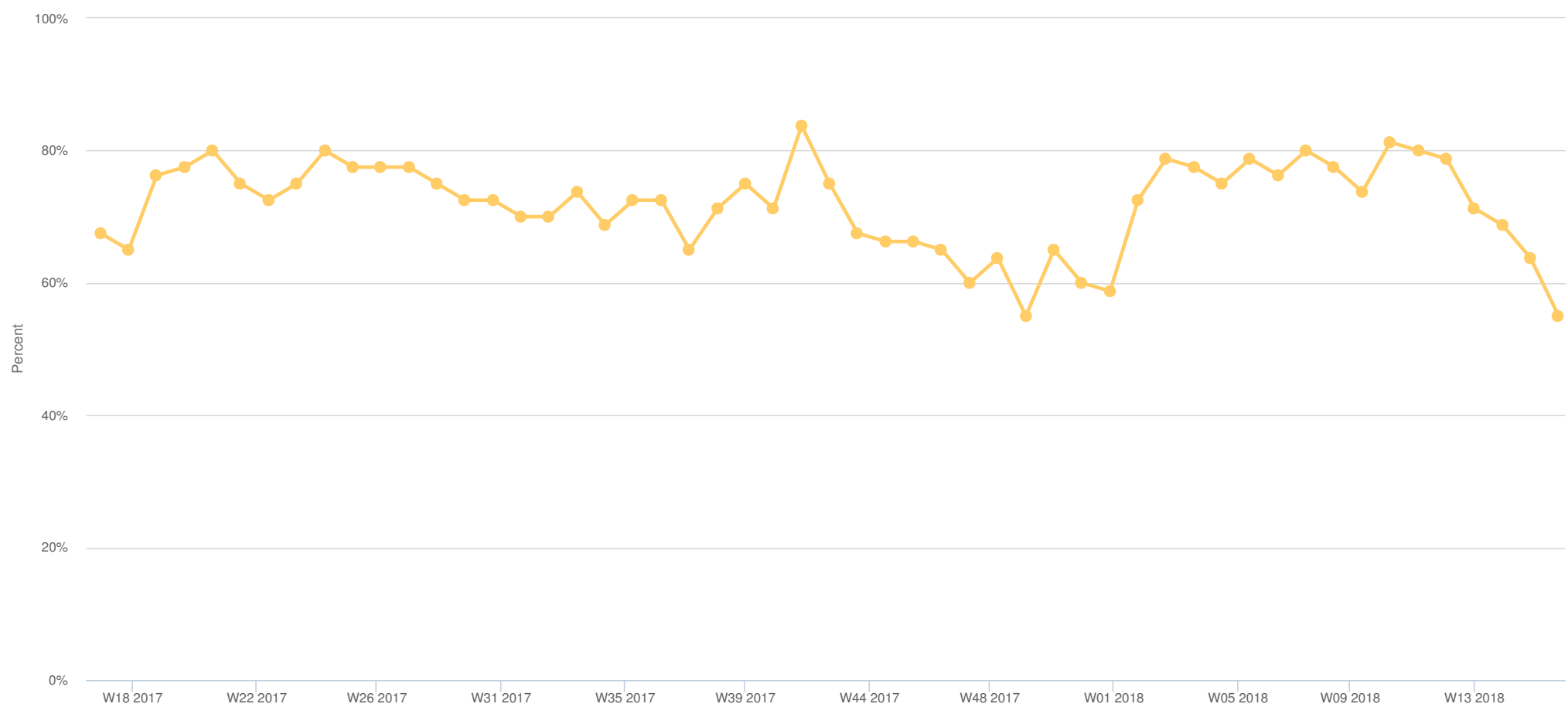
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**Table 1** | IDSR surveillance performance indicators by county (W16 2018)

Hub	Reporting		Performance (W16 2018)		Performance (Cumulative 2018)	
	# counties	# reports received	Completeness	Timeliness	Completeness	Timeliness
Aweil	5	2	40%	40%	78%	78%
Bentiu	9	5	56%	56%	75%	54%
Bor	11	3	27%	27%	47%	41%
Juba	6	2	33%	33%	67%	56%
Kwajok	7	4	57%	57%	92%	87%
Malakal	13	1	8%	8%	25%	10%
Rumbek	8	8	100%	100%	94%	92%
Torit	8	6	75%	75%	89%	63%
Wau	3	3	100%	100%	88%	75%
Yambio	10	10	100%	100%	93%	93%
<b>South Sudan</b>	<b>80</b>	<b>44</b>	<b>55%</b>	<b>55%</b>	<b>70%</b>	<b>55%</b>

- Completeness for IDSR reporting at county level was 55% in week 16 and cumulatively at 70% for 2018
- Timeliness for IDSR reporting at county level was 55% in week 16 and cumulatively at 55% for 2018

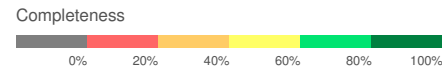
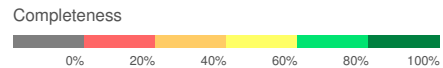
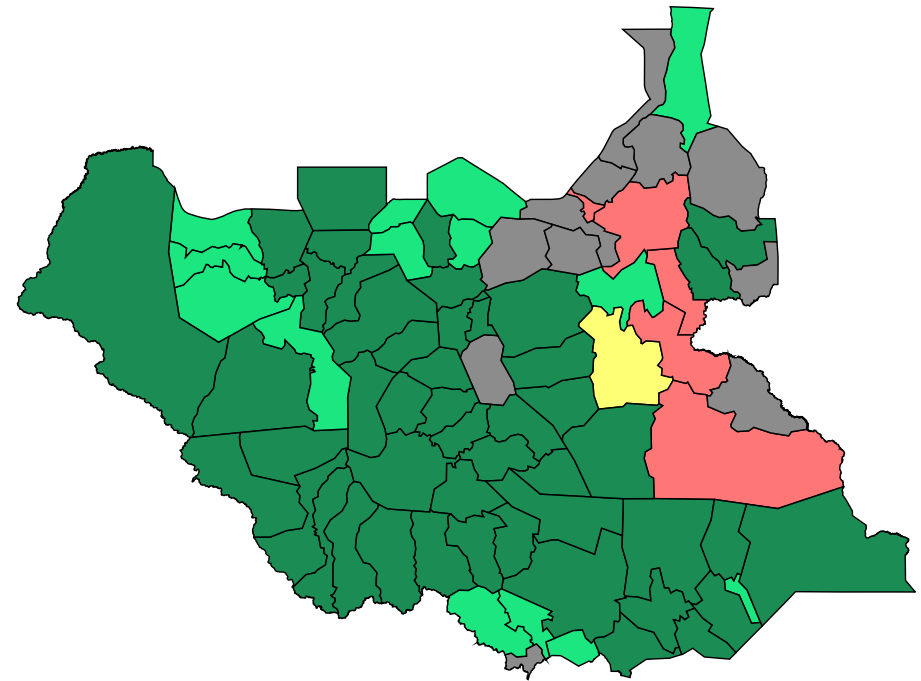
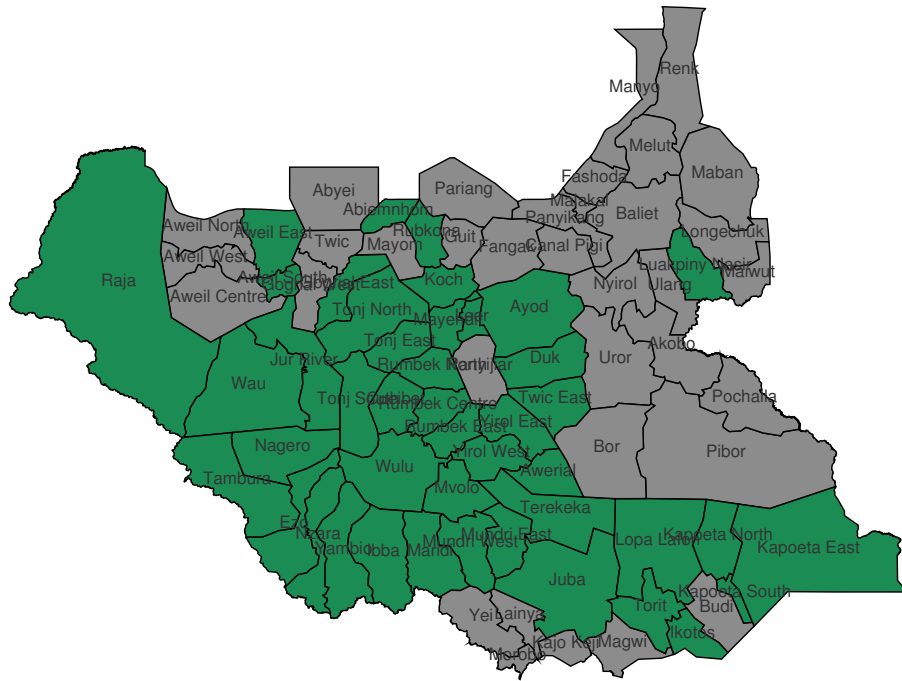
Figure 1 | Trend in IDSR completeness over time<sup>1</sup>



The graph shows completeness for weekly reporting at county level. The national average currently stands at **70%**.

Map 1a | Map of IDSR completeness by county (W16 2018)

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



- Counties that submitted IDSR reports in W16 are shown in green in map 1a
- Counties that did not submit IDSR reports in W16 are shown in grey in map 1a

**Table 4** | EWARS surveillance performance indicators by partner (W16 2018)

Partner	Performance		Reporting (W16 2018)		Reporting (Cumulative 2018)	
	# sites	# reports received	Completeness	Timeliness	Completeness	Timeliness
CMD	2	2	100%	100%	94%	94%
GOAL	2	2	100%	100%	94%	76%
HLSS	1	1	100%	100%	94%	94%
IMA	5	5	100%	100%	60%	55%
IMC	6	6	100%	100%	87%	86%
IOM	10	9	90%	90%	80%	80%
IRC	1	1	100%	100%	94%	94%
Medair	2	2	100%	100%	94%	88%
MSF-E	2	0	0%	0%	82%	76%
MSF-H	2	0	0%	0%	53%	47%
SMC	6	6	100%	100%	57%	56%
UNIDO	1	1	100%	100%	94%	94%
UNKEA	2	2	100%	100%	76%	76%
World Relief	1	1	100%	100%	94%	71%
<b>Total</b>	<b>46</b>	<b>38</b>	<b>83%</b>	<b>83%</b>	<b>72%</b>	<b>70%</b>

Timeliness and completeness for EWARN/IDP reporting stands at 83% for week 16 while cumulatively, completeness and timeliness are 72% and 70% respectively for 2018

Table 7 | Alert performance indicators by Hub

Hub	W16		Cumulative (2018)	
	# alerts	% verif.	# alerts	% verif.
Aweil	0	0%	21	71%
Bentiu	1	100%	31	61%
Bor	3	100%	23	48%
Juba	1	100%	31	71%
Kwajok	1	100%	25	100%
Malakal	0	0%	25	60%
Rumbek	1	100%	23	57%
Torit	0	0%	23	65%
Wau	0	0%	11	45%
Yambio	2	100%	44	61%
<b>South Sudan</b>	<b>9</b>	<b>100%</b>	<b>257</b>	<b>65%</b>

Table 8 Summary of key alert indicators

W16	Cumulative (2018)	
<b>9</b>	<b>257</b>	Total alerts raised
<b>100%</b>	<b>65%</b>	% verified
<b>0%</b>	<b>0%</b>	% auto-discarded
<b>0%</b>	<b>2%</b>	% risk assessed
<b>0%</b>	<b>1%</b>	% requiring a response

A total of 9 alerts were reported in week 16 with 100% of the alerts in week 16 being verified; 0% were risk assessed and 0% required a response.

Table 9 | Alert performance indicators by event

Event	W16		Cumulative (2018)	
	# alerts	% verif.	# alerts	% verif.
<b>Indicator-based surveillance</b>				
Malaria	2	100%	39	64%
AWD	2	100%	136	62%
Bloody Diarr.	2	100%	71	45%
Measles	2	100%	51	73%
Meningitis	0	0%	0	0%
Cholera	0	0%	5	100%
Yellow Fever	0	0%	3	67%
Guinea Worm	1	100%	11	82%
AFP	0	0%	42	89%
VHF	0	0%	1	100%
Neo. tetanus	0	0%	2	50%
<b>Event-based surveillance</b>				
EBS total	0	0%	10	70%

Table 10 | Event risk assessment

W16	Cumulative (2018)	
0	4	Low risk
1	1	Medium risk
0	0	High risk
0	0	Very high risk

- During the week, malaria, AWD, ABD, and measles were the most frequent infectious hazards reported.

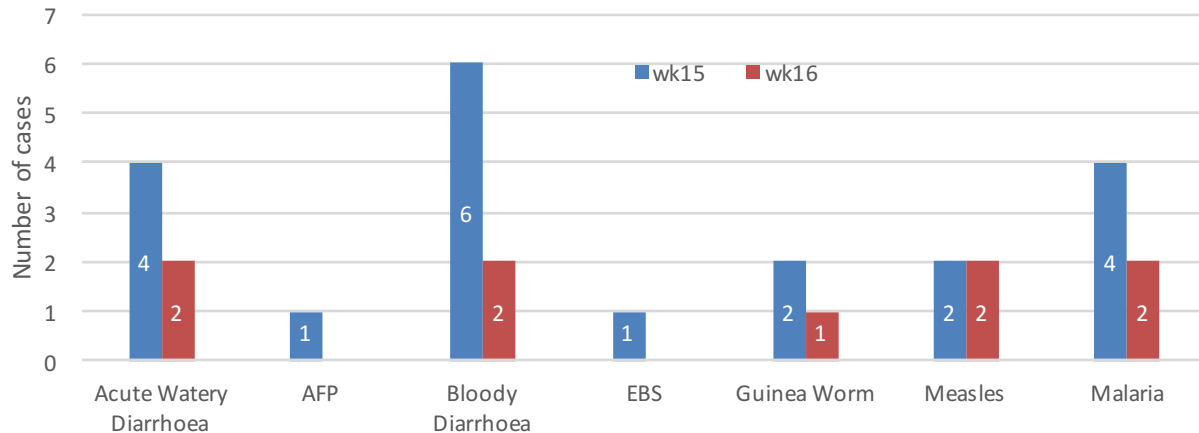


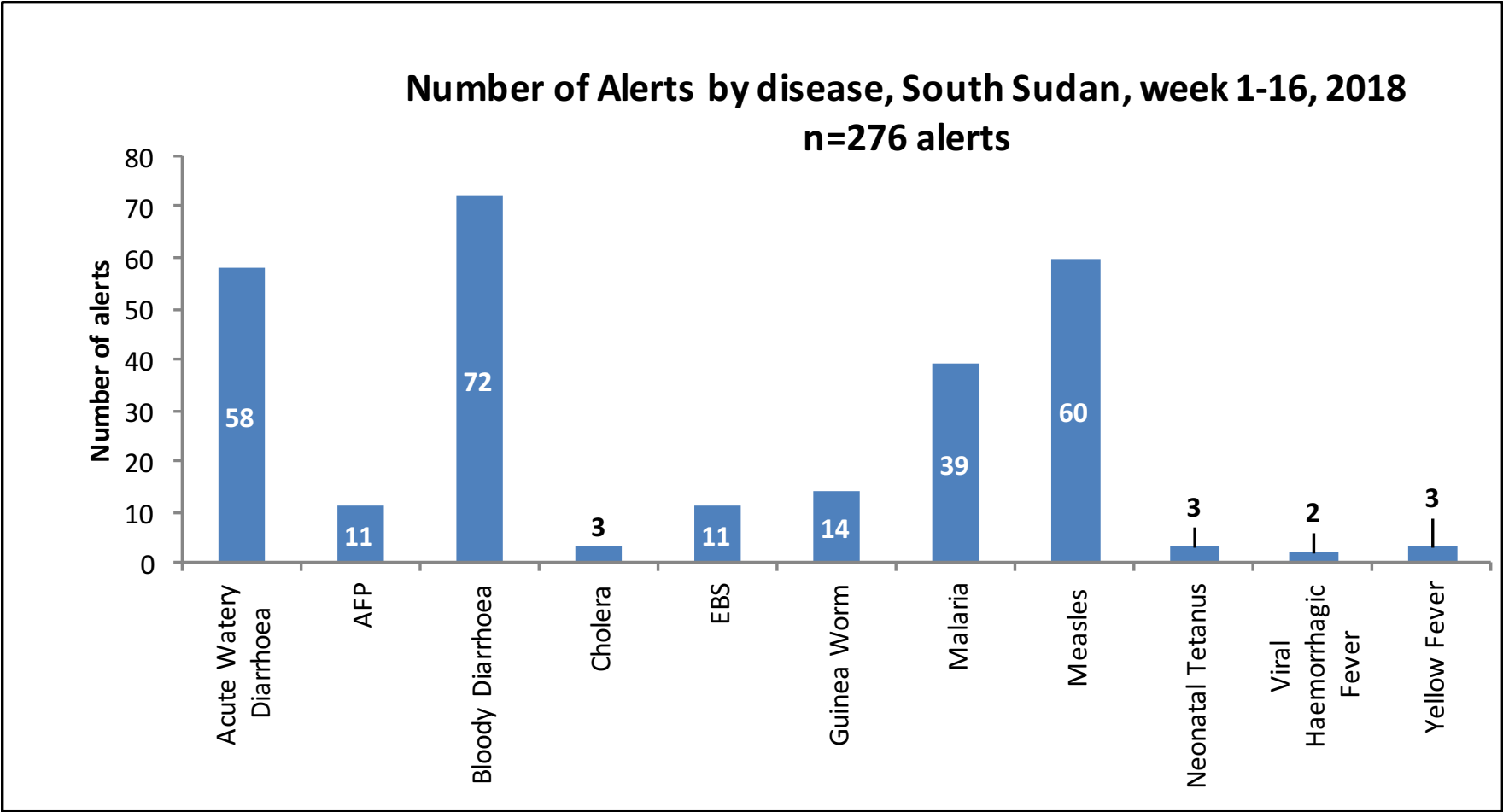
## Alert by disease and county in W16 2018

County	Acute Watery Diarrhoea	Bloody Diarrhoea	Guinea Worm	Measles	Malaria	Total Alerts
Bor	1				2	3
Ezo		1				1
Juba				1		1
Koch	1					1
Maridi				1		1
Tonj North		1				1
Yirol West			1			1
<b>Total Alerts</b>	<b>2</b>	<b>2</b>	<b>1</b>	<b>2</b>	<b>2</b>	<b>9</b>

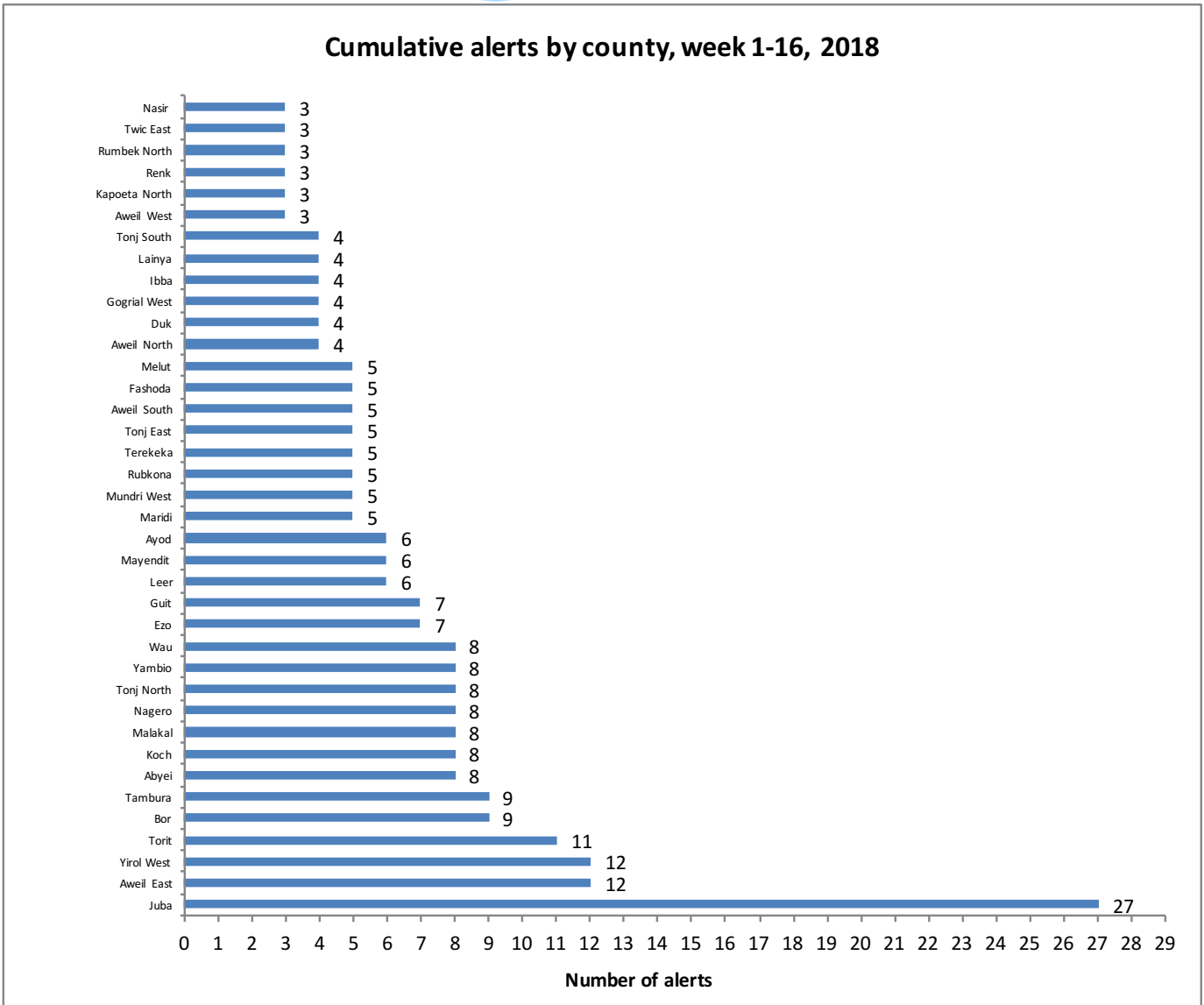
- During week 16, a total of 9 alerts were reported.
- The table and chart show the distribution of alerts by hazard and location - all of which were verified by field teams for possible follow up investigations.

Alerts by hazard in week 15 and week 16, 2018





- The Figure shows the cumulative number of alerts triggered in 2018 by hazard and location.



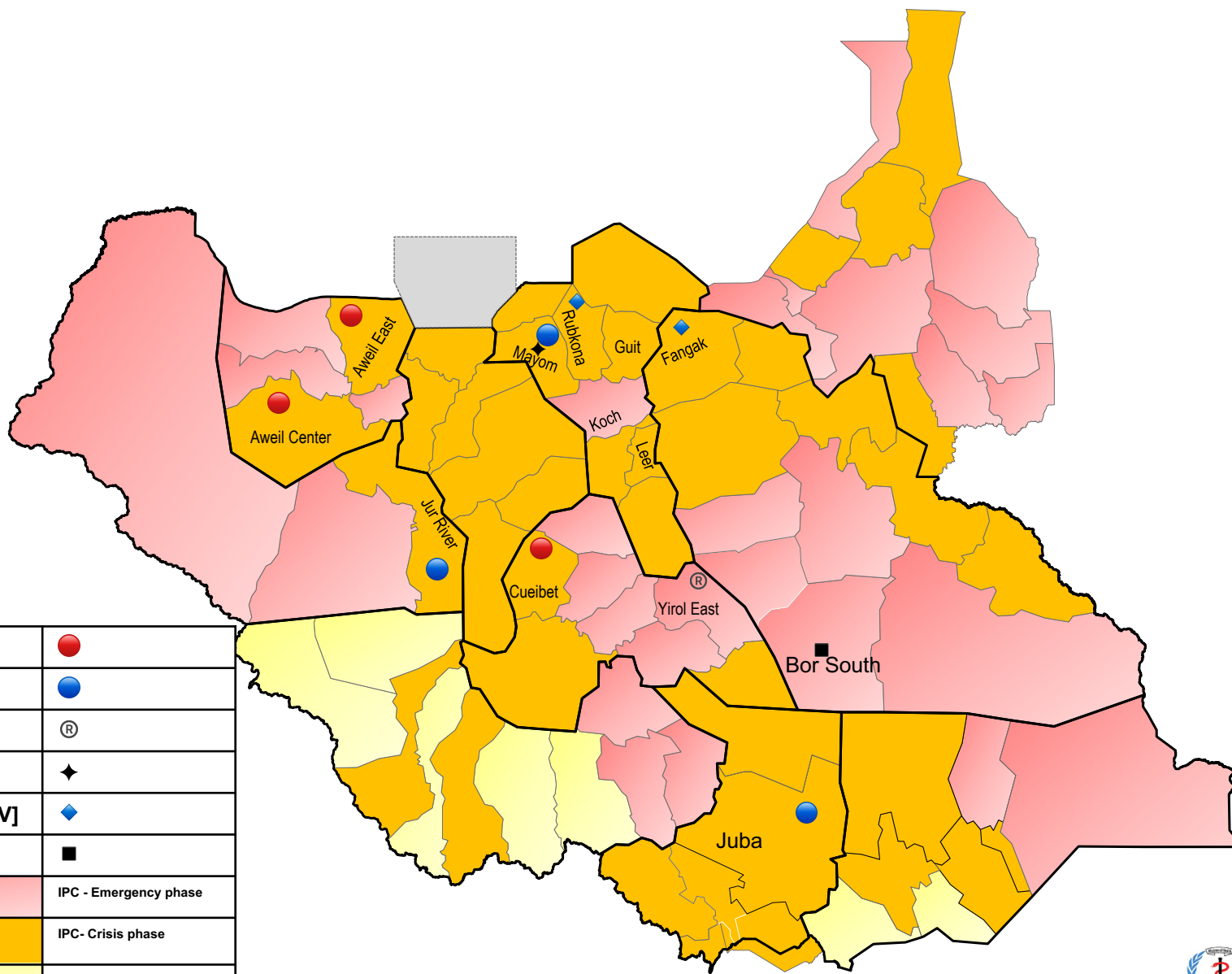
- The Figures show the cumulative alerts triggered in 2018 by location
- Most alerts have been reported from Juba, Aweil East, and Yirol West.

## Cumulative alerts by risk assessment stage in 2018

County	OUTCOME	RISK_ASSESS	VERIFICATION	Total Alerts
Acute Watery Diarrhoea			58	58
AFP		1	10	11
Bloody Diarrhoea			72	72
EBS		2	9	11
Guinea Worm	2		12	14
Neonatal Tetanus	2		1	3
Viral Haemorrhagic Fever			2	2
Yellow Fever			3	3
Measles	4	6	50	60
Cholera			3	3
Malaria			39	39
<b>Total Alerts</b>	<b>8</b>	<b>9</b>	<b>259</b>	<b>276</b>

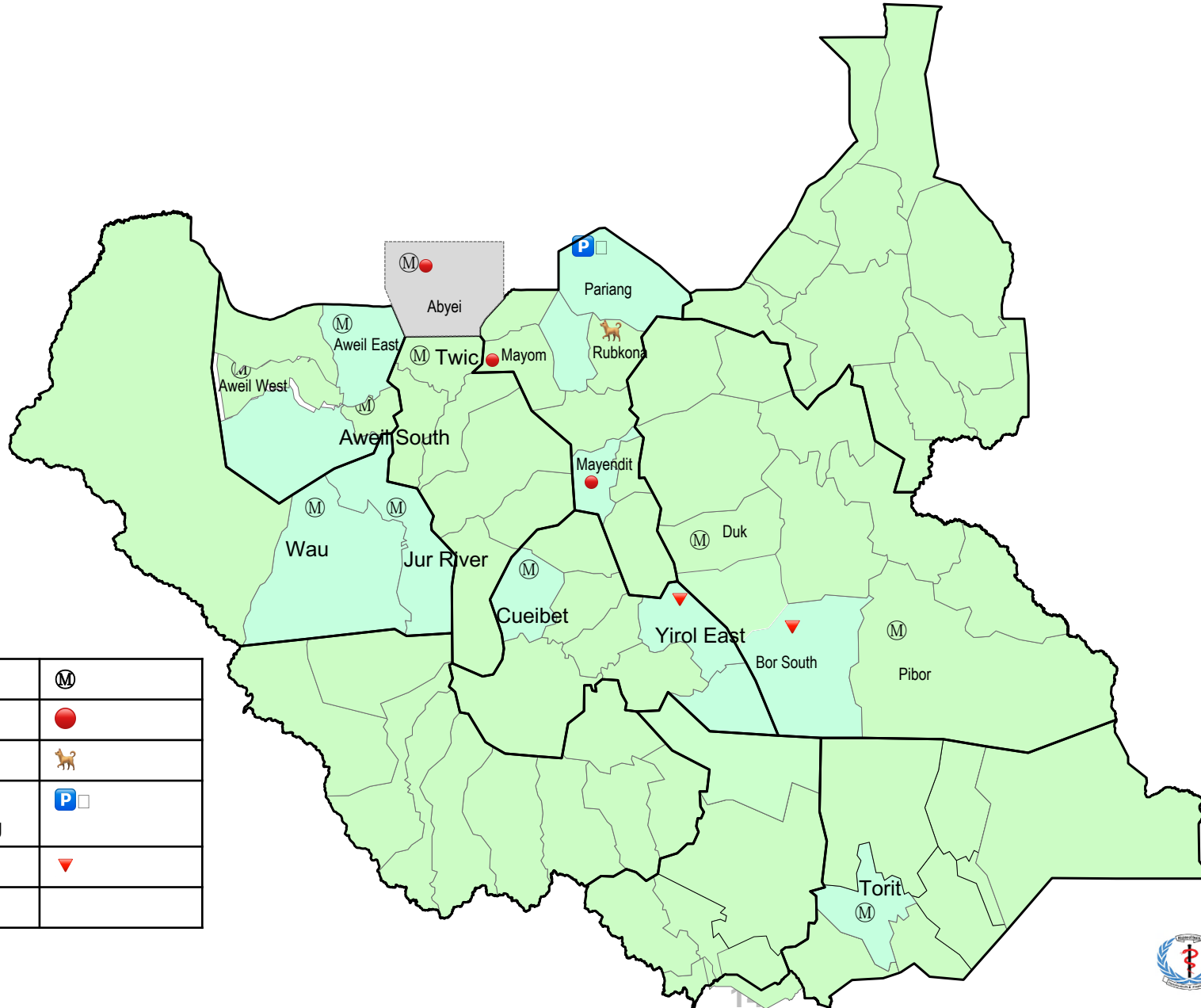
- The Figures show the cumulative alerts by risk assessment state in 2018
- Of the 266 alerts reported in 2018; a total of 249 alerts are at verification stage; and the rest are at risk assessment stage (9 alerts); 8 at outcome stage.

# Confirmed Outbreaks South Sudan – 29 April 2018



<b>Measles</b>	●
<b>Rubella</b>	●
<b>Rift Valley Fever</b>	®
<b>Anthrax</b>	◆
<b>Hepatitis E virus [HEV]</b>	◆
<b>Foodborne disease</b>	■
	IPC - Emergency phase
	IPC- Crisis phase
	IPC - Stressed phase

# Suspect Outbreaks South Sudan – 29 April 2018

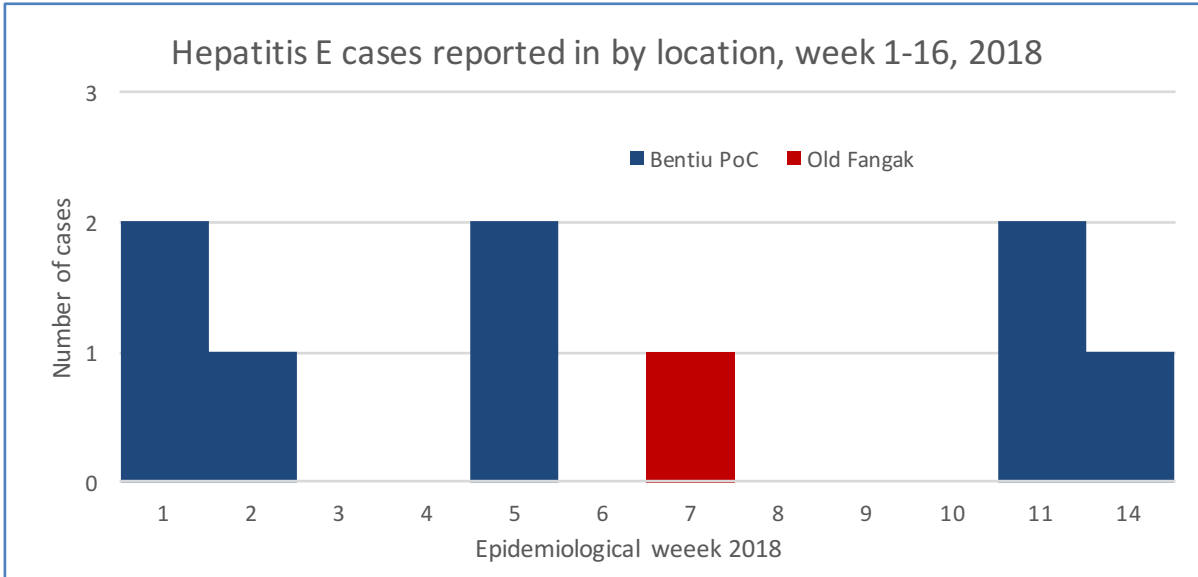


<b>Meningitis</b>	Ⓜ
<b>Measles</b>	●
<b>Rabies</b>	🐕
<b>Health effects of petroleum drilling</b>	Ⓟ
<b>Pertussis</b>	▼



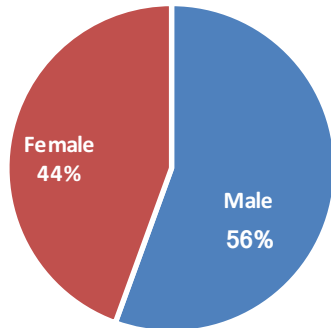
Aetiologic agent	Location (county)	Date first reported	New cases since last bulletin	Cumulative cases to date (attack rate %)	Interventions			
					Case management	Vaccination	Health promotion	WASH
<b>New epidemics</b>								
<b>Ongoing epidemics</b>								
RVF	Yirol East	28/12/2017	2	55 (0.051)	Yes	N/A	Yes	N/A
Rubella	Jur River	14/02/2018	2	65 (0.034)	Yes	No	Yes	N/A
Rubella	Juba	26/02/2018	0	22 (0.0037)	Yes	No	Yes	N/A
Rubella	Mayom	22/02/2018	0	08 (0.004)	Yes	No	Yes	N/A
Hepatitis E	Old Fangak	15/02/2018	0	01 (0.001)	Yes	No	Yes	Yes
Hepatitis E	Bentiu PoC	03/01/2018	0	08 (0.007)	Yes	No	Yes	Yes
Rabies probable	Bentiu PoC	06/12/2017	0	69 (0.061)	Yes	Yes	Yes	N/A
<b>Controlled epidemics</b>								
Measles	Aweil Center	6/Jan/2018	0	22 (0.021)	Yes	Yes	Yes	N/A
Measles	Cueibet	14/10/2017	0	20 (0.012)	Yes	Yes	Yes	N/A
Measles	Aweil East	05/02/2018	0	31 (0.006)	Yes	Yes	Yes	N/A
Foodborne	Bor South	18/02/2018	0	434 (29)	Yes	Yes	Yes	Yes
Cut. Anthrax	Mayom	27/01/2018	0	2 (0.001)	Yes	No	Yes	N/A
Meningitis	Torit	17/01/2018	0	173 (0.107)	Yes	No	Yes	N/A

## Hepatitis E, Bentiu PoC and Old Fangak



Age	Female	Male	Total ca	% cases
1-4yrs		3	3	33.3%
5-9yrs	1	1	2	22.2%
15-44yrs	3	1	4	44.4%
<b>Total cases</b>	<b>4</b>	<b>5</b>	<b>9</b>	<b>100.0%</b>

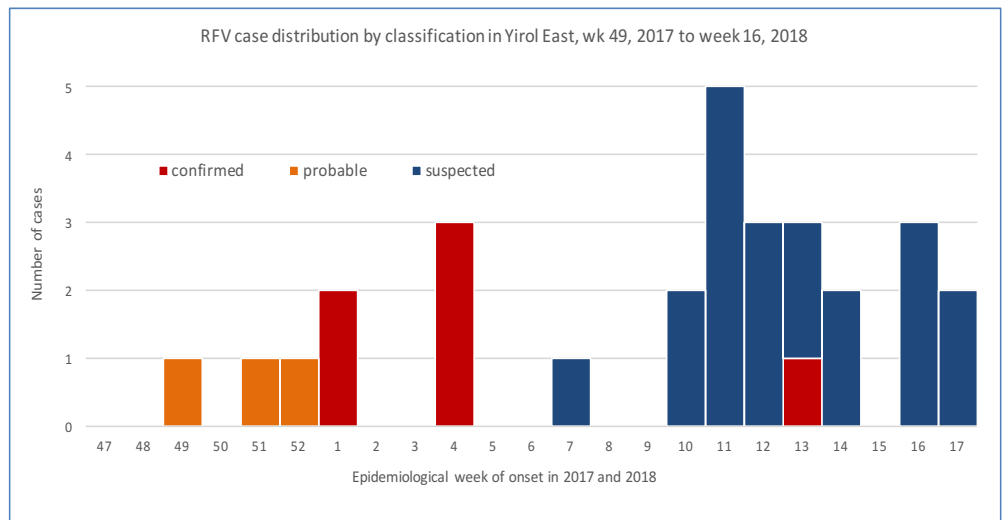
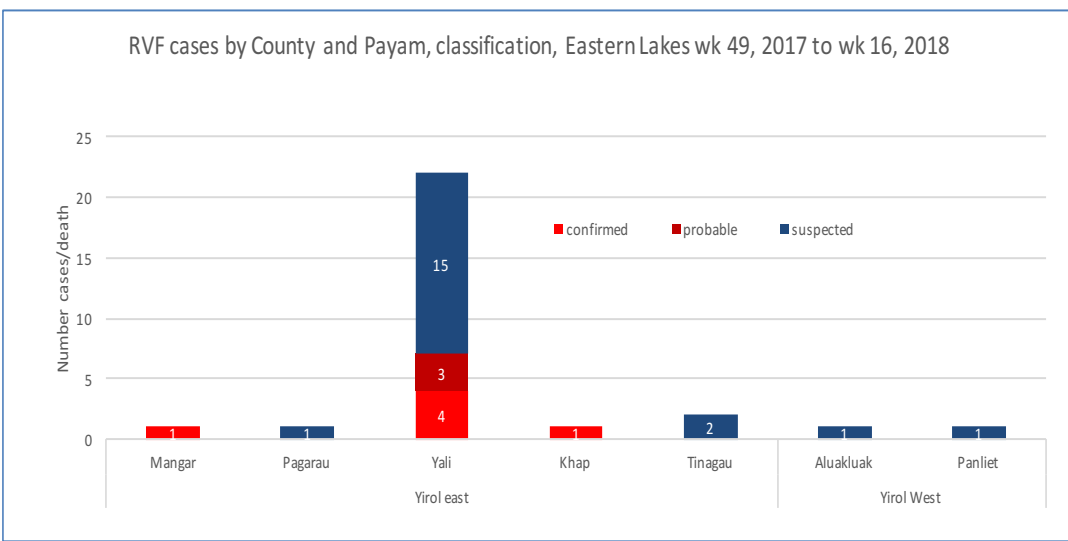
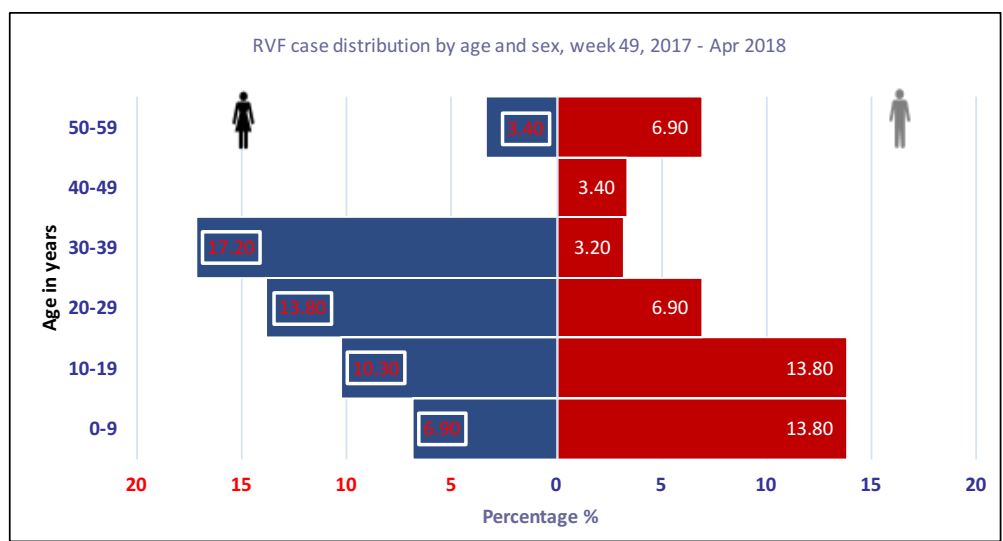
HEV cases by age in Bentiu and Old Fangak, week 1-16, 2018



- At least 9 suspect case of Hepatitis E (HEV) have been reported in 2018. Of the nine suspect cases, a total of 7 cases have been confirmed as HEV (6 in Bentiu PoC & 1 in Old Fangak).
- At least 60% of the cases are 1-9 years of age; and 62% being male.
- Health-WASH partners meeting convened in Bentiu PoC on 26 Apr 2018 and agreed to:
- Map line listed cases to facilitate source identification
- Health partners to conduct joint Continuous Medical Education session for the healthcare workers
- Unicef to share key HEV messages - for radio [Kondial FM] and community sensitizations
- A special follow up WASH meeting to be convened to assess and address WASH gaps



# Ongoing epidemics - Epidemic description - RVF Eastern Lakes state



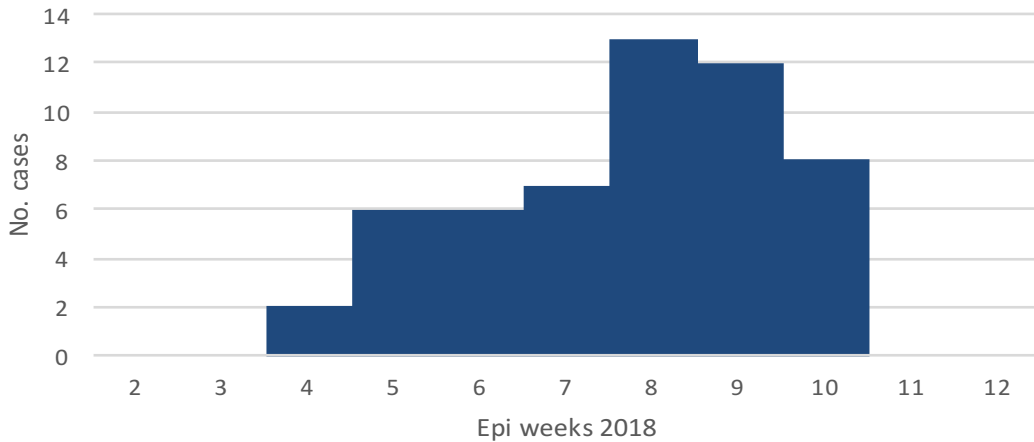
Sno.	Description	Number
1	Suspect cases	55
2	Total deaths	4
3	Confirmed cases	6
4	Probable cases	3
5	Cases pending testing	20
6	Non-cases	26
7	Cases on admission	0
8	Total human samples collected	37
9	Total animal samples collected	28
10	Positive animal cases	9

- Two new suspect cases in week 17. In the period 7 December 2017 to 29 April 2018, a total of 55 suspect RVF cases were reported in Eastern Lakes.
- These were reclassified based on investigations and laboratory results, such that as of 29<sup>nd</sup> April 2018, there were a total of six (6) RVF confirmed cases, three (3) probable, and 20 suspect RVF cases (with no samples collected and hence no laboratory results).
- Twenty six (26) cases were discarded as non-cases following negative laboratory results for RVF and other common causes of viral haemorrhagic fever.
- A total of nine animal samples have been confirmed serologically (3IgM and 6IgG).
- Current response entails surveillance, laboratory testing, supportive care for suspect cases, and community sensitization on hygienic animal handling

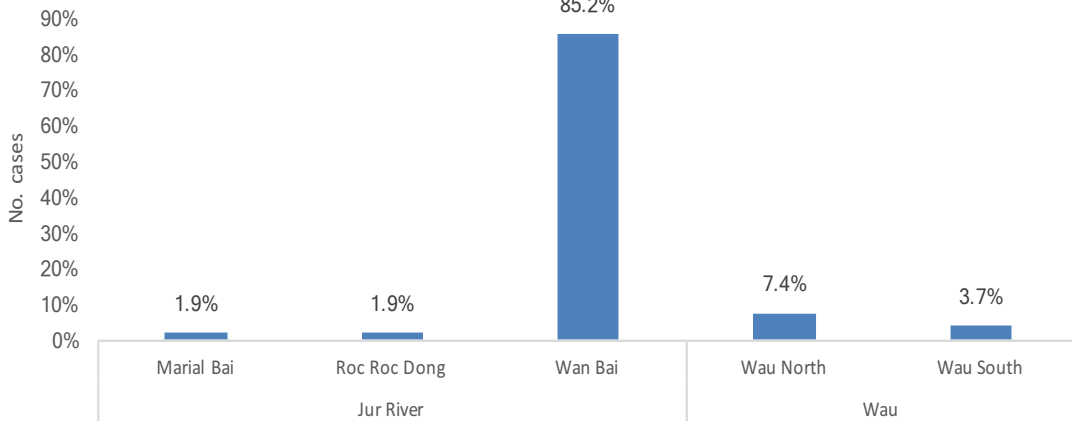


## Rubella in Jur River and Wau counties

Rubella cases Jur River, week 4 to 10, 2018



Rubella cases by payam in Jur River and Wau Counties, weeks 4-10, 2018

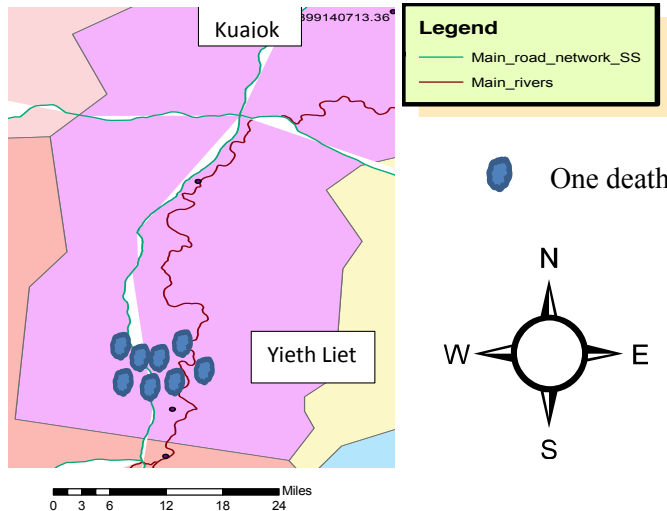
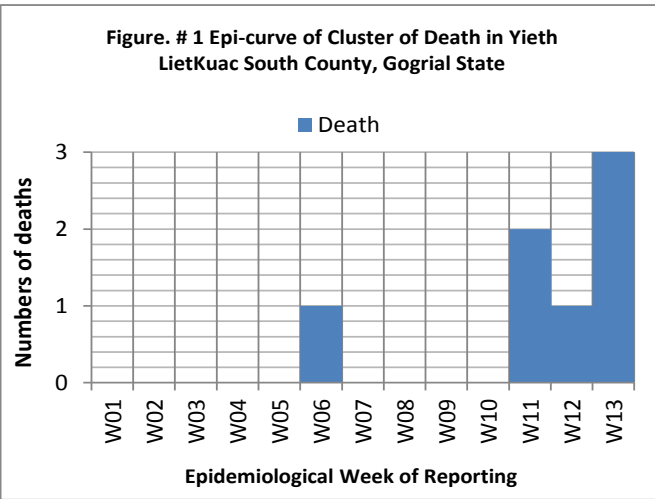


Age	Female	Male	Total cases	% Cases	Cum cases%
<1yr	1	4	5	9.3%	9.3%
1-4yrs	10	21	31	57.4%	66.7%
5-14yrs	11	7	18	33.3%	100.0%
<b>Total cases</b>	<b>22</b>	<b>32</b>	<b>54</b>	<b>100%</b>	

- Two new suspect Rubella cases reported in week 16.
- At least 65 rubella cases have been reported from Jur River (59 cases) and Wau (6 cases) with no deaths
- Cases have been reported from week 4 of 2018
- Most cases were not vaccinated
- Most cases (57.4%) are aged 1 - 4 years
- Most cases (85.2%) are from Wan Bai payam in Jur River county
- Females constitute 41% of the cases reported
- No cases reported in females of childbearing age.
- The current response entails case identification, line listing, supportive care for suspect cases; and community mobilization for enhanced routine immunization.
- Health authorities (at health facility and CHD) and partners are advised to continue case-based surveillance with sample collection and line listing for suspect cases; provide supportive care to suspect cases; and enhance routine immunization for infants - at static clinics & outreach posts.

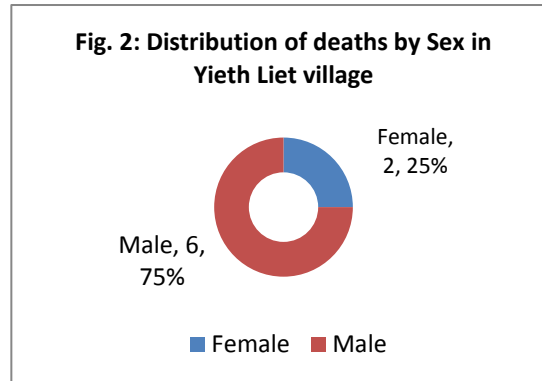
## Suspect meningitis, Yieth Liet, Kuach South, Gogrial West county

Figure. # 1 Epi-curve of Cluster of Death in Yieth Liet Kuach South County, Gogrial State



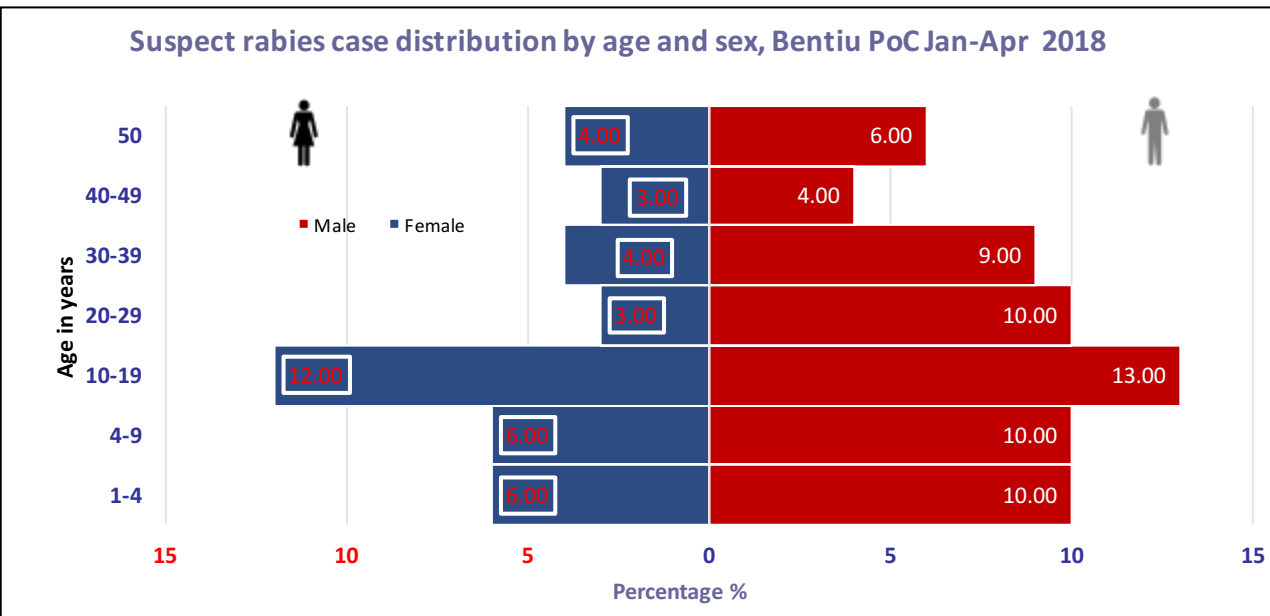
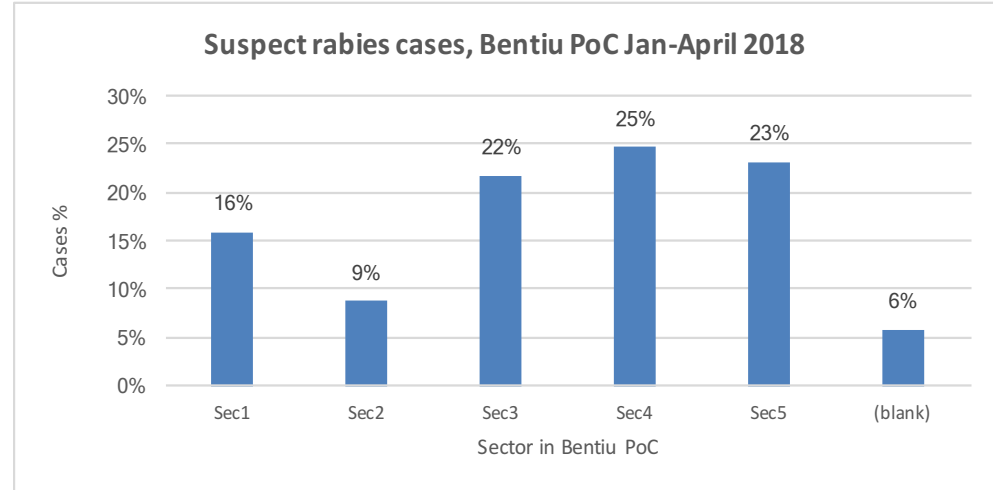
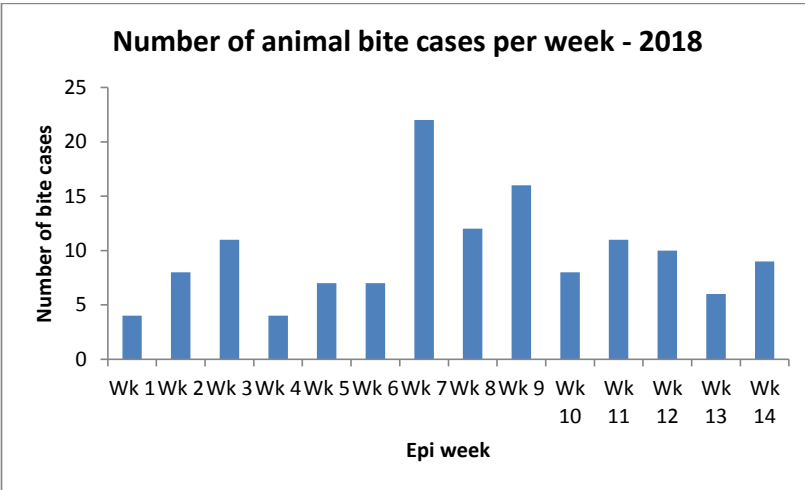
Age group	Female	Male
< 1 years	0	0
1 - 4 years	1	0
5 - 9 years	1	0
10 - 14 years	0	1
15 - 19 years	0	1
20 + years	0	4
Total	2	6

Fig. 2: Distribution of deaths by Sex in Yieth Liet village



- There are no new suspect cases reported in relation to this event.
- WHO working with sMoH and partners to enhance community surveillance in the area and to provide essential medicines to Magai PHCU.
- SSRC home health promoters engaged to conduct active case surveillance in the area and to refer any new suspect cases to Magai PHCU.
- On 28th Mar 2018; the Director Gogrial West reported community deaths in Kuach South that were verified by the RRT on 29 Mar 2018.
- The clinical and lab tests on suspect cases were consistent with malaria and the cases responded to treatment with ACTs.
- All deaths were not taken to the health facility
- All the deaths were 10 years and above and 50% of the deaths were 20 years and above.
- Given the dramatic nature of symptoms, the other differential diagnosis to keep an eye on is epidemic meningitis.
- Surveillance for suspect meningitis cases has been enhanced.

## Animal bites - suspect rabies, Bentiu PoC



- During week 15, a total of 9 animal bite cases were reported in Bentiu PoC
- A cumulative of 139 animal bite cases including 2 deaths have been reported since 6 Dec 2017.
- Sectors 3,4, &5 have reported most cases and children <19yrs constitute more than 50% of the cases with males affected more than females
- Post exposure vaccination ongoing with support from MSF-H and partners.
- WHO/ health cluster have secured antirabies vaccine to support the response.
- Community messaging underway via CCCM/ internews/ UNMISS broadcast
- Discussions underway on the feasibility of curling stray dogs

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

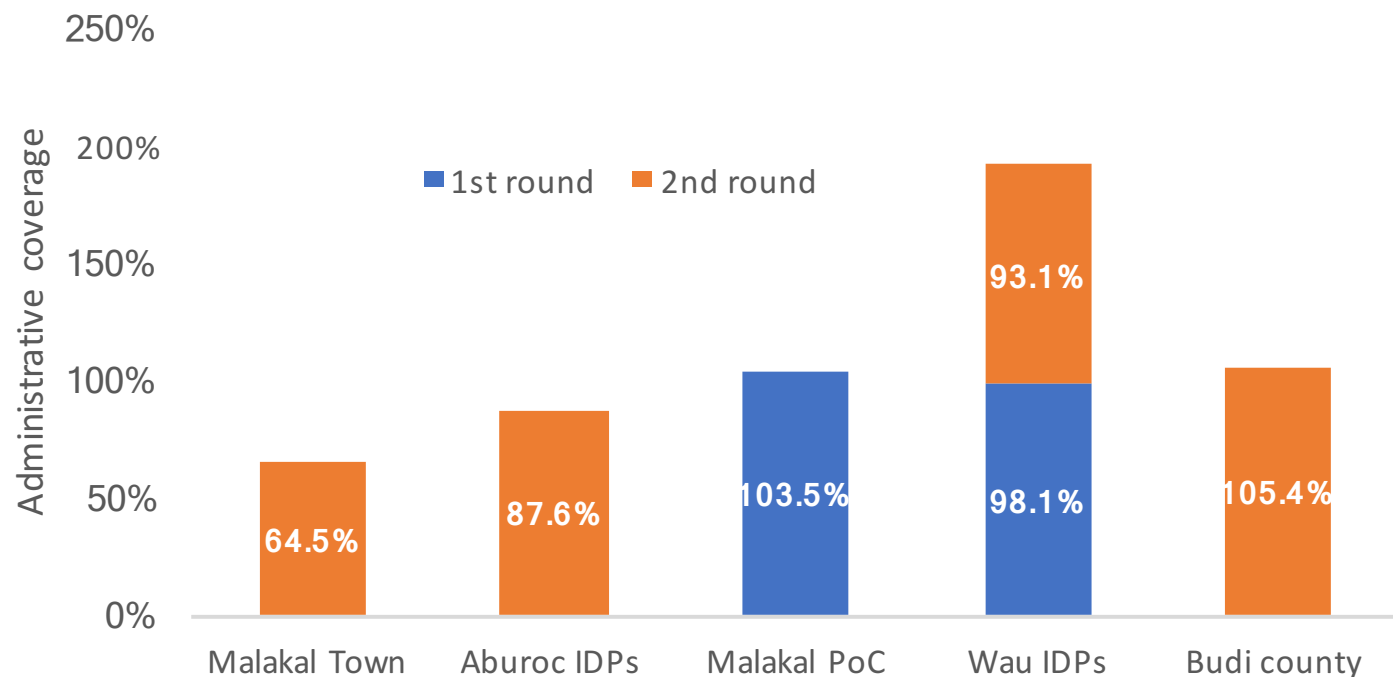
Site	Total population	Target population	1st round doses	2nd round doses	Total doses	1st Round dates	2nd Round dates	Partners
Aburoc	11,640	11,291		11,550	11,550	20-22May2017	Jan 17- 20 2018	MoH, WHO, Unicef, MSF-E
Malakal Town	20,000	19,200		22,200	22,200	18-24Mar2017	Jan 5 - 9 2018	MoH, WHO, Unicef, MSF-E
Juba	214,887			206,292	206,292	9Sep - 24Nov 2017	Apr 24-28 2018	MoH, WHO, Unicef, MSF-France & Spain
Malakal PoC	24,424	23,691	34,291	34,291	68,582	19-23March 2018	Apr 17-21 2018	MoH, WHO, Unicef, IOM
Wau IDPs	40,499	39,284	56,860	56,860	113,720	19-23March 2018	Apr 17-21 2018	MoH, WHO, Unicef, IOM
Torit	160,000	155,200	155,200	155,200	310,400	TBD	TBD	MoH, WHO, Unicef, SCI, CARE
Yirol East & West	268,446	260,393	260,392	260,392	520,784	TBD	TBD	MoH, WHO, Unicef, LiveWell
Lankien	65,000	63,050	63,050	63,050	126,100	TBD	TBD	MoH, WHO, Unicef, MSF-H
Panyijiar	76,000	73,720	75,000	75,000	150,000	TBD	TBD	MoH, WHO, Unicef, IRC
<b>Totals</b>	<b>880,896</b>	<b>854,469</b>	<b>644,793</b>	<b>884,835</b>	<b>1,529,628</b>			

- Cholera prevention and response activities are already underway to mitigate the risk of cholera outbreaks in cholera transmission hotspots
- These efforts are critical now as the rain season is starting for the states in the Southern parts of the country.
- The use of oral cholera vaccines alongside WASH and other interventions is critical to these efforts
- Preventive vaccine campaigns (with oral cholera vaccines) for the first half of 2018 are listed in the table
- A additional 113,800 doses of oral cholera vaccines requested from GTFCC arrived in the country on 18/04/2018.
- GTFCC secured support from GAVI for a consultant that is in the country to finalize the cholera prevention and response plan for South Sudan

- **Oral cholera vaccine campaigns completed in 2018 include:**
  - Malakal Town (2<sup>nd</sup> round)
  - Aburoc IDPs (2<sup>nd</sup> round)
  - Malakal PoC (1<sup>st</sup> & 2<sup>nd</sup> round)
  - Wau PoC+IDPs (1<sup>st</sup> & 2<sup>nd</sup> round)
- **Upcoming campaigns for 2018**
  - Juba Town - (2<sup>nd</sup> round) - started 25th Apr 18 & is ongoing
  - Torit (1<sup>st</sup> round)
  - Yirol East and Yirol West (1<sup>st</sup> round)
  - Lankien, Akobo, Pieri & Karam (1<sup>st</sup> round)

## Oral cholera vaccine campaigns administrative coverage - 2018

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



2018 OCV campaigns		First round		Second round		
	Site	Target	Coverage	Coverage %	Coverage	Coverage %
1	Malakal Town	19,200			12,393	64.5%
2	Aburoc IDPs	9,683			8,484	87.6%
3	Malakal PoC	23,447	24,277	103.5%		
4	Wau IDPs	37,048	36337	98.1%	34474	93.1%
5	Budi county	89,377			94,128	105.3%
	<b>Total</b>	<b>178,755</b>	<b>60,614</b>	<b>33.9%</b>	<b>149,479</b>	<b>83.6%</b>

- **The following OCV campaigns have been completed in 2018:**
  - Malakal Town (2<sup>nd</sup> round)
  - Aburoc IDPs (2<sup>nd</sup> round)
  - Budi county (2<sup>nd</sup> round)
  - Malakal PoC (1<sup>st</sup> & 2<sup>nd</sup> round) - 2<sup>nd</sup> round data pending
  - Wau PoC+IDPs (1<sup>st</sup> & 2<sup>nd</sup> round)

Response | Suspect outbreaks being investigated

Date of report	Disease suspected	Number cases (deaths)	County	Payam	Status of investigations
13Mar18	Meningitis	16 (00)	Duk	Ayueldit	On 12 Mar 2018; a 3 year old male from Buongjok area, Ayueldit payam was admitted to Padiet PHCC. The health partner SMC requested for guidance on managing the case and the WHO Bor team shared the meningitis case management guidelines. Surveillance has been stepped up but no additional cases have been identified.
17Feb18	Meningitis	173 (31)	Torit	Iyire and Imurok	After rumors of strange illness in Iyire, several RRT verification and response missions have been undertaken since 20Feb18. Torit county surpassed in the alert and epidemic thresholds in week 7 and week 9 respectively. Conclusive laboratory confirmation underway. Overall coordination, case surveillance, line listing, and investigation are ongoing. Transmission declined after week 9 with the weekly attack rate falling below the alert and epidemic threshold in week 11, 12, 13, 14, & 15.
10Mar18	Meningitis	3 (0)	Cueibet		Since 10 Mar 2018, at least three suspect meningitis cases have been reported by CUAMM in Cueibet hospital. However, no samples were collected.
02Feb2018	Meningitis	13 (0)	Aweil South (5cases) Aweil East (4 cases) Aweil West (2 cases) Aweil Town (2 cases)	Aweil hospital	Since 2Feb2018, at least 13 suspect cases have been admitted in Aweil hospital. Of the 5 susp. Cases from Aweil South, one tested positive for Gram positive diplococci; one case from Aweil East was positive for <i>Streptococcus pneumoniae</i> by rapid pastorex; & one case from Aweil East was also positive for <i>Streptococcus pneumoniae</i> by rapid pastorex. All admitted to Aweil hospital with average age of 5.9 years (range 6months to 12 years); 7 (58%) female.
06Jan18	Meningitis	02 (00)	Abyei and Twic	Rumkor and Pannyok	The two suspect cases were treated in Agok hospital on 4 Jan and 29 Jan respectively with initial diagnoses of severe malaria but final diagnosis was bacterial meningitis. Rapid pastorex testing sample from the second suspect case from Twic county was positive for <i>Streptococcus pneumoniae</i> .
14Feb18	meningitis	15(03)	Wau (Jur River)	Udici, Roc Roc Dong	Since 14 Feb; 15 suspect meningitis cases have been reported from Wau county. A suspect case involving a 45 year old male from Jur River was admitted in Comboni hospital on 28 Feb 18. PCR testing was positive for <i>Streptococcus pneumoniae</i> . Two suspect cases reported in wk 15 & 16 - one tested positive for NmA by rapid pastorex at NPHL on 27/4/18.

Date of report	Disease suspected	Number cases (deaths)	County	Payam	Status of investigations
16Mar2018	Measles	08(01)	Mayom	Riak & Lol Maroal	Suspect measles cases reported from Riak payam in Nyebola village since 9 Mar 2018. Four samples were obtained by MSF-CH for testing. Three of the four samples tested were positive for rubella IgM.
16Feb18	Health effects of petroleum drilling	Unspecified	Pariang	Pariang	A newswire indicates the Mayor of Pariang in Ruweng State has appealed to the Ministry of Health to establish some health conditions affecting people in the oil producing area. <a href="http://bit.ly/2EIndTP">bit.ly/2EIndTP</a> #SouthSudan. Initial verification details to follow
31Mar2018	Suspect meningitis /malaria	12(08)	Gogrial West	Kuach South	On 28 <sup>th</sup> Mar 2018; the Director Gogrial West reported community deaths in Kuach South that were verified by the RRT on 29 Mar 2018. The clinical and lab tests on suspect cases were consistent with malaria and the cases responded to treatment with ACTs. All the deaths were 10 years and above and 50% of the deaths were 20 years and above. Given the dramatic nature of symptoms, the other differential diagnosis to keep an eye on is epidemic meningitis. No new cases reported in weeks 14 and 15.
12/Apr/18	pertussis	18(00)	Fangak	Bei	Suspect pertussis cases have been reported by Mandeang PHCU and Kuephone PHCU in Fangak county. At least 11 suspect cases have been reported from Bei payam and another 7 suspect cases from Jiath. The response instituted by the partner CMA - entails treatment of cases and prophylaxis to close contacts and enhancing routine immunization for the infants.



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