

South Sudan

Integrated Disease Surveillance and Response (IDSR)

Epidemiological Update W14 2018 (Apr 2- Apr 8)



- Completeness for IDSR reporting at county level was 55% . Completeness for EWARS reporting from IDP sites was 86% .

- A total of 10 alerts were reported, of which 30% have been verified. 0 alerts were risk assessed and 0 required a response.

- Rift Valley Fever outbreak - Yirol East with 43 suspect human cases including 6 confirmed; 3 probable; 26 non-cases; and 8 pending classification. Nine confirmed animal cases (cattle).

- A cluster of 8 suspect meningitis deaths reported from Yieth-Lieth, Kuach South payam, Gogrial West county on 29 Mar 2018. Investigations identified malaria cases among survivors but the epidemiological details on the deaths were consistent with epidemic meningitis. No new cases in week 14.

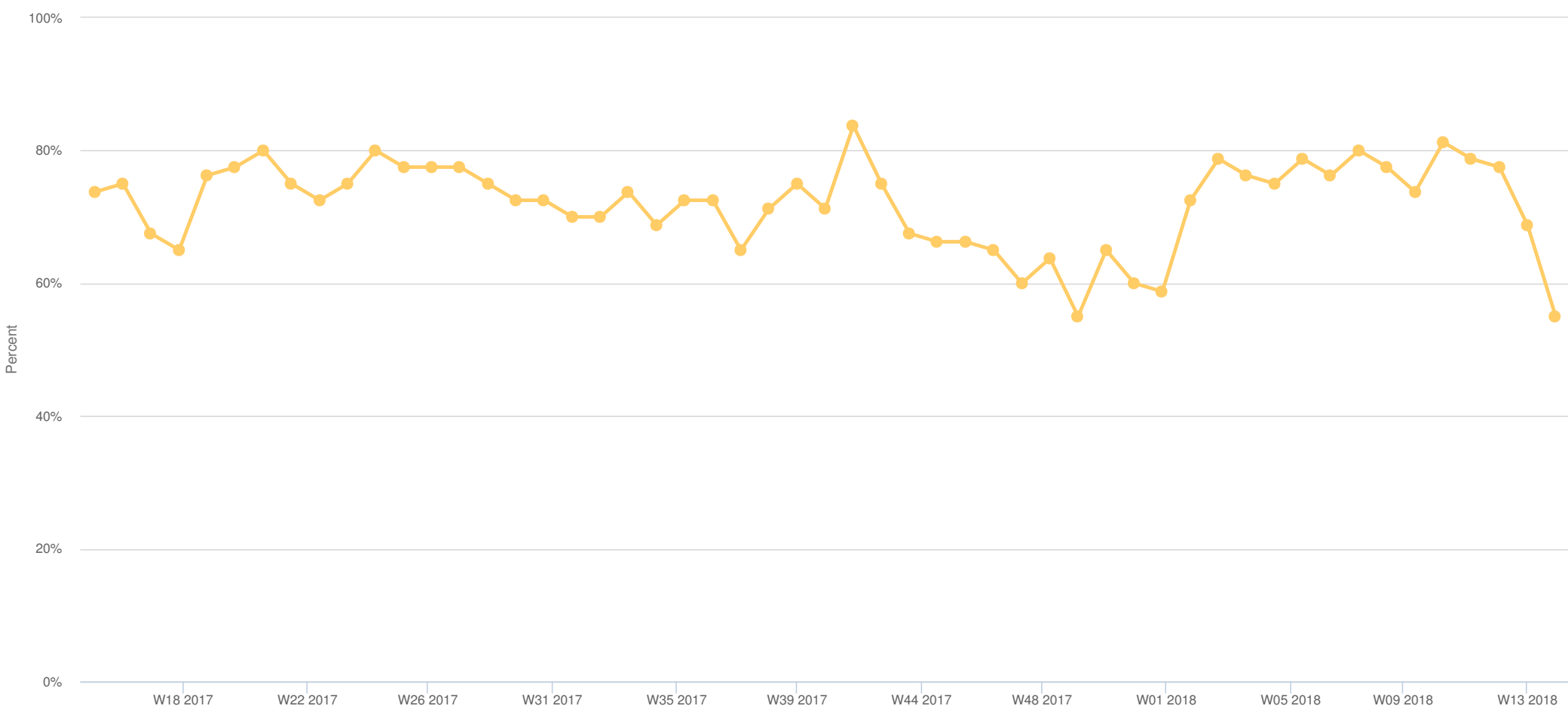
- In Torit, suspect meningitis continued to decline with no new cases in week 15 and the weekly attack rate remaining below the alert threshold in weeks 11 , 12, 13, 14, & 15. At least 173 suspect cases (31 deaths) reported. PCR sample testing revealed no definitive etiological pathogen.

Table 1 | IDSR surveillance performance indicators by county (W14 2018)

Hub	Reporting		Performance (W14 2018)		Performance (Cumulative 2018)	
	# counties	# reports received	Completeness	Timeliness	Completeness	Timeliness
Aweil	5	2	40%	40%	83%	83%
Bentiu	9	0	0%	0%	70%	52%
Bor	11	6	55%	55%	49%	42%
Juba	6	3	50%	50%	70%	58%
Kwajok	7	7	100%	100%	93%	88%
Malakal	13	1	8%	8%	27%	11%
Rumbek	8	8	100%	100%	93%	92%
Torit	8	4	50%	50%	83%	63%
Wau	3	3	100%	100%	87%	73%
Yambio	10	10	100%	100%	92%	92%
South Sudan	80	44	55%	55%	70%	55%

- Completeness for IDSR reporting at county level was 55% in week 14 and cumulatively at 70% for 2018
- Timeliness for IDSR reporting at county level was 55% in week 14 and cumulatively at 55% for 2018

Figure 1 | Trend in IDSR completeness over time¹



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

Table 4 | EWARS surveillance performance indicators by partner (W14 2018)

Partner	Performance		Reporting (W14 2018)		Reporting (Cumulative 2018)	
	# sites	# reports received	Completeness	Timeliness	Completeness	Timeliness
CMD	2	2	100%	100%	93%	93%
GOAL	2	2	100%	100%	93%	73%
HLSS	1	1	100%	100%	93%	93%
IMA	4	4	100%	100%	70%	63%
IMC	6	4	67%	67%	61%	60%
IOM	11	11	100%	100%	78%	78%
IRC	1	1	100%	100%	93%	93%
Medair	2	2	100%	100%	93%	87%
MSF-E	2	2	100%	100%	87%	80%
MSF-H	2	2	100%	100%	60%	53%
SMC	5	4	80%	80%	64%	63%
UNIDO	1	1	100%	100%	93%	93%
UNKEA	2	2	100%	100%	73%	73%
World Relief	1	1	100%	100%	93%	67%
Total	43	37	86%	86%	73%	69%

Timeliness and completeness for EWARN/IDP reporting stands at 86% for week 14 while cumulatively, completeness and timeliness are 73% and 69% respectively for 2018

Table 7 | Alert performance indicators by Hub

Hub	W14		Cumulative (2018)	
	# alerts	% verif.	# alerts	% verif.
Aweil	0	0%	21	71%
Bentiu	0	0%	26	46%
Bor	0	0%	18	33%
Juba	2	0%	27	59%
Kwajok	2	100%	21	100%
Malakal	2	0%	23	43%
Rumbek	2	50%	20	45%
Torit	0	0%	21	62%
Wau	0	0%	10	40%
Yambio	2	0%	37	49%
South Sudan	10	30%	224	55%

Table 8 Summary of key alert indicators

W14	Cumulative (2018)	
10	224	Total alerts raised
30%	55%	% verified
0%	0%	% auto-discarded
0%	2%	% risk assessed
0%	1%	% requiring a response

A total of 10 alerts were reported in week 14 with 30% of the alerts in week 14 being verified; 0% were risk assessed and 0% required a response.

Table 9 | Alert performance indicators by event

Event	W14		Cumulative (2018)	
	# alerts	% verif.	# alerts	% verif.
Indicator-based surveillance				
Malaria	1	0%	32	53%
AWD	2	0%	128	51%
Bloody Diarr.	4	25%	62	40%
Measles	2	50%	47	68%
Meningitis	0	0%	0	0%
Cholera	0	0%	5	100%
Yellow Fever	0	0%	3	67%
Guinea Worm	0	0%	8	75%
AFP	1	100%	41	88%
VHF	0	0%	1	100%
Neo. tetanus	0	0%	2	50%
Event-based surveillance				
EBS total	0	0%	9	67%

Table 10 | Event risk assessment

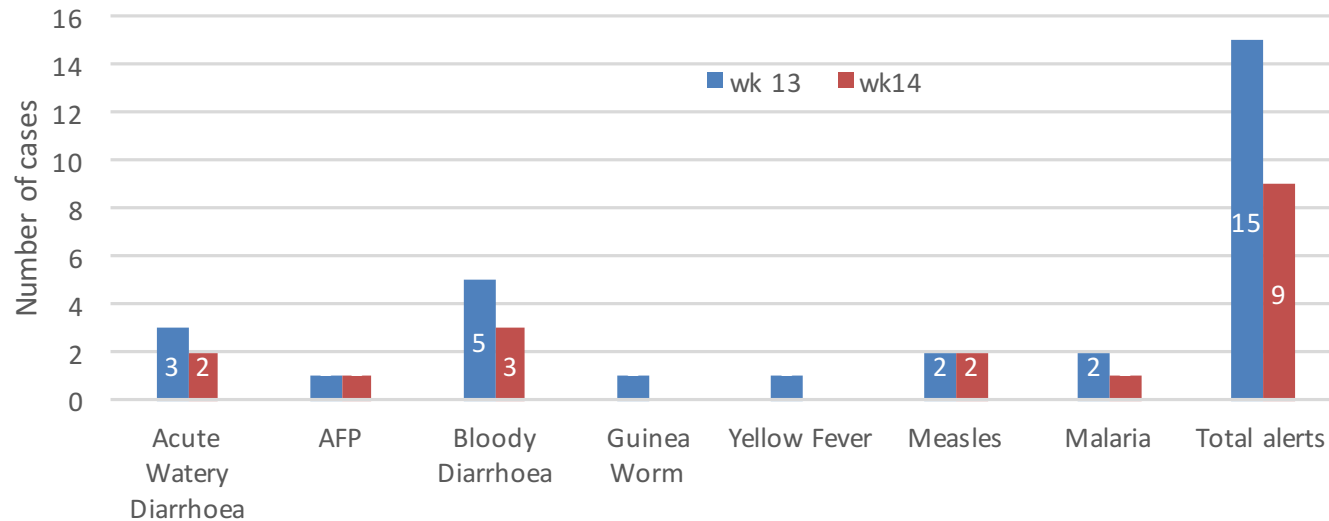
W14	Cumulative (2018)	
0	4	Low risk
1	1	Medium risk
0	0	High risk
0	0	Very high risk

- During the week, bloody diarrhoea was the most frequent infectious hazard reported.

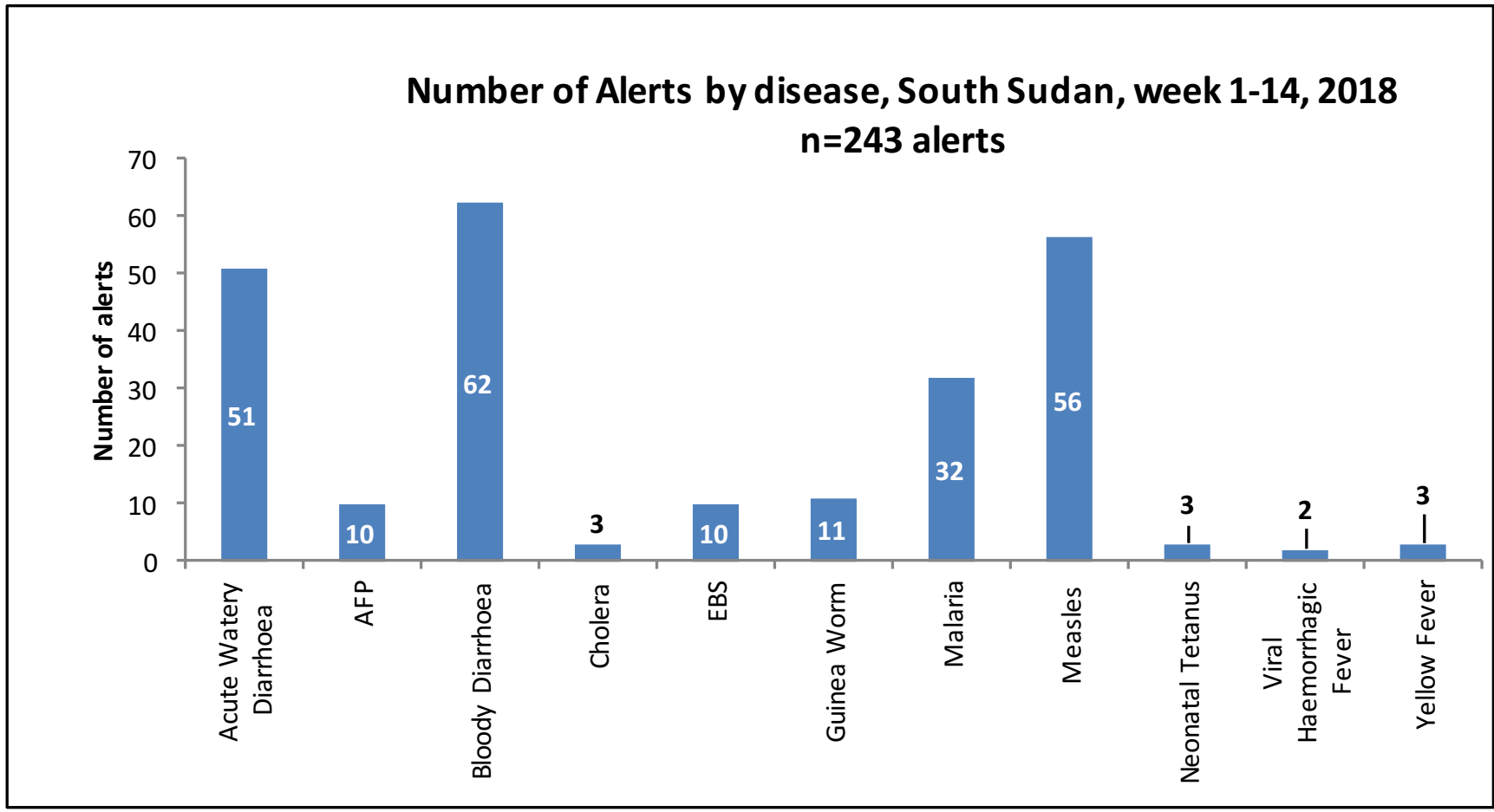
Alert by disease and county in W14 2018

County	Acute Watery Diarrhoea	AFP	Bloody Diarrhoea	Measles	Malaria	Total Alerts
Awerial			1			1
Gogrial West		1		1		2
Ibba	1					1
Juba				1		1
Malakal			2			2
Yambio	1					1
Yirol West					1	1
Total Alerts	2	1	3	2	1	9

Alerts by hazard in week 13 and week 14, 2018

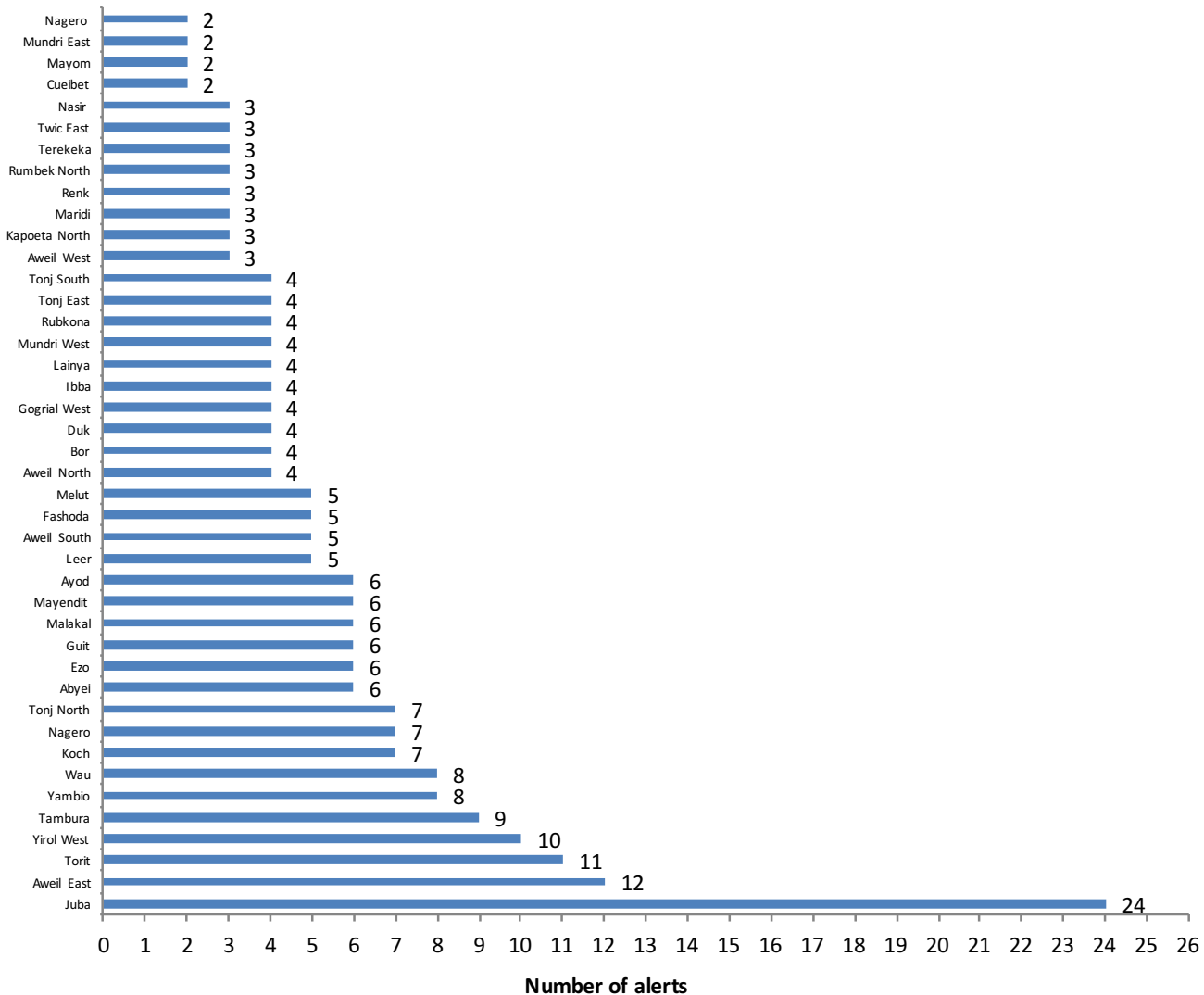


- During week 14, a total of 9 alerts were reported.
- Bloody was the most frequent alert reported in the week.
- The three bloody diarrhoea alerts were reported from Awerial and Malakal
- A bloody diarrhoea protocol and standard operating procedures have been developed and shared with states and partners to facilitate investigation of suspect cases



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

Cumulative alerts by county, week 1-14, 2018

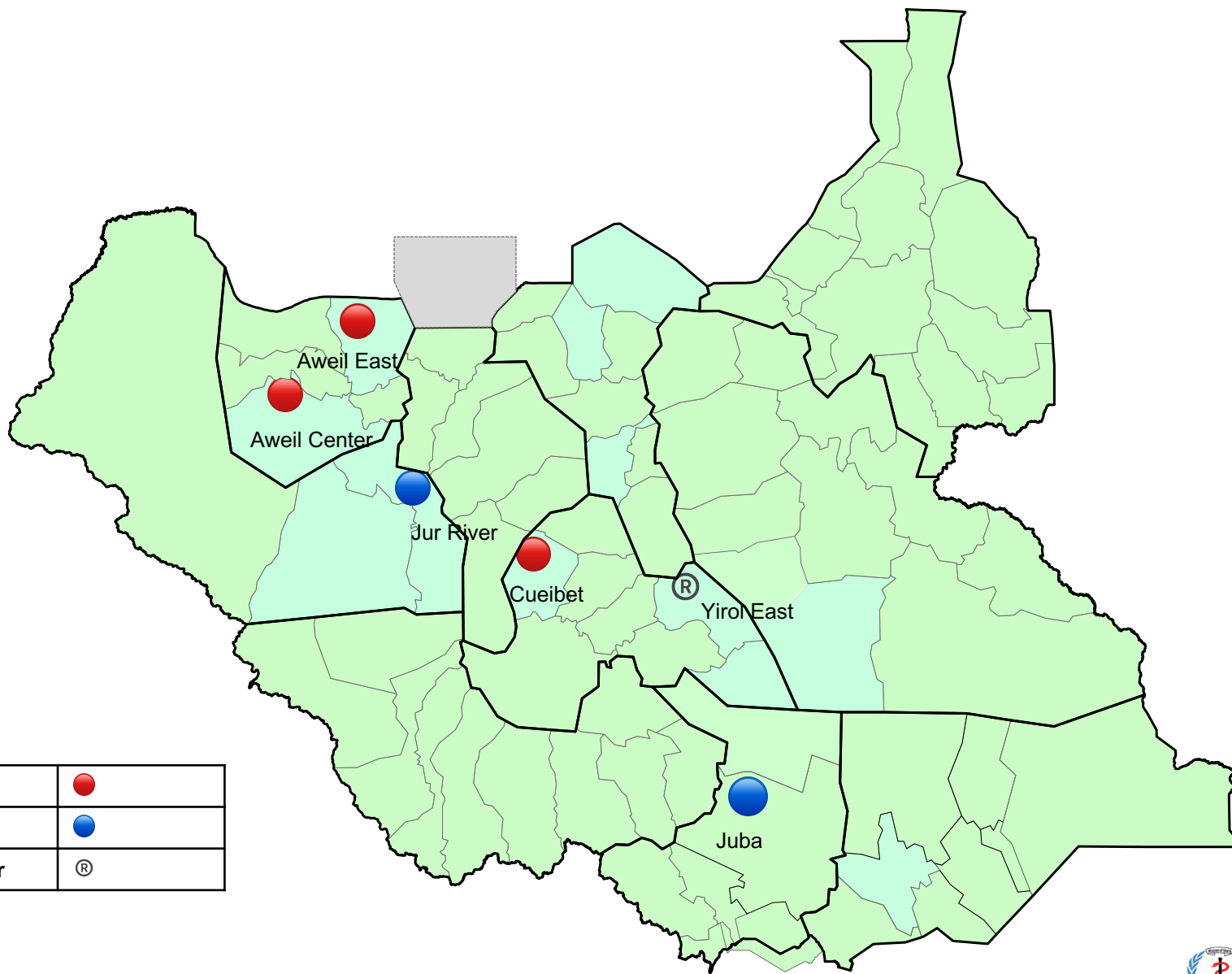


- The Figures show the cumulative alerts triggered in 2018 by location
- Most alerts have been reported from Juba, Aweil East, and Torit.

County	OUTCOME	RISK_ASSESS	VERIFICATION	Total Alerts
Acute Watery Diarrhoea			51	51
AFP		1	9	10
Bloody Diarrhoea			62	62
EBS		2	8	10
Guinea Worm	2		9	11
Neonatal Tetanus	2		1	3
Viral Haemorrhagic Fever			2	2
Yellow Fever			3	3
Measles	4	6	46	56
Cholera			3	3
Malaria			32	32
Total Alerts	8	9	226	243

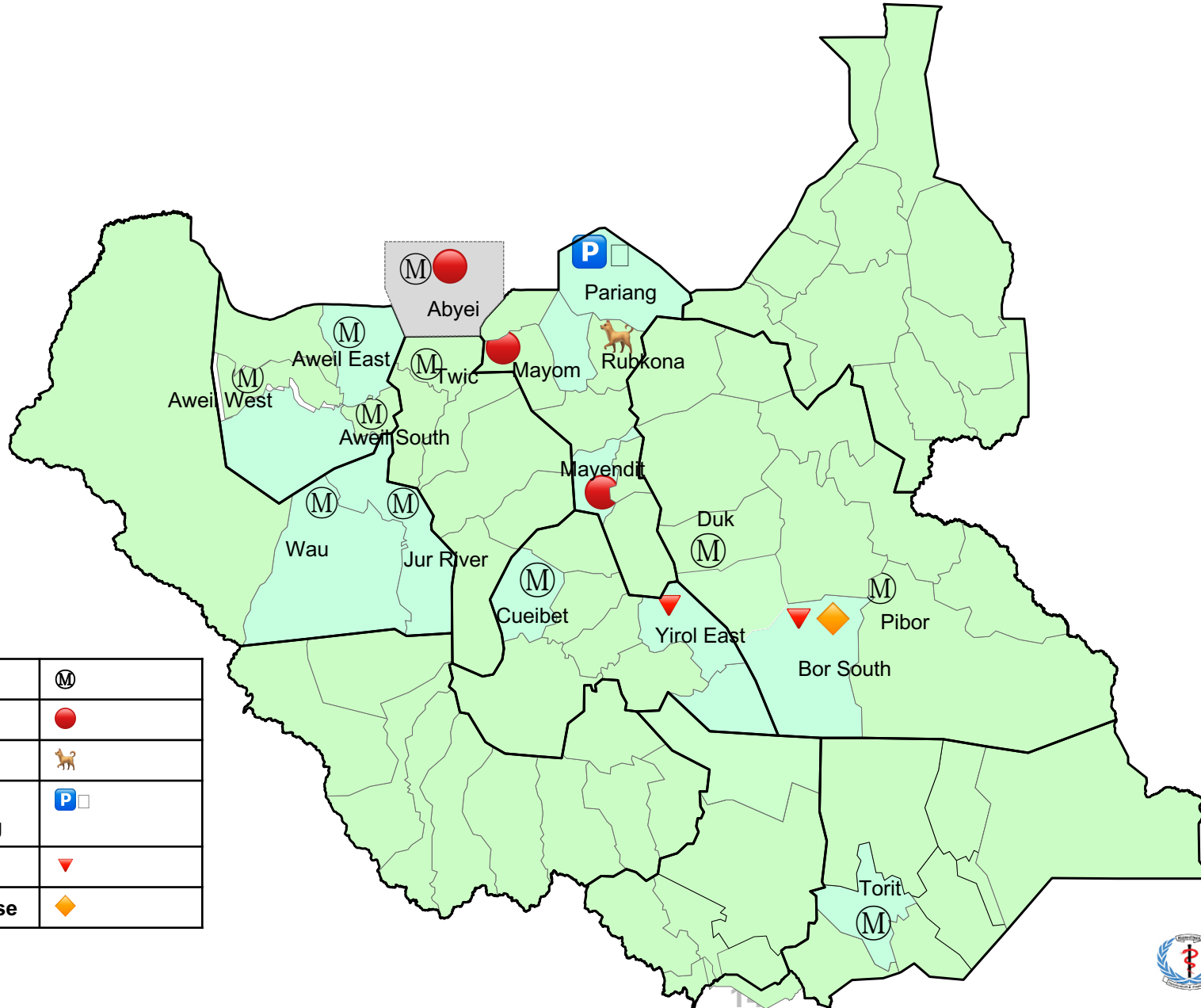
- The Figures show the cumulative alerts by risk assessment state in 2018
- Of the 243 alerts reported in 2018; a total of 226 alerts are at verification stage; and the rest are at risk assessment stage (9 alerts); 8 at outcome stage.

Confirmed Outbreaks South Sudan – 14 April 2018



Measles	●
Rubella	●
Rift Valley Fever	®

Suspect Outbreaks South Sudan – 14 April 2018



Meningitis	(M)
Measles	●
Rabies	🐕
Health effects of petroleum drilling	P
Pertussis	▼
Foodborne disease	◆

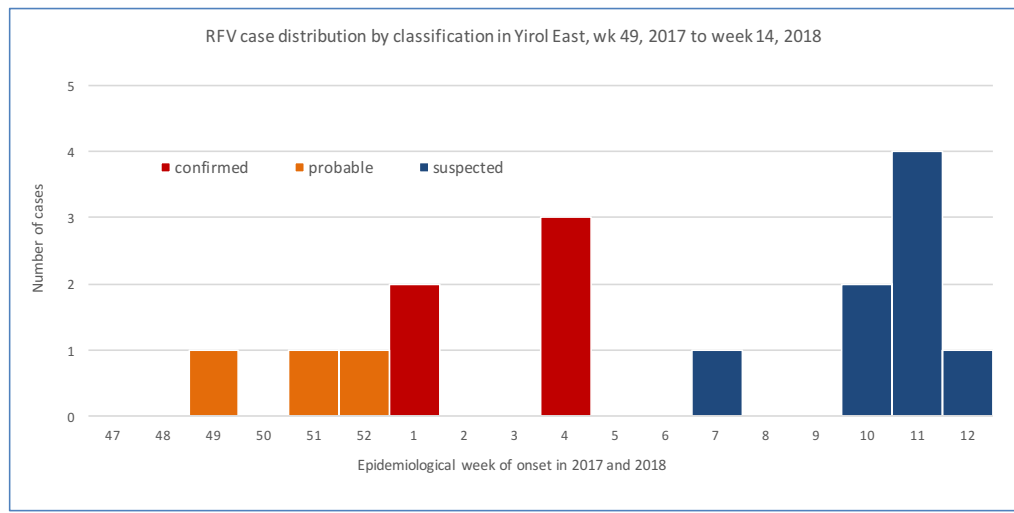
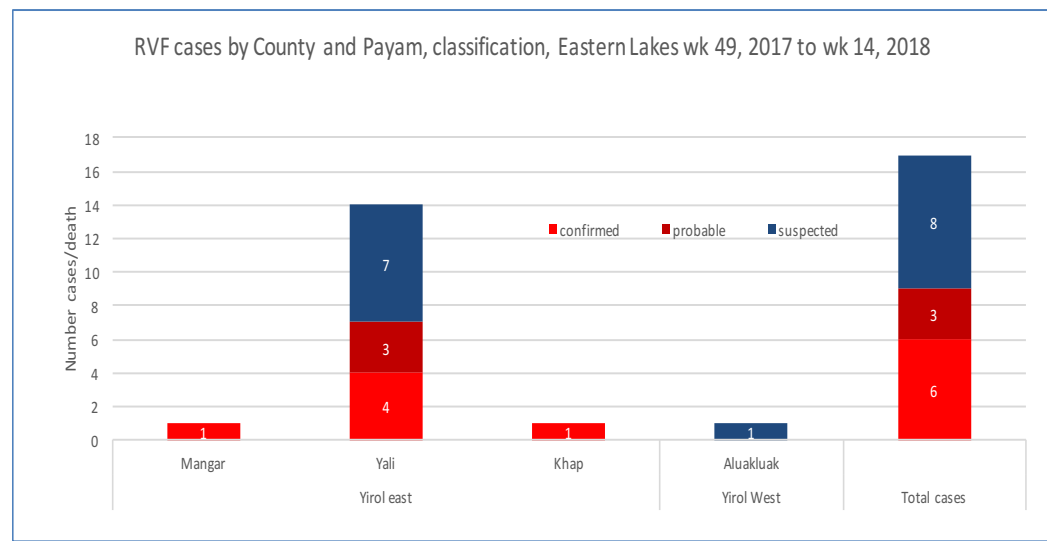
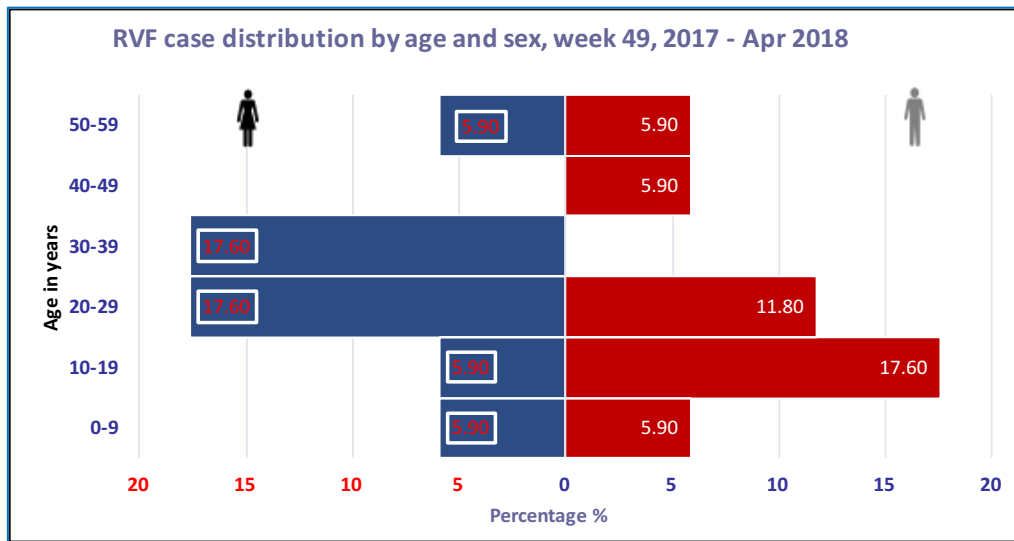


Aetiologic agent	Location (county)	Date first reported	New cases since last bulletin	Cumulative cases to date (attack rate %)	Interventions			
					Case management	Vaccination	Health promotion	WASH
New epidemics: New epidemics								
Ongoing epidemics:								
Measles	Aweil Center	6/Jan/2018	8	22 (0.021)	Yes	Yes	Yes	N/A
RVF	Yirol East	28/12/2017	1	40 (0.037)	Yes	N/A	Yes	N/A
Measles	Cueibet	14/10/2017	0	20 (0.012)	Yes	Yes	Yes	N/A
Measles	Aweil East	05/02/2018	10	31 (0.006)	Yes	No	Yes	N/A
Rubella	Jur River	14/02/2018	20	54 (0.028)	Yes	No	Yes	N/A
Rubella	Juba	26/02/2018	22	22 (0.0037)	Yes	No	Yes	N/A

Epidemics - Update

- A new Rubella outbreak confirmed in Juba in week 12 after **16 rubella IgM positive cases** and **2 measles IgM positive cases** were confirmed during March 2018. The current response entails case identification, line listing, supportive care for suspect cases; and community mobilization for enhanced routine immunization
- Measles was confirmed in Aweil East after **four samples tested measles IgM positive** on 24 Feb 2018. A total of 21 measles cases have been line listed. IOM will support IRC the local implementing partner to conduct the reactive measles campaign. MSF to support cold chain. Target population was 81,394 children aged 6months to 59 months. The campaign implemented during March 26, 2018 and 31 Mar 2018 with a coverage of 84,000 (103.2%).
- In Aweil Center; a reactive measles vaccination campaign targeting under fives has been completed. Campaign led by two – partners – MedAir and MSF-F. Preliminary data from the coverage survey indicates at least 85% of the target population was reached.

Ongoing epidemics - Epidemic description - RVF Eastern Lakes state



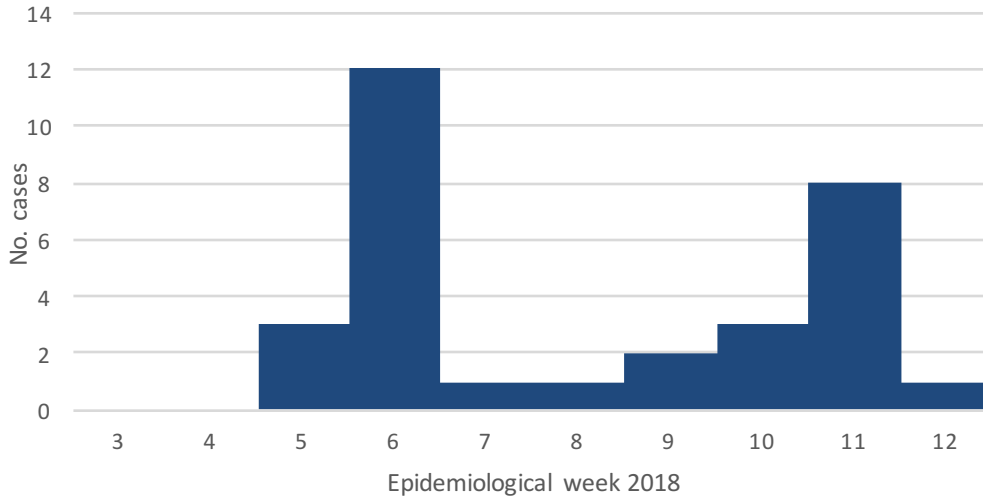
Sno.	Description	Number
1	Suspect cases	43
2	Total deaths	3
3	Confirmed cases	6
4	Probable cases	3
5	Cases pending testing	8
6	Non-cases	26
7	Cases on admission	0
8	Total human samples collected	37
9	Total animal samples collected	28
10	Positive animal cases	9

- No new suspect cases in week 14. In the period 7 December 2017 to 14 April 2018, a total of 43 suspect RVF cases were reported in Eastern Lakes.
- These were reclassified based on investigations and laboratory results, such that as of 14th April 2018, there were a total of six (6) RVF confirmed cases, three (3) probable, and eight (8) suspect RVF cases (laboratory results are pending).
- 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

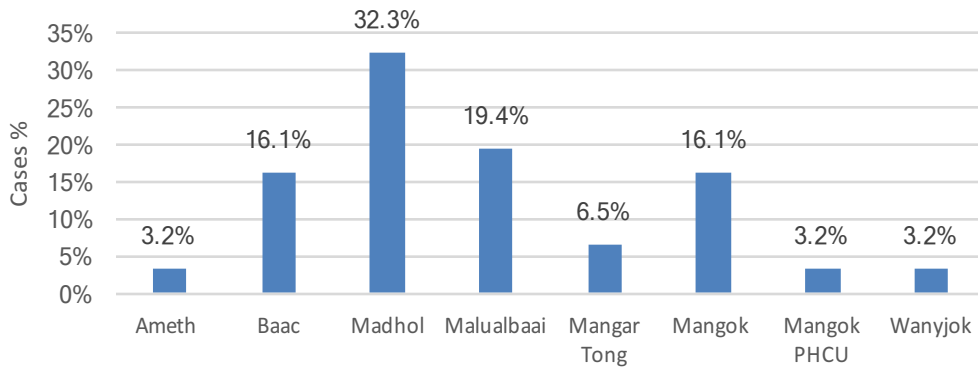


Measles in Aweil East county

Measles cases Aweil East County, week 3 to 12, 2018

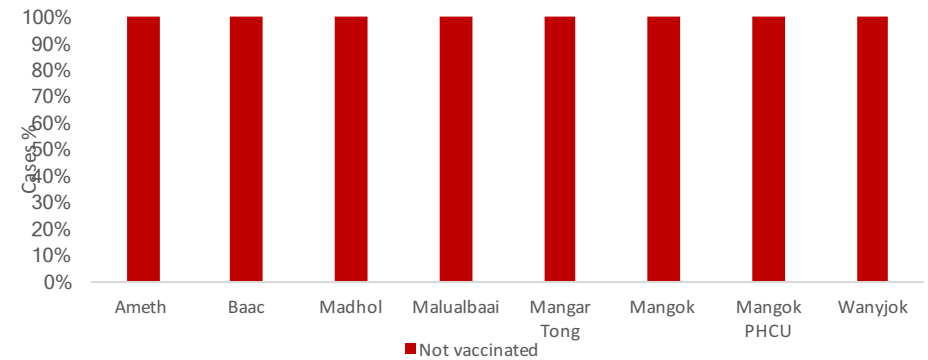


Meales cases by Payam in Aweil East, week 3-12, 2018



Age	Female	Male	Total cases	Cases %	Cum%
1-4yrs	2	11	13	42%	42%
5-14yrs	11	6	17	55%	97%
15+yrs		1	1	3%	100%
Total cases	13	18	31	100%	

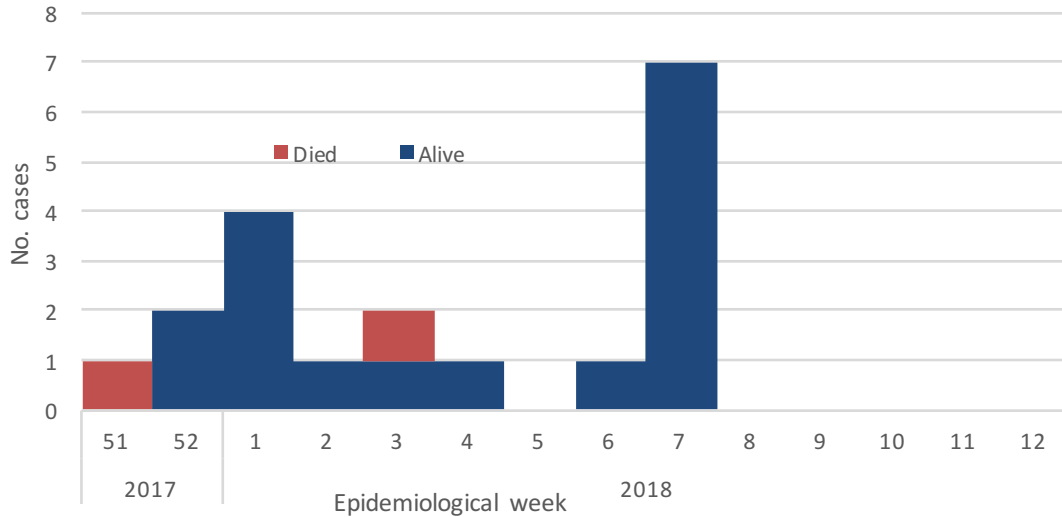
Meales cases by Payam & vaccination status in Aweil East, week 3-12, 2018



- Measles campaign conducted from 26-31, March 2018
- Most of the cases were reported from Madhol, Malualbaai, Baac, and Mangok
- None of the suspect cases were vaccinated
- 42% of the cases were 1-4 years of age
- Target population was 81,394 children aged 6months to 59 months.
- The campaign implemented during March 26, 2018 and 31 Mar 2018 with a coverage of 84,000 (103.2%).

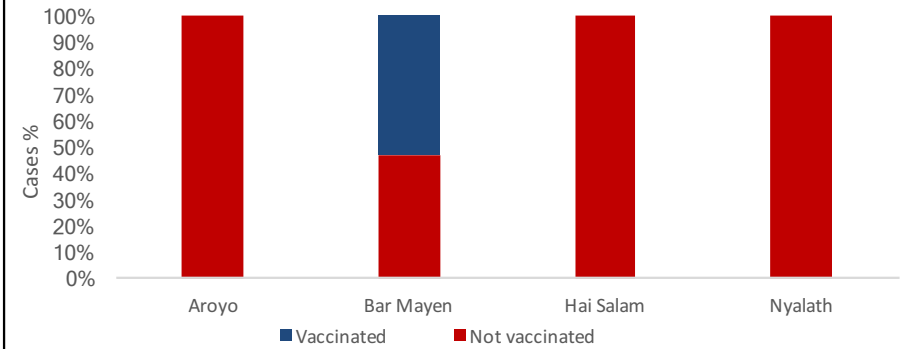
Measles in Aweil Center county

Measles cases Aweil Center County, week 3 to 12, 2018

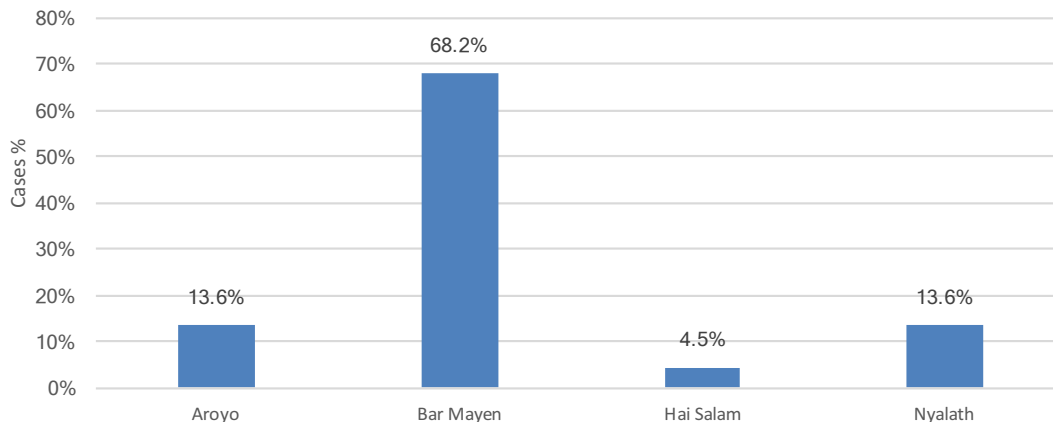


Age	Female	Male	Total cases	Cases %	Cum%
1-4yrs	5	5	10	45%	45%
5-14yrs	8	4	12	55%	100%
15+yrs	0	0	0	0%	100%
Total cases	13	9	22	100%	

Measles cases by payam & vaccination status Aweil Center, week 3-12, 2018



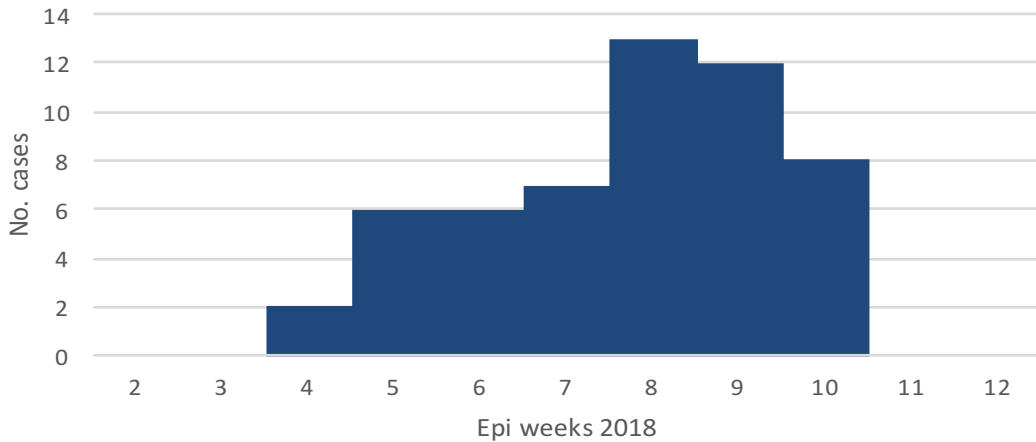
Measles cases by Payam in Aweil Center, week 3-12, 2018



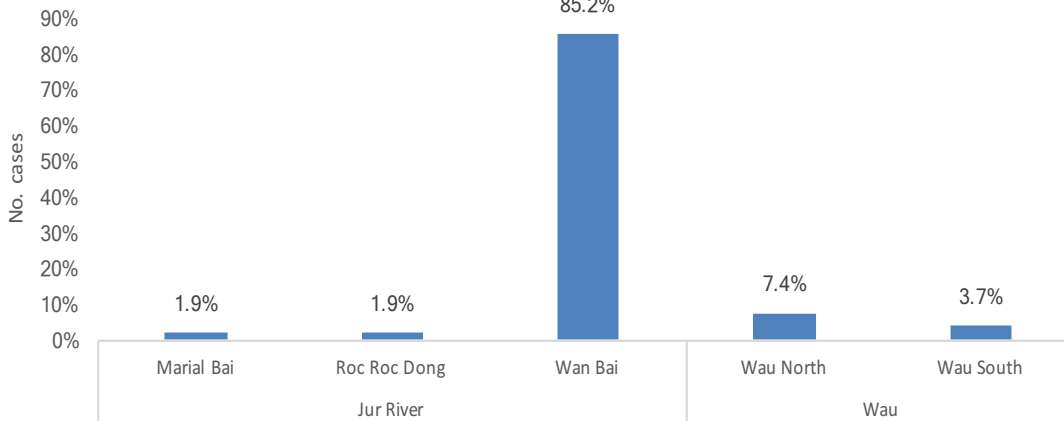
- Measles campaign completed and no new cases reported
- Most of the cases were reported from Bar Mayen
- Most cases were not vaccinated
- 45% of the cases were 1-4 years of age
- Preliminary coverage survey data showed at least 85% of the target population were reached during the campaign

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%
Total cases	22	32	54	100%	

- Two new suspect Rubella cases reported in week 14.
- At least 56 rubella cases have been reported from Jur River (50 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.

Suspect meningitis Torit county

Fig. 1 | Suspect meningitis cases Iyire and Imurok payams, Torit, week 1-12, 2018 (n=173)

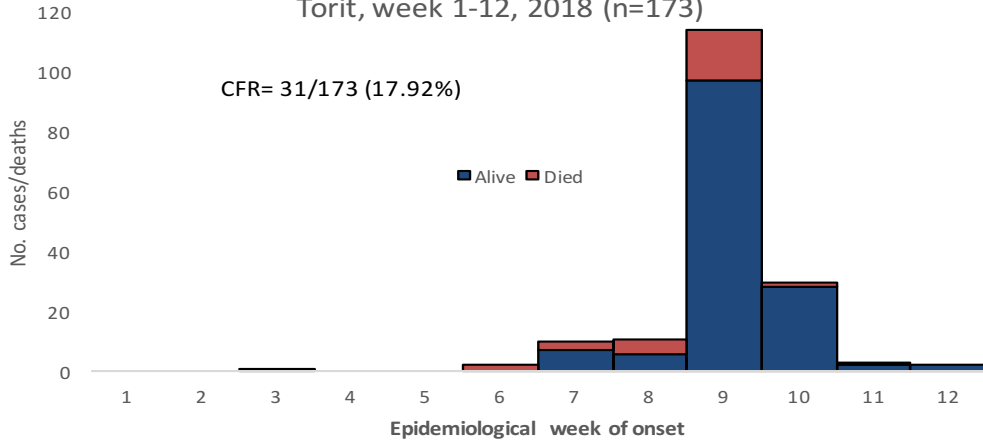


Fig. 3 | Suspect case and CFR distribution by age in Iyire and Imurok payam, Torit, week 1-12 2018 (n=173)

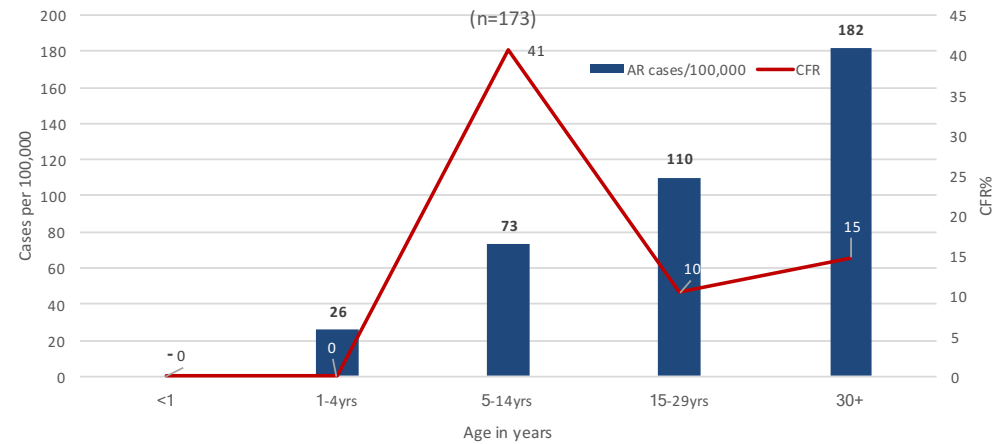


Fig.2 | Suspect meningitis cases Iyire and Imurok payams, Torit, week 1-12, 2018 (n=173)

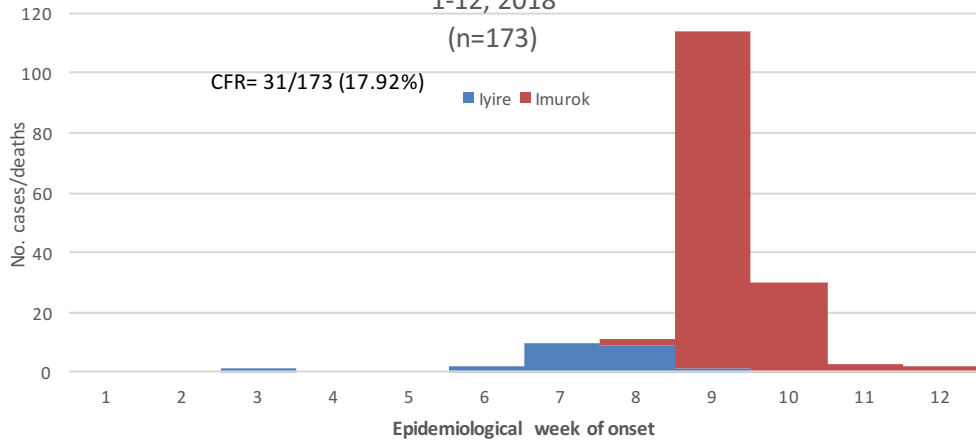
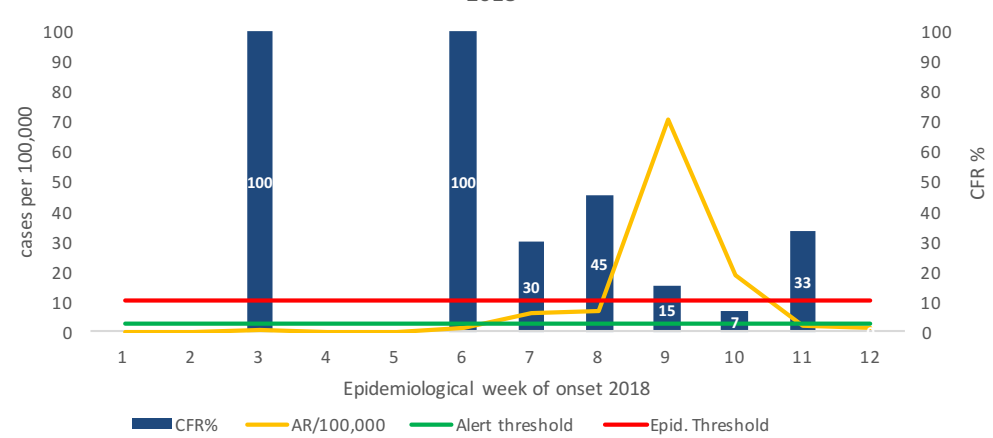


Fig. 4 | Suspect meningitis cases per 100,000 per week, Torit county, week 1-12 2018

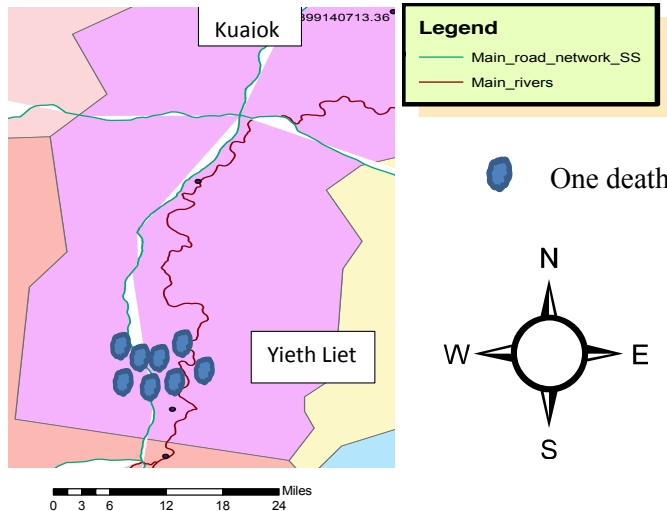
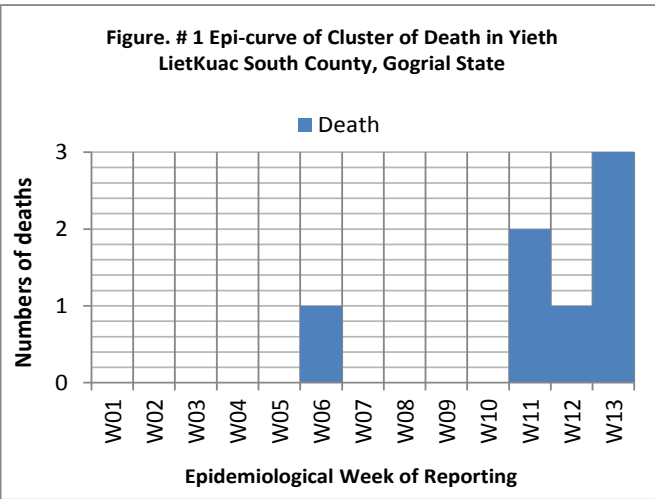


- No new suspect meningitis cases reported in week 15.
- Thus, the weekly attack rate for Torit county has remained below the alert threshold during weeks 11, 12, 13, 14, & 15.

- Total cases are 173 cases with 31 deaths (CFR 17.92%)
- Most affected: Imurok payam; persons 30+ years; CFR highest in persons 15-14 yrs. PCR testing revealed no definitive aetiology.

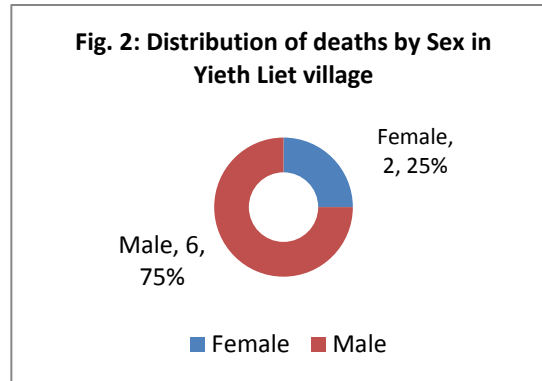
Suspect meningitis, Yieth Liet, Kuach South, Gogrial West county

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



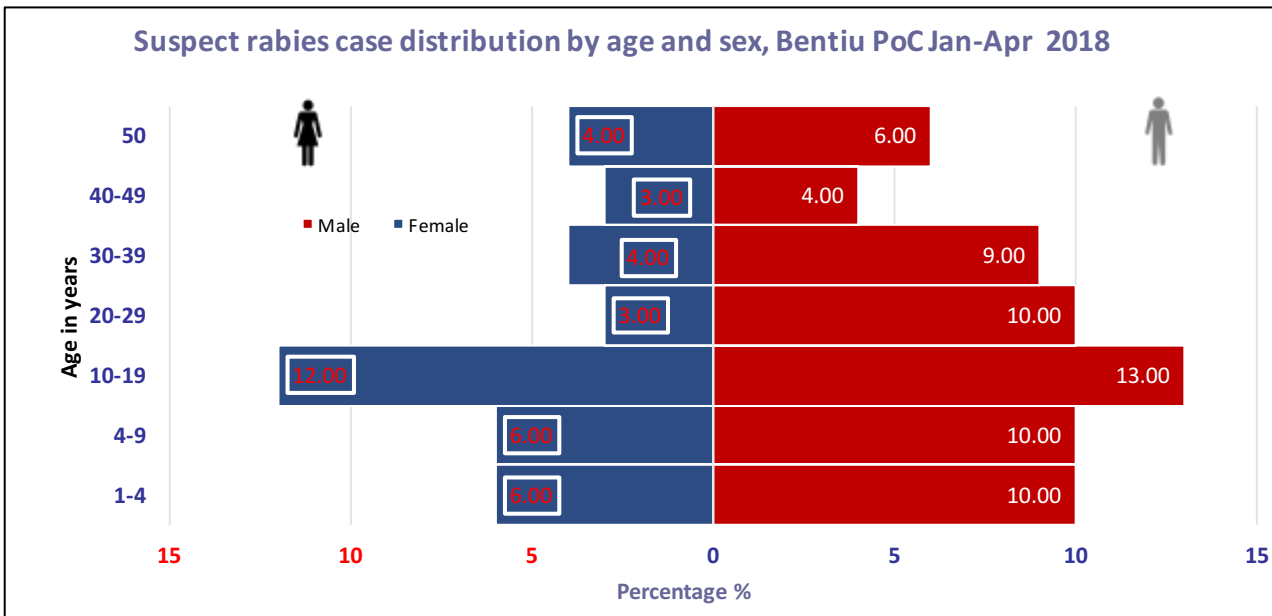
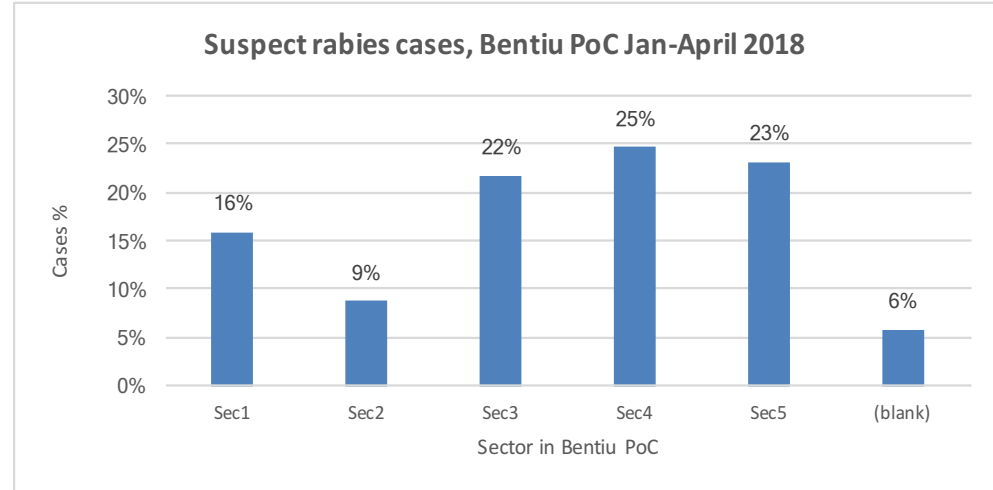
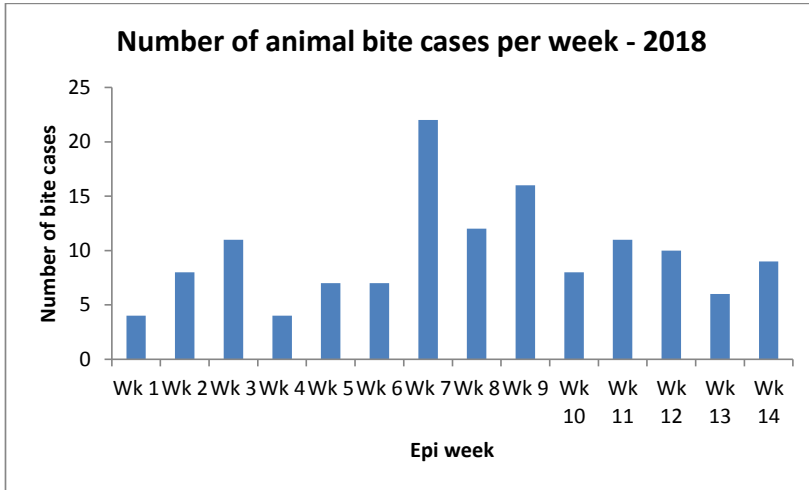
Age group	Female	Male
< 1 years	0	0
1 - 4 years	1	0
5 - 9 years	1	0
10 - 14 years	0	1
15 - 19 years	0	1
20 + years	0	4
Total	2	6

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 the week, 9 animal bite cases were reported in Bentiu PoC
- A cumulative of 139 animal bite cases including 2 deaths have been reported since 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

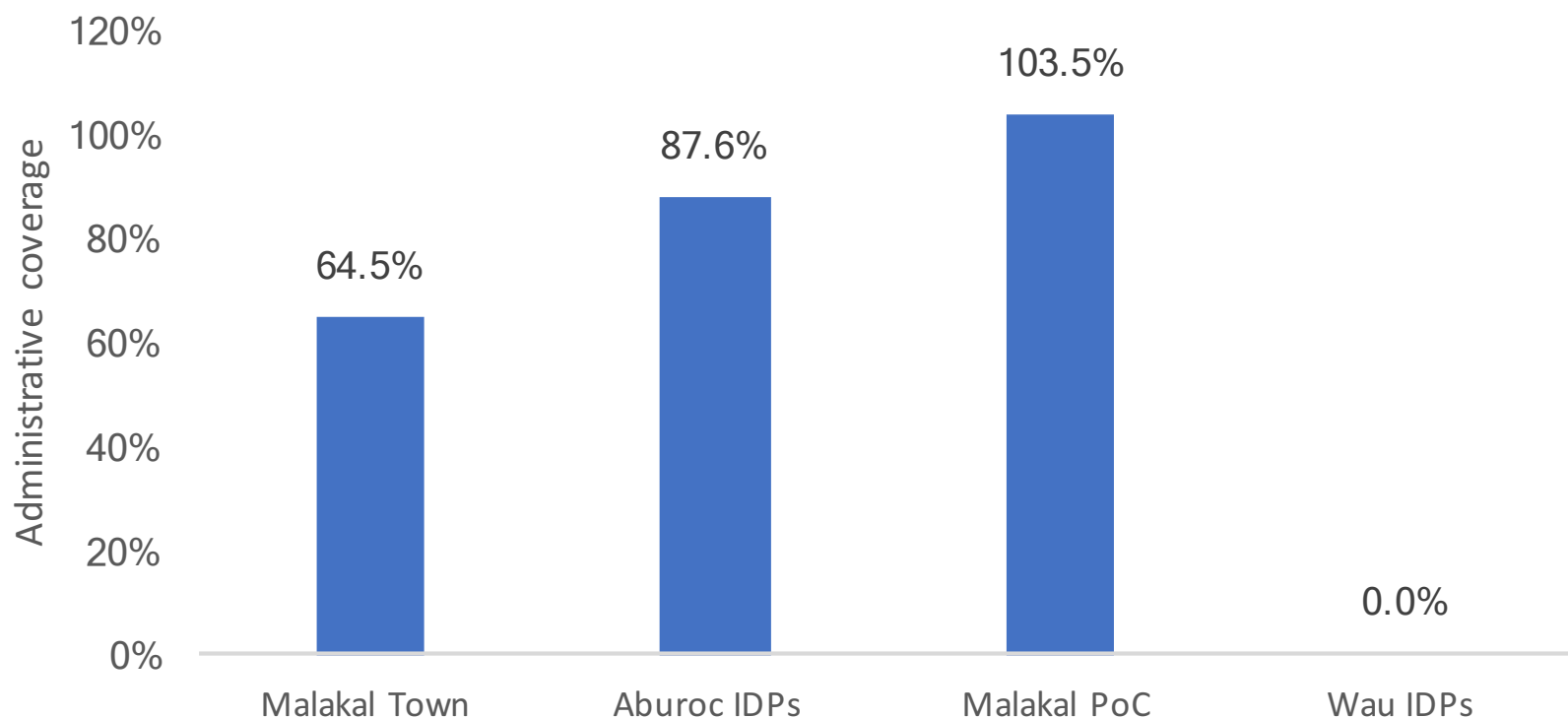
Site	Total population	Target population	1st round doses	2nd round doses	Total doses	1st Round dates	2nd Round dates	Partners
Aburoc	11,640	11,291		11,291	11,291	20-22May2017	17 Jan - 20 Jan	
Malakal Town	20,000	19,200		22,200		18-24Mar2017	Jan5th - Jan 9th 2018	
Juba	214,887			206,292	206,292	9Sep - 24Nov 2017	24-28April 2018	MoH, WHO, Unicef, MSF-France & Spain
Malakal PoC	24,424	23,691	34,291	34,291	68,582	19-23March 2018	17-21April 2018	MoH, WHO, Unicef, IOM
Wau IDPs	40,499	39,284	56,860	56,860	113,720	19-23March 2018	17-21April 2018	MoH, WHO, Unicef, IOM
Torit	160,000	155,200	155,200	155,200	310,400	TBD	TBD	TBD
Yirol East and West	268,446	260,393	260,392	260,392	520,784	TBD	TBD	TBD
Panyijiar	76,000	73,720	75,000	75,000	150,000	22-27April	TBD	MoH, WHO, Unicef, IRC
Totals	815,896	791,419	581,743	821,526	1,403,269			

- 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 soon to complete the scheduled campaigns
- 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 (coverage data to follow):
 - Malakal Town (2nd round)
 - Aburoc IDPs (2nd round)
 - Malakal PoC (1st round)
 - Wau PoC+IDPs (1st round)
- Upcoming campaigns for 2018
 - Juba Town - (2nd round)
 - Malakal PoC (2nd round)
 - Wau PoC+IDPs (2nd round)
 - Torit (1st round)
 - Yirol East and Yirol West (1st round)
 - Lankien, Akobo, Pieri & Karam (1st round)

Oral cholera vaccine campaigns administrative coverage - 2018

OCV administrative coverage [%] by site in 2018



	Site	Target	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	39,284		0.0%

- As seen in the figure and table, the following oral cholera vaccine campaigns have been completed in 2018 :
 - Malakal Town (2nd round)
 - Aburoc IDPs (2nd round)
 - Malakal PoC (1st round)
 - Wau PoC+IDPs (1st round) - acoverage data pending

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.
10Mar18	Meningitis	3 (0)	Cueibet		Since 10 Mar 2018, at least three suspect meningitis cases have been reported by CUAMM in Cueibet hospital. However, sample collection and testing has not been undertaken on any of the cases.
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 Pan-nyok	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	07(03)	Wau (Jur River)	Udici, Roc Roc Dong	Since 14 February; seven suspect meningitis cases have been reported from Wau and Jur River counties. The most recent suspect case involved a 45 year old male from Jur River that was admitted in Comboni hospital on the 28 Feb 2018. Rapid pastorex testing was positive for <i>Streptococcus pneumoniae</i> .

Response | Suspect outbreaks being investigated

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 obtained by MSF-CH for testing. Another alert of 4 suspect measles cases including one community death has been reported from Lol Maroal but verification and sample collection are pending.
19Jan18	measles	01	Mayendit	Rubkuai	One suspect measles cases from Rubkuai in Mayendit tested measles IgM positive. Measles follow up campaign in Leer and Mayendit has been completed by MedAir; MSF-Holland; and UNIDO with support from Unicef and WHO. Plans underway to conduct a coverage survey.
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. bit.ly/2EIndTP #SouthSudan. Initial verification details to follow
31Mar2018	Suspect meningitis /malaria	12(08)	Gogrial West	Kuach South	On 28 th 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.

Response | Suspect outbreaks being investigated

Date of report	Disease suspected	Number cases (deaths)	County	Payam	Status of investigations
14Feb18	pertussis	Unspecified	Bor	Baidit (Bongo, Mayen, Kwei, Anuak	Alerts of whooping cough reported from Baidit Payam (Bongo & Mayen Bomas. Other alerts reported from Kwei Boma and Anuak (a swampy area/island/fishing camp only accessible by speed boat). These locations have no health implementing partner presence. Investigations planned by the RRT to accessible areas (further updates to follow).
25Jan18	Rabies	139 (2)	Rubkona	Bentiu PoC	Rabies surveillance and response is ongoing. Current response entails post-exposure prophylaxis; community awareness (radio & IEC message dissemination) on rabies prevention and early care seeking following bite incidences. Camp management, IOM, VSF Suisse, & UNMISS are holding consultations on dog curling.

For more help and support, please contact:

Dr. Pinyi Nyimol Mawien
Director General Preventive Health Services
Ministry of Health
Republic of South Sudan
Telephone: +211 955 604 020

Dr. Mathew Tut Moses
Director Emergency Preparedness and Response
(EPR)
Ministry of Health
Republic of South Sudan
Telephone: +211 955 295 257

Notes

WHO and the Ministry of Health gratefully acknowledge health cluster and health pooled fund (HPF) partners who have reported the data used in this bulletin. We would also like to thank ECHO and USAID for providing financial support.

The data has been collected with support from the EWARS project. This is an initiative to strengthen early warning, alert and response in emergencies. It includes an online, desktop and mobile application that can be rapidly configured and deployed in the field. It is designed with frontline users in mind, and built to work in difficult and remote operating environments. This bulletin has been automatically published from the EWARS application.

More information can be found at <http://ewars-project.org>

