South Sudan

Integrated Disease Surveillance and Response (IDSR)

Epidemiological Bulletin Week 47, 2019 (November 18 – November 24)

Ministry of Health
Republic of South Sudan

World Health Organization
South Sudan

Major Epidemiological Highlights in week 47 of 2019

- In week 47, 2019 IDSR reporting completeness was 69% and timeliness was 62% at health facility level. EWARN reporting completeness and timeliness were both 70%.
- Of the 140 alerts in week 47; 25% were verified 1% were risk assessed and 1% required a response. Malaria (25), AWD (35), measles (15) and bloody diarrhea (22) were the top common alerts generated through the EWARS in week 47, 2019.
- New confirmed measles outbreak in Maban after (11) suspect measles cases tested measles IgM positive.
- New confirmed measles outbreak in Mangateen IDP camp in Juba with (4) cases confirmed measles IgM positive.
- On 14th November MSF shared a report of animal deaths in Pibor; community reported death of more than 300 cows and goats over 3 weeks period; VSF Germany and FAO have confirmed that there are no outbreaks of priority animal diseases in Pibor due to a consistent vaccination programme over the years.
- Confirmed Rift Valley fever, Obongi, Uganda (ex. Kajo-keji, South Sudan) ; On 25 Nov 2019, a suspect hemorrhagic fever sample of MS a 35-year-old male South Sudanese refugee, a resident of Palorinya refugee camp, Zone 1, Pasu-Block 3; Obongi, Uganda tested positive for Rift Valley Fever at Uganda Virus Research Institute (UVRI).
- Since week 7 of 2019, a total of 223 ILI/SARI samples have been collected and tested in UVRI 153 being negative; 2 (1%) positive for Influenza B (Victoria); 11 (6%) positive for Influenza A (H3); and 1(1%) positive for Influenza A (H1)pdm09 and 6 samples are pending test results .

SURVEILLANCE PERFORMANCE

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

IDSR Timeliness and Completeness Performance at Facility Level for week 47,2019

Completeness Hub/Former States Ranking	Hub/Former States	Supporting Partners	Total No. of Health Facility	No. of HFs Reported on Time	Timeliness Percentage	No. of HFs Reported not on Time	Completeness Percentage
1st	Kwajok	GOAL, CCM, WVI, Malaria Consortium, UNKEA	125	120	96%	124	99%
2nd	Yambio	AMREF, World Vision, CUAMM, CDTY, OPEN	214	176	82%	200	93%
3rd	Rumbek	Doctors with Africa (CUAMM), LIVEWELL	116	106	91%	106	91%
4th	Bor	Nile Hope, MDM, JDF, Livewell, CMD, HFO, EDA, CRADA, Malaria Consortium, CMA	138	100	72%	100	72%
5th	Bentiu	Cordaid, UNIDOR, IRC, CHADO, CARE International, CRADA	87	59	68%	63	72%
6th	Wau	Cordaid, Healthnet TPO, CARE International, IHO	79	34	43%	55	70%
7th	Aweil	Malaria Consortium, Healthnet TPO, IRC, CEDS, IHO	144	75	52%	100	69%
8th	Malakal	Cordaid, WVI, RI, IMC, NIDO, UNKEA, MC, SSAID	98	49	50%	49	50%
9th	Juba	HLSS, SSUHA, Healthnet TPO, IHO	157	54	34%	54	34%
10th	Torit	Cordaid, HLSS, CMD	178	50	28%	68	38%
	South Sudan		1336	823	62%	919	69%

Key

<60%	Poor
61%-79%	Fair
80%-99%	Good
100%	Excellent

The timeliness of IDSR reporting (supported by EWARS mobile) at health facility level is 62% and completeness is 69%. Reporting performance is highest in Kwajok hub with completeness of 99% followed by Yambio hub with completeness at 93% and Rumbek hub with 91% completeness. while the rest of the state hubs are below the target of 80%.

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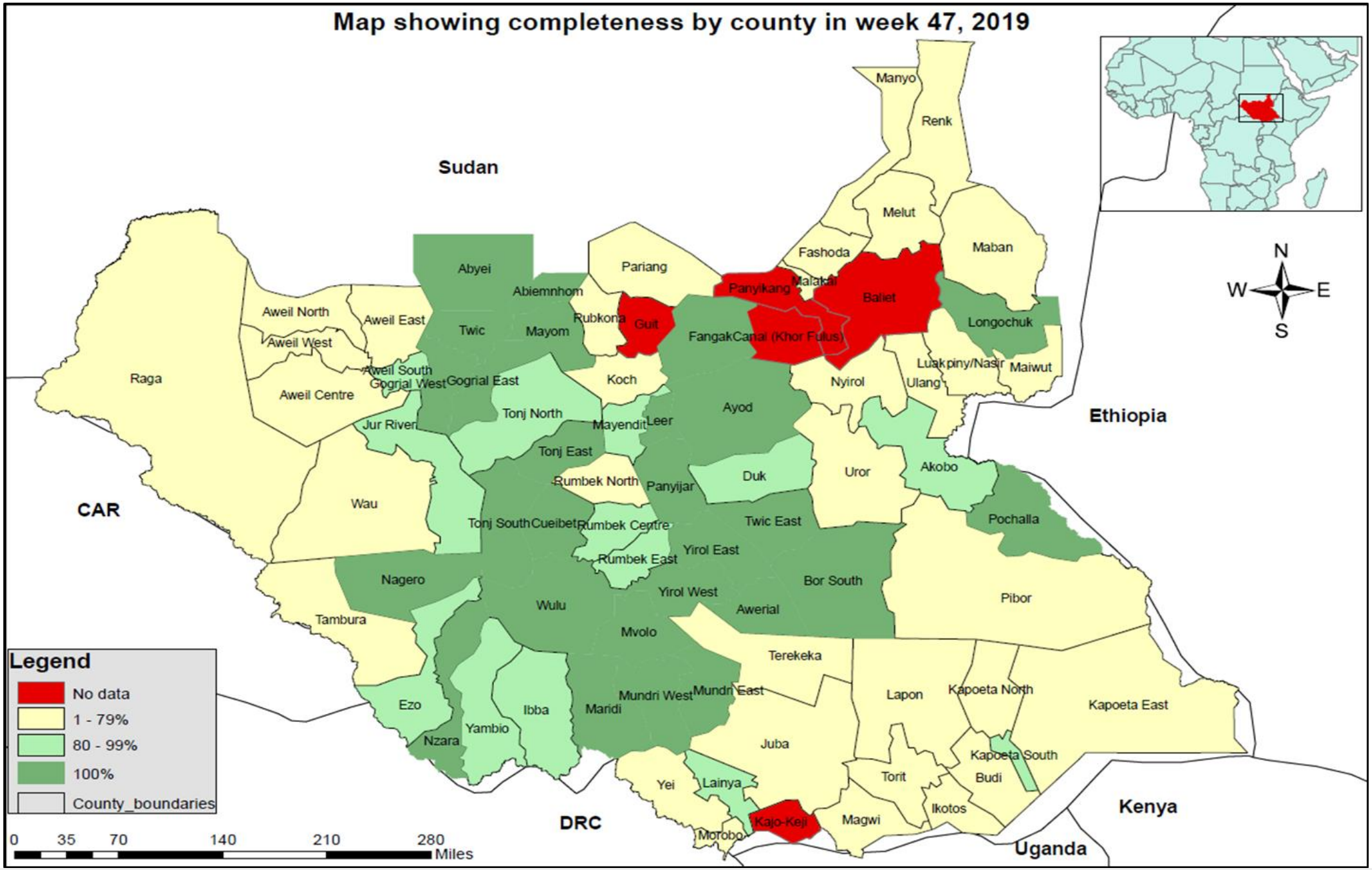

Surveillance| EWARS surveillance performance indicators by partner week 47, 2019

Surveillance | EWARS surveillance indicators

Table 4 | EWARS surveillance performance indicators by partner (W47 2019)

Partner	Performance		Reporting	
	# sites	# reports received	Completeness	Timeliness
CMD	1	1	100%	100%
GOAL	2	2	100%	100%
HAA	3	3	100%	100%
HFO	2	2	100%	100%
HLSS	1	0	0%	0%
IMA	8	8	100%	100%
IMC	6	4	67%	67%
IOM	11	7	64%	64%
IRC	1	1	100%	100%
LIVEWELL	3	3	100%	100%
Medair	2	2	100%	100%
Medicair	2	0	0%	0%
MSF-E	2	0	0%	0%
MSF-H	3	1	33%	33%
RHS	3	3	100%	100%
SMC	0	0		
TADO	4	2	50%	50%
TRI-SS	2	2	100%	100%
UNH	2	2	100%	100%
UNIDO	1	1	100%	100%
UNKEA	1	0	0%	0%
World Relief	1	1	100%	100%
Total	**64**	**45**	**70%**	**70%**

Table 5 | Summary of key EWARS surveillance indicators

W47	Cumulative (2019)	
64	-	Number of EWARS reporting sites
70%	60%	Completeness
70%	54%	Timeliness

Table 6 | EWARS report submissions

W47	Cumulative (2019)	
45	1,789	total submissions
0	9	submissions by mobile
45	1779	submissions by web

- Both completeness and timeliness for weekly reporting were 70% in week 47 for partner-supported clinics serving IDP sites. The cumulative completeness and timeliness were 60% and 54% respectively for 2019.

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EVENT-BASED SURVEILLANCE

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

Alert| Alert performance indicators

Alert | Alert performance indicators

Table 7 | Alert performance indicators by Hub

Hub	W47		Cumulative (2019)	
	# alerts	% verif.	# alerts	% verif.
Aweil	9	44%	361	97%
Bentiu	22	18%	464	40%
Bor	25	0%	526	89%
Juba	3	0%	343	38%
Kuajok	26	4%	416	28%
Malakal	8	50%	126	73%
Rumbek	22	64%	717	99%
Torit	5	20%	471	82%
Wau	12	33%	218	73%
Yambio	8	0%	896	85%
South Sudan	**140**	**23%**	**4538**	**74%**

Table 8 Summary of key alert indicators

W47	Cumulative (2019)	
140	4538	Total alerts raised
23%	74%	% verified
0%	0%	% auto-discarded
1%	3%	% risk assessed
1%	2%	% requiring a response

- A total of 140 alerts were received in week 47, 2019 out of which 23% were verified 1% were risk assessed and 1% required a response.

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Alert| Alert Performance Indicator by Event

Alert | Event risk assessment

Table 9 | Alert performance indicators by event

Event	W47		Cumulative (2019)	
	# alerts	% verif.	# alerts	% verif.
Indicator-based surveillance				
Malaria	25	8%	852	79%
AWD	35	34%	1123	75%
Bloody Diarr.	22	18%	779	67%
Measles	15	33%	703	67%
Meningitis	0	0%	0	0%
Cholera	2	50%	120	88%
Yellow Fever	0	0%	22	86%
Guinea Worm	0	0%	93	89%
AFP	2	0%	138	68%
VHF	0	0%	35	83%
Neo. tetanus	1	0%	52	83%
Event-based surveillance				
EBS total	0	0%	32	84%

Table 10 | Event risk assessment

W47	Cumulative (2019)	
0	25	Low risk
30	30	Medium risk
1	38	High risk
1	40	Very high risk

- Malaria (25), AWD (35), measles (15) and bloody diarrhea (22) were the top common alerts generated through the EWARS in week 47, 2019.

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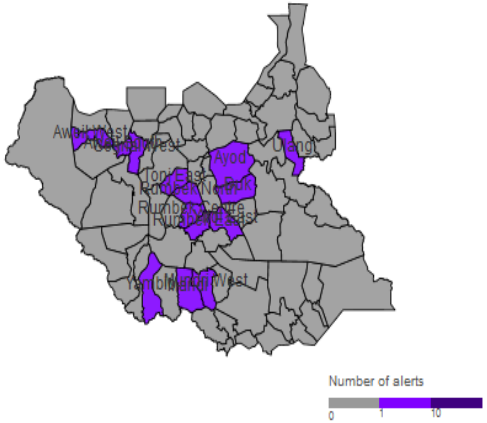
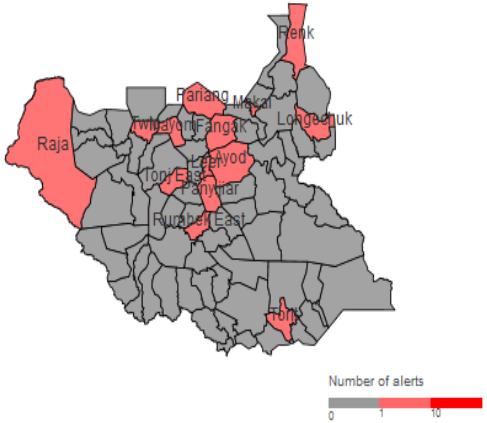
Alert| Map of key disease alerts by county week 47, 2019

Alert | Maps of key disease alerts by county

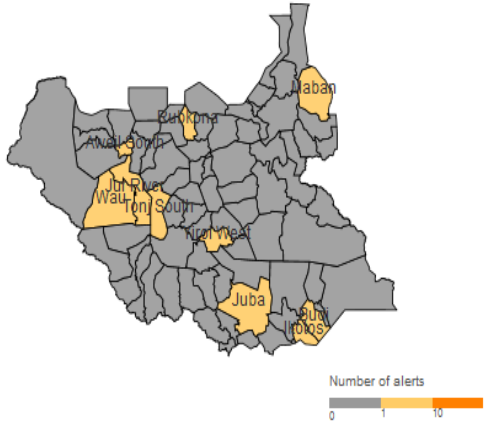
Map 2a | Malaria (W47 2019)



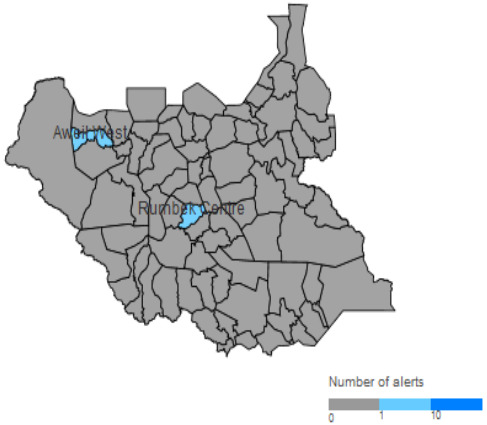
Map 2b | Bloody diarrhoea (W47 2019)



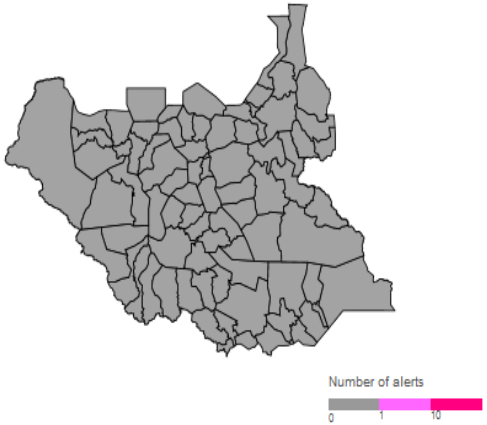
Map 2c | Measles (W47 2019)



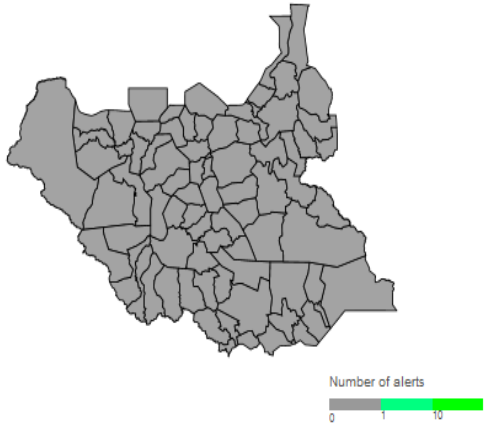
Map 2d | Cholera (W47 2019)



Map 2e | Guinea Worm (W47 2019)



Map 2f | Event-based surveillance (W47 2019)



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Alert by disease and Hubs in Week 47, 2019 [A total of 140 event specific alerts generated by Hubs]

Hub/Former States	AJS	ARI	Acute Watery Diarrhoea	Bloody Diarrhoea	AFP	Cholera	Neonatal Tetanus	Malaria	Measles	Total Alerts
Bor	1	11	3	6	1			3		25
Kuajok		2	13	3				7	1	26
Torit			1	1					3	5
Bentiu	1	9	3	5	1		1		2	22
Yambio		2	1					6		9
Juba		2							1	3
Aweil		3	2			1		1	1	8
Rumbek		3	8	2		1		7	1	22
Wau		2	3	2					5	12
Malakal		2	1	3				1	1	8
Total Grand	2	36	35	22	2	2	1	25	15	140

During this week:

- 2 AJS alerts: both pending verification
- 2 AFP alerts: both pending verification
- 2 Cholera alerts: 1 discarded and 1 pending verification
- 1 NT alert: pending verification.
- 36 ARI alerts: 7 discarded,1 under response and 28 pending verification.
- 35 AWD alerts: 1 under monitoring,1 under response,10 discarded and 23 pending verification.
- 22 ABD alerts: 1 under monitoring,3 discarded and 18 pending verification.
- 25 Malaria alerts: 2 under monitoring and 23 pending verification.
- 15 Measles alerts; 3 under monitoring,2 discarded and 10 pending verification..

SUSPECTED OUTBREAKS IN 2019

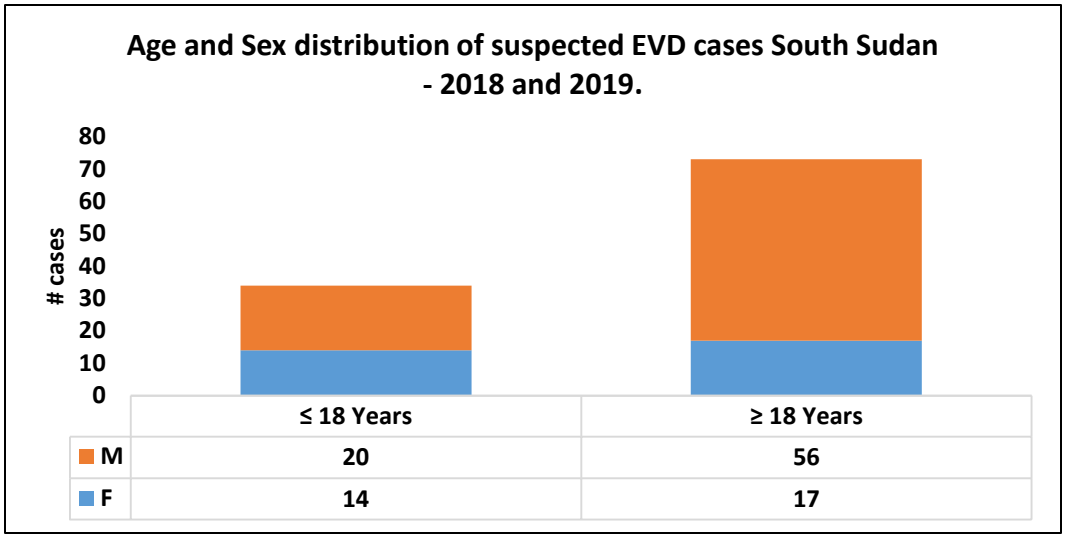
Major suspected outbreaks in South Sudan in 2019

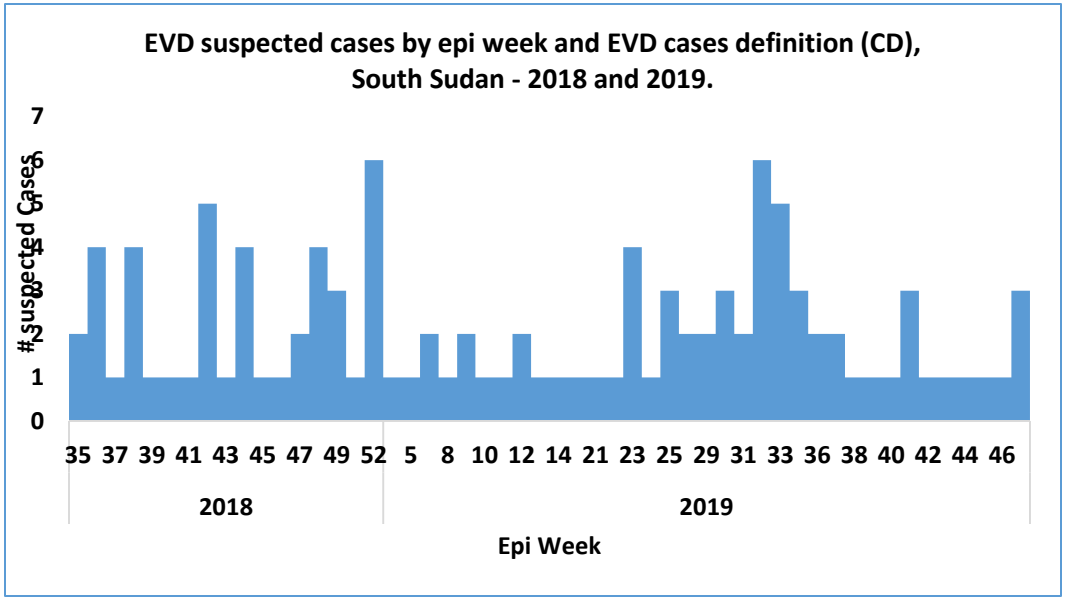
EVD Suspect cases in South Sudan 2018 and 2019 as of week 47, 2019

	Met EVD cases definition		
Source of Information	No	Yes	Total cases
2018	29	12	41
Community	3	2	5
Health Worker	8	9	17
Screening point	18	1	19
2019	29	37	66
Community	5	8	13
Health Worker	10	17	27
RRT lead Team	1	1	2
Screening point	4	5	9
State Surveillance Officer	8	4	12
WHO State Coordinator	1	2	3
Grand Total	58	49	107

- Since August 2018, at least 107 suspect EVD cases have been reported, of which:
- Most, 66 (61.7%) have been reported in 2019
- Most of the suspect EVD cases have been reported by health workers at health facility level

EVD Suspect cases in South Sudan 2018 and 2019 as of week 47, 2019





- Most of the suspect EVD cases have been reported in adults 18 years and above (72%)
- Similarly, most suspect EVD cases have been reported in males (56%)
- The distribution suspect EVD cases in both children <18years and adults ≥18yrs is skewed towards the males
- The number of suspect EVD cases reported per week range from 0-4 cases

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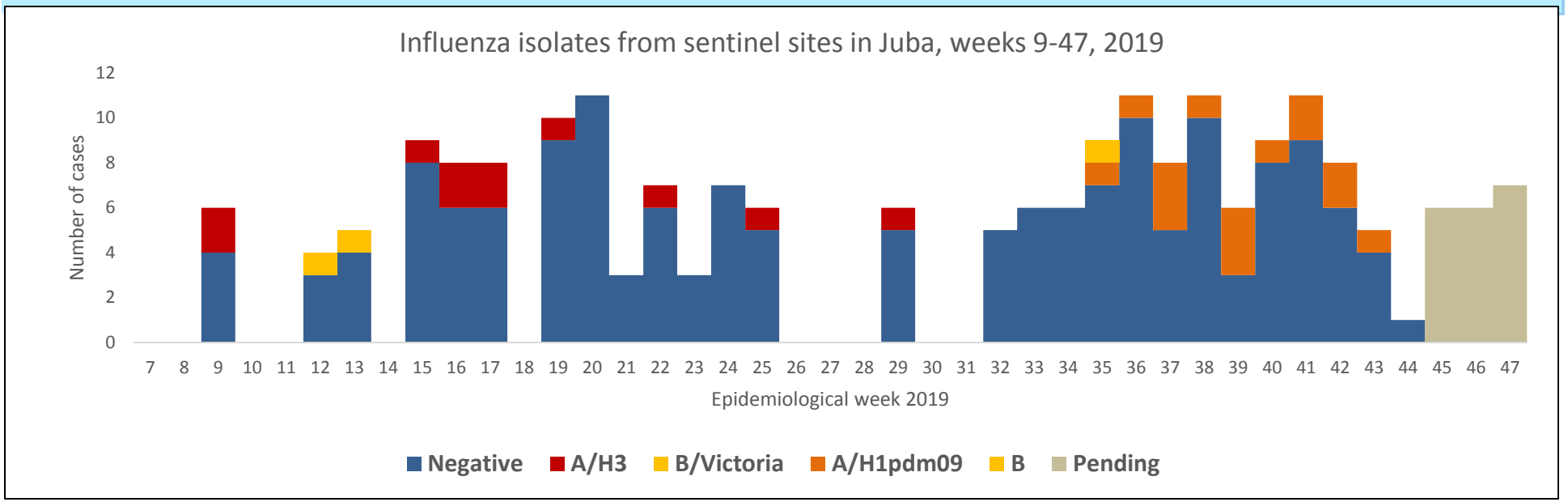
Routine Sentinel Surveillance | Human Influenza



- **In week 7, 2019, South Sudan started case-based surveillance for Influenza Like Illness (ILI) and Severe Acute Respiratory Infection (SARI) cases through systematic collection of epidemiological and virological information**
- **There are currently two designated Influenza sentinel surveillance sites in Juba (Juba Teaching Hospital and Al Sabah Children's Hospital) that are collecting epidemiological data and samples from ILI/SARI cases**
- **Since week 7 of 2019, a total of 223 ILI/SARI samples have been collected and tested in UVRI 153 being negative; 2 (1%) positive for Influenza B (Victoria); 11 (6%) positive for Influenza A (H3); and 1(1%) positive for Influenza A (H1)pdm09 and 6 samples are pending test results .**
- **Since the beginning of 2019; Influenza A (3) has been the predominant isolate. However, Influenza A (H1)pdm09 emerged from week 35 as a new circulating strain.**

Undiagnosed Animal (Livestock) Deaths in Pibor

Background

- On 14 Nov 2019 MSF shared a report of animal deaths in Pibor county in the aftermath of floods that devastated the county
- The locations involved include: Lekuangole; Langachot; Lenyeris; Tangajon; Kondako; & Teneth
- The communities reported more than 300 animal deaths including cows, goats and dogs over a three-week period in the aftermath of the floods.
- The state authorities in Boma raised concerns of a possible public health risk and therefore requested support to investigate the deaths
- We present the preliminary verification findings by FAO and VSF-Germany.

Fig. 1: Map of Pibor County in South Sudan

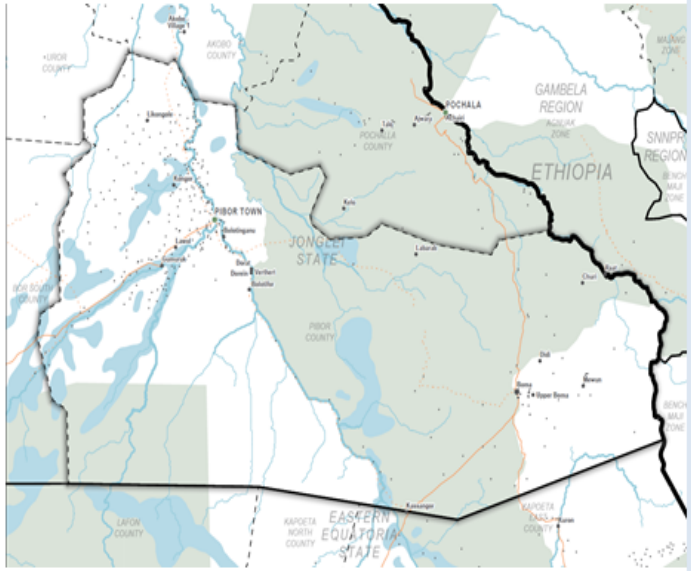
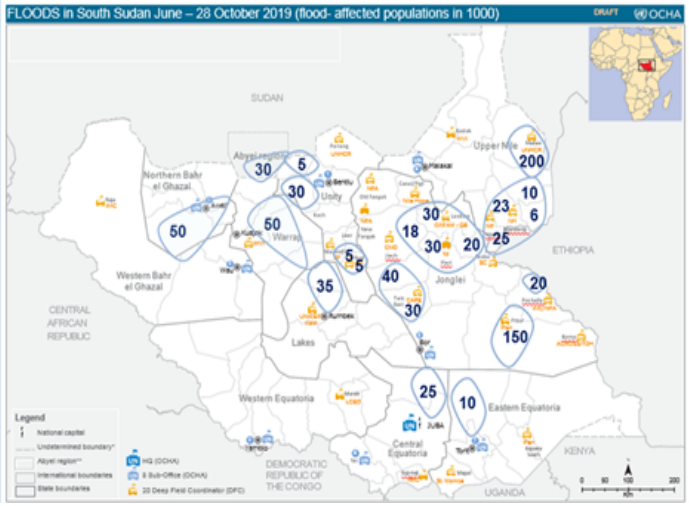


Fig. 2: June – October Flood affected population in 1000



Situation update

- VSF Germany and FAO have confirmed that there are no outbreaks of priority animal diseases in Pibor due to a consistent vaccination programme over the years.
- The livestock deaths reported in the aftermath of the floods were mainly due to starvation (the rains water covered most part of pastures) and drowning affected the small ruminants.

Intervention scale-up plan

- Animal treatments and deworming are priority since animals will be affected by internal and ecto-parasites including insect bites. other diseases such as pneumonia, foot rot, and leptospirosis
- Vaccinations particularly against priority animal diseases such as anthrax, blackleg, and PPR.
- Review approach on Carcasses disposal.
- Increased awareness and training of CAHWs on case definition for the zoonoses like Rift Valley Fever and anthrax
- A team from the Ministry of Livestock and Fisheries is being deployed to work with the state Ministry of Agriculture and Animal Resources collecting samples and more epidemiological information.

Public health implications

- Surveillance for IDSR priority diseases in Pibor is underway.
- There are currently no reports of human cases linked to the human deaths
- Malaria remains the top cause of morbidity, followed by acute respiratory infections and acute watery diarrhoea

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FLOOD UPDATES

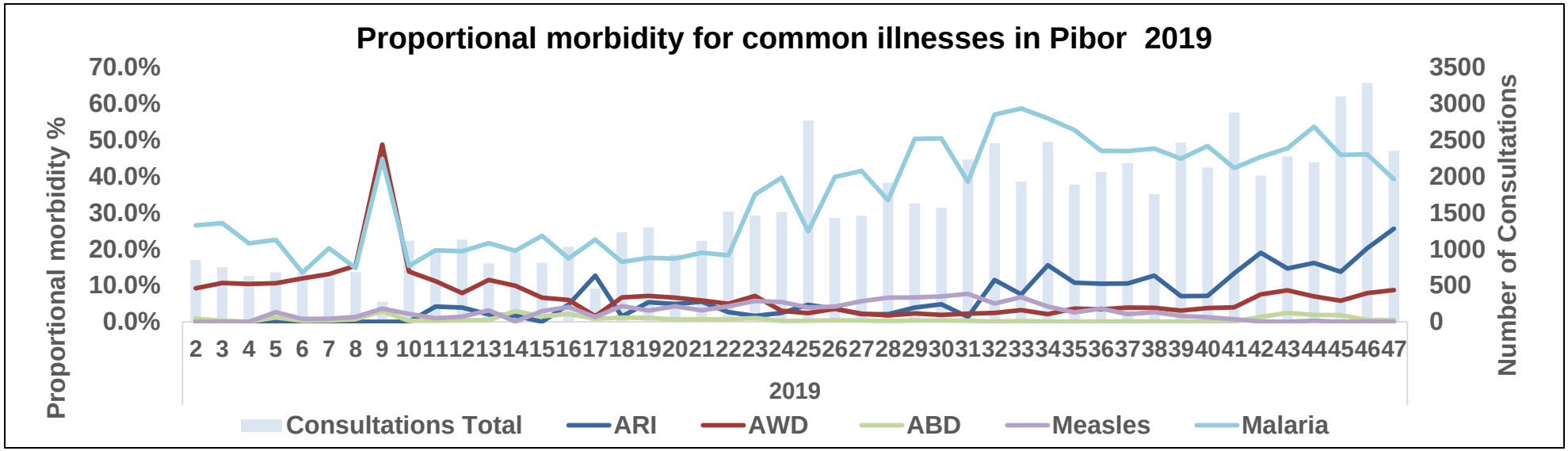
Top cause of morbidity

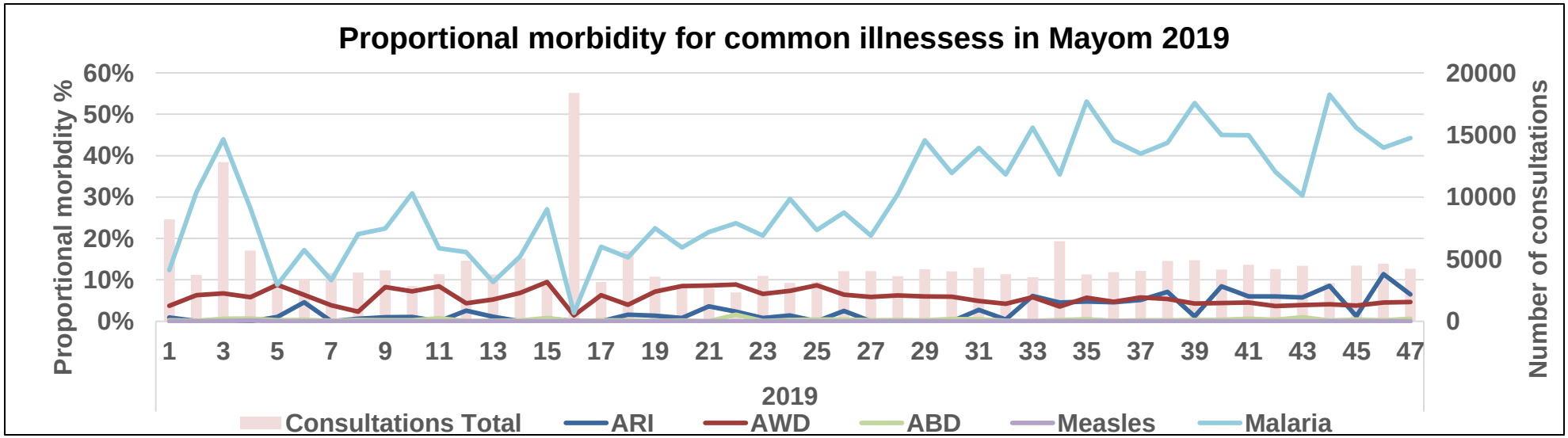
Common causes of illness in Flood areas

- **Top cause of morbidity**:
  - Malaria is the top cause of morbidity in all the locations ; Pibor, Twic East, Maban, Uror, Duk, Ayod, Nyirol, Akobo, Ulang, Yirol East and Twic counties.

- **Other causes of morbidity**:
  - Acute respiratory illness (ARI)
  - Acute watery diarrhoea
  - Acute bloody diarrhoea
  - Measles

Common causes of illness in Flood areas; Pibor and Mayom counties





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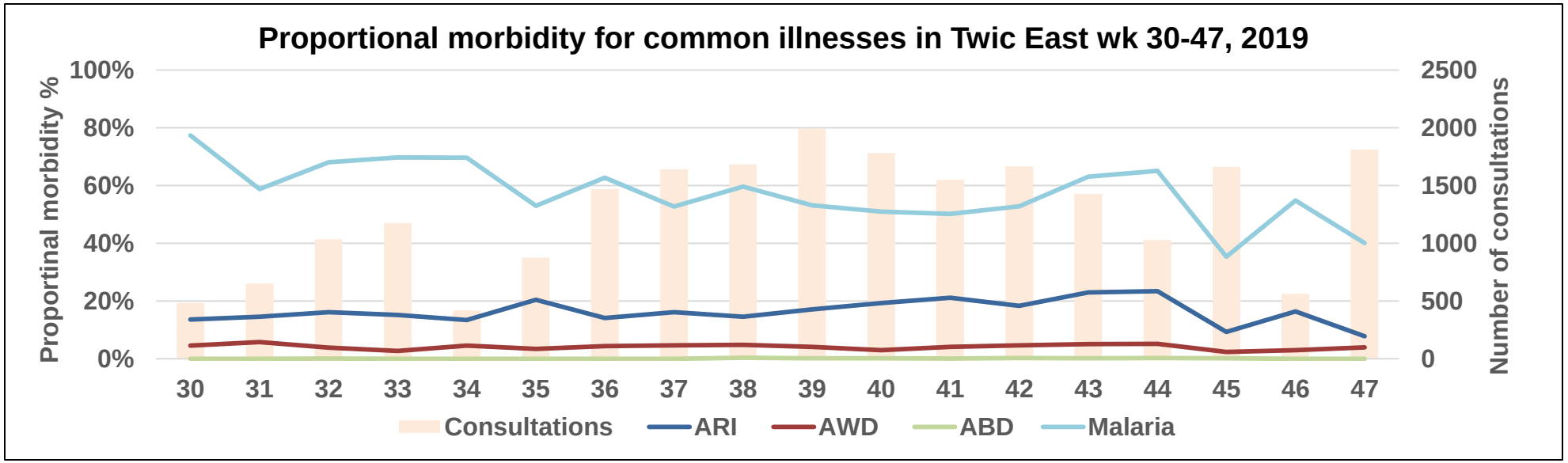
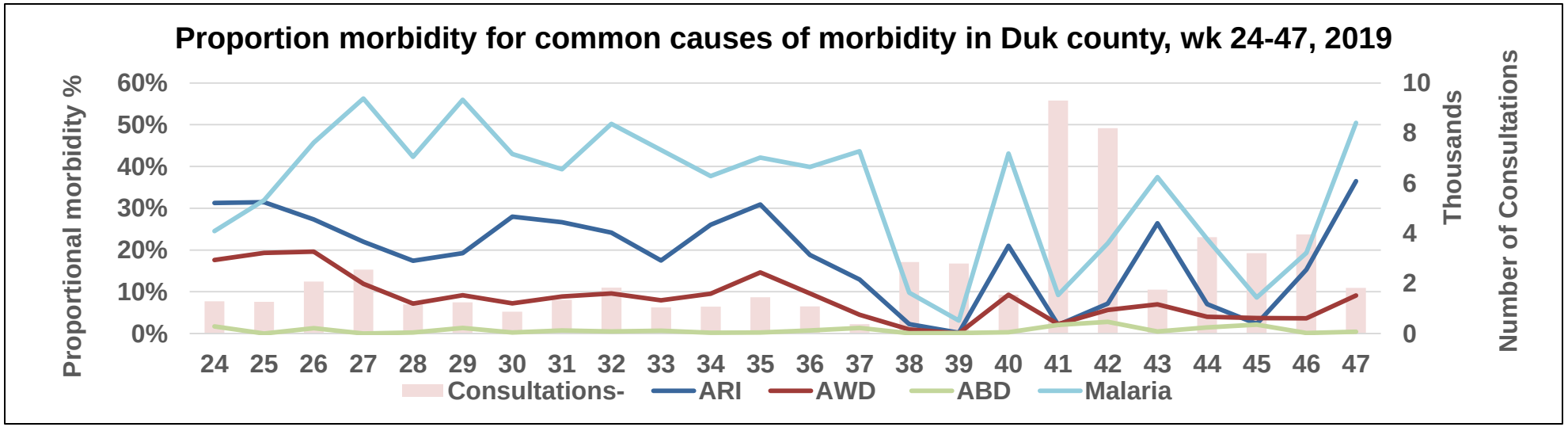
Common causes of illness in Flood areas; Twic East and Duk Counties





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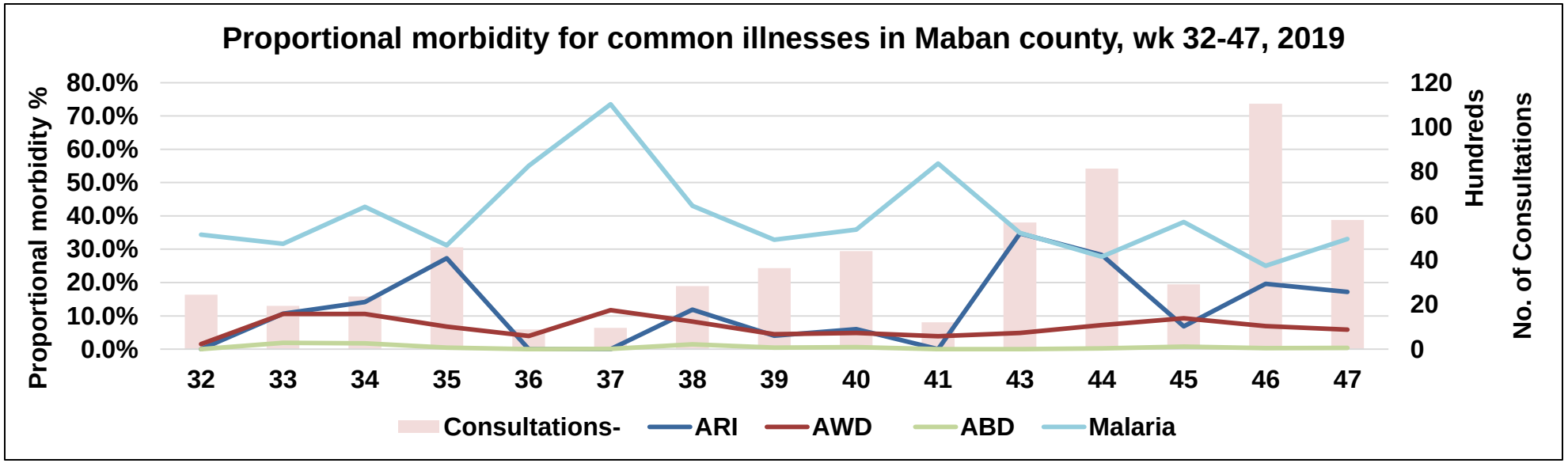
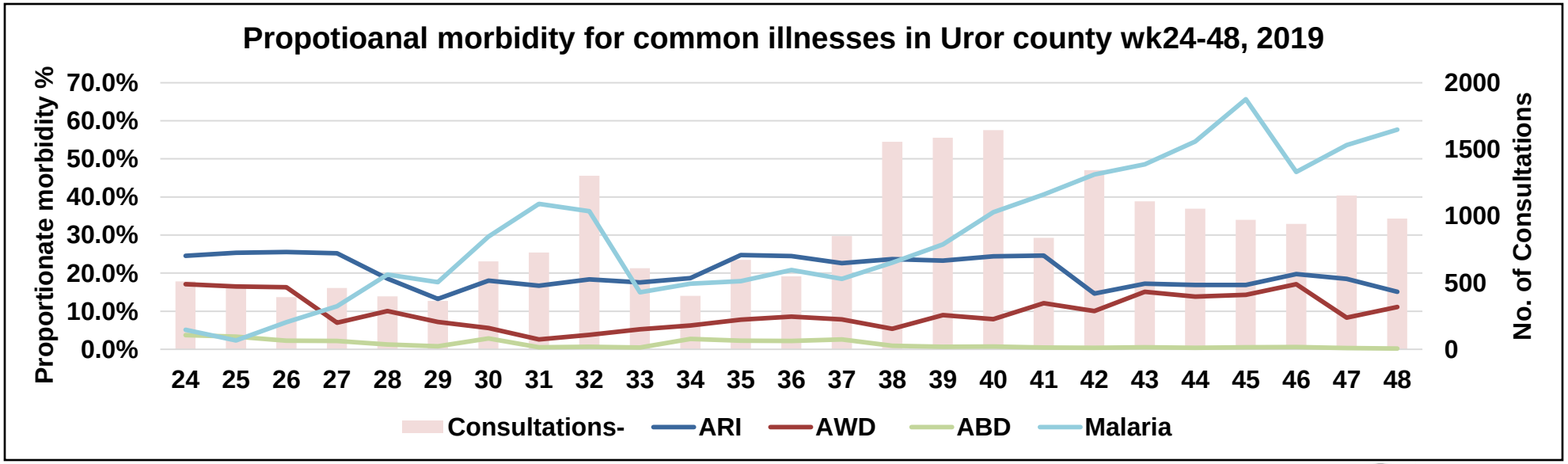
Common causes of illness in Flood areas; Maban and Uror Counties





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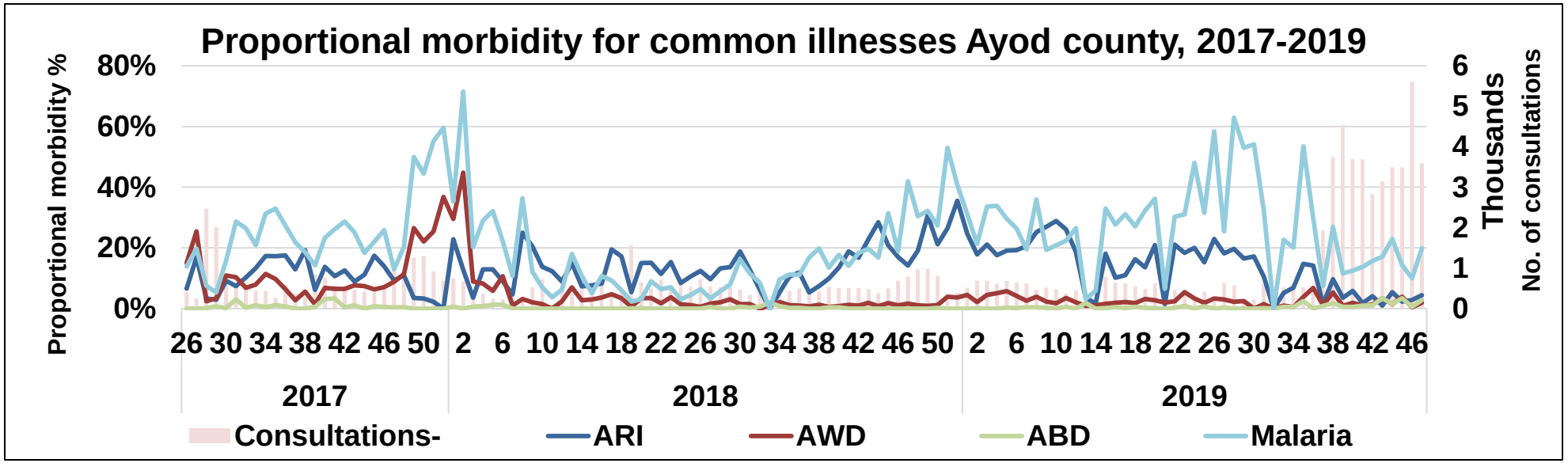
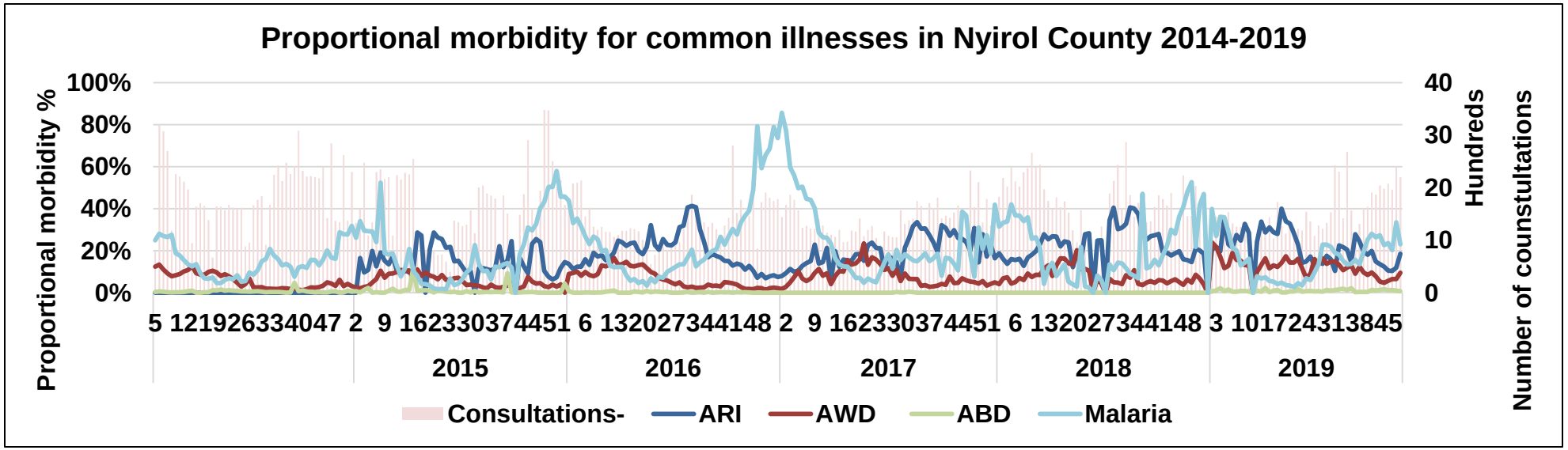
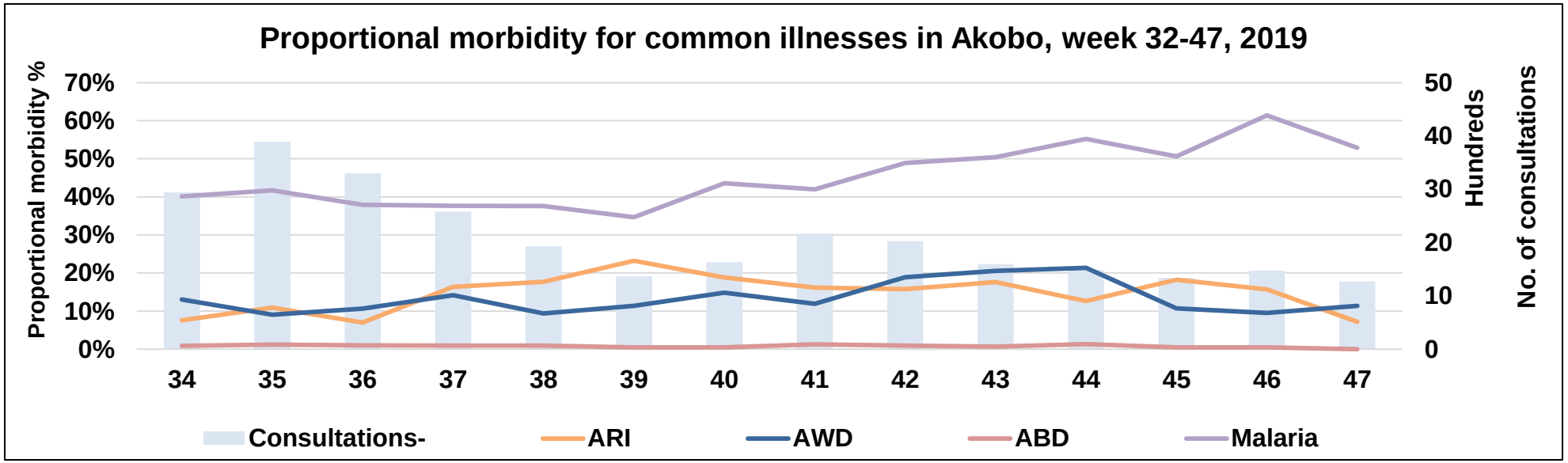
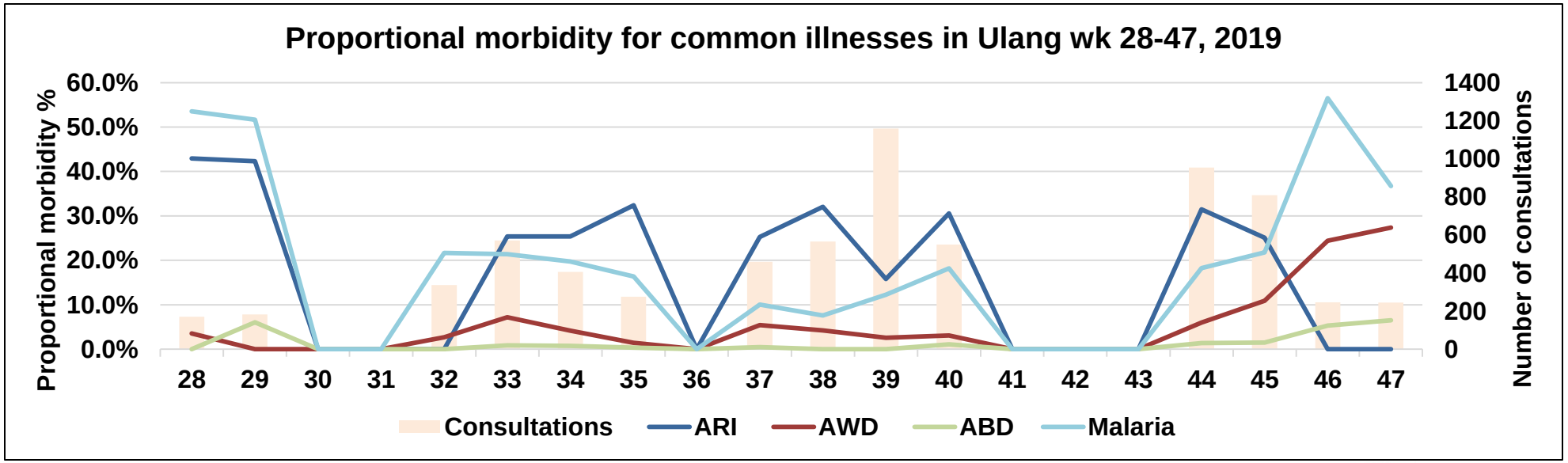
Common causes of illness in Flood areas; Ayod and Nyirol Counties





Common causes of illness in Flood areas; Akobo and Ulang Counties





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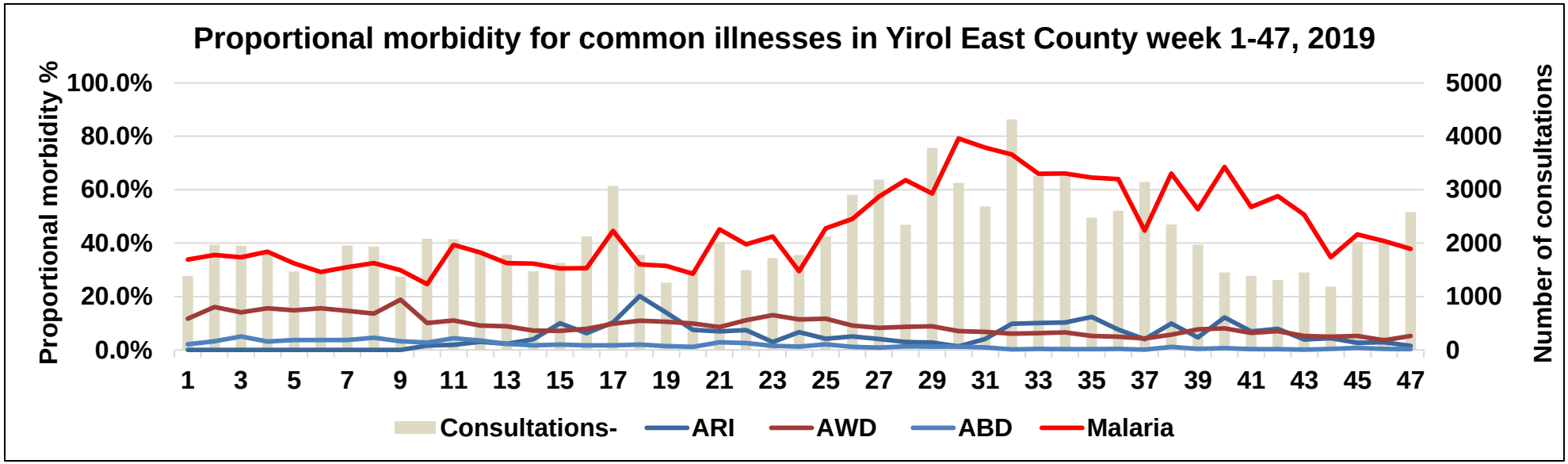
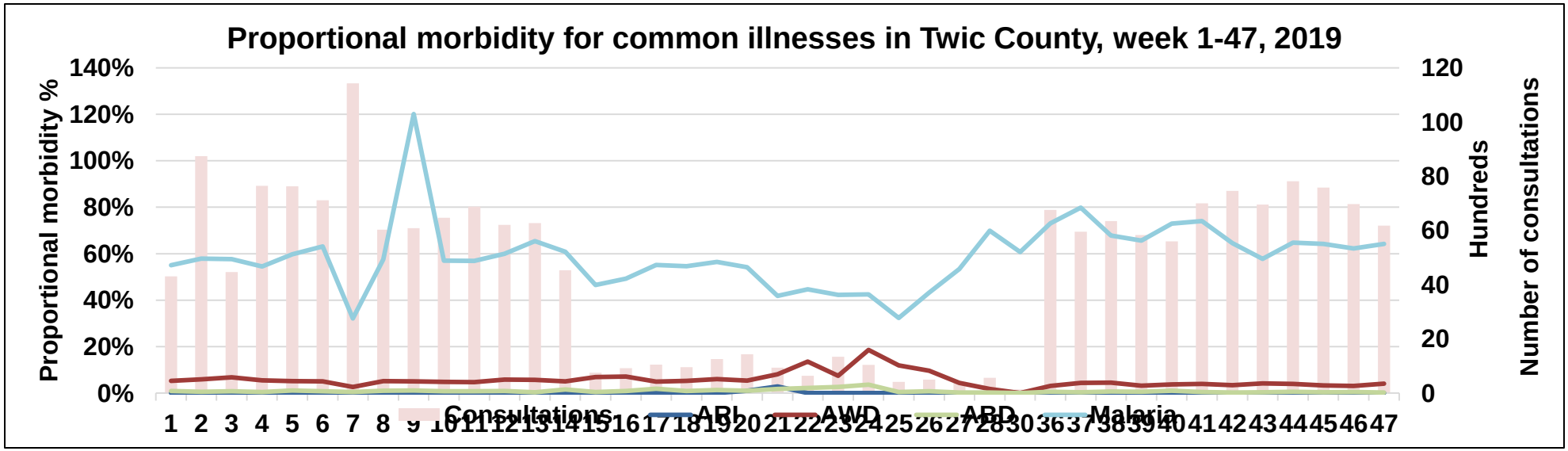
Common causes of illness in Flood areas; Yirol East and Twic Counties





ACTIVE OUTBREAKS AND PUBLIC HEALTH EVENTS

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

Confirmed Rift Valley fever, Obongi, Uganda (ex. Kajo-keji, South Sudan)

Background

- On 25 Nov 2019, a suspect hemorrhagic fever sample of MS a 35-year-old male South Sudanese refugee, a resident of Palorinya refugee camp, Zone 1, Pasu-Block 3; Obongi, Uganda tested positive for Rift Valley Fever at Uganda Virus Research Institute (UVRI).
- Before the illness started, MS left Palorinya refugee camp and travelled to Ajira village, Kinyiba boma, Kangapo II payam, Kajo-keji county, South Sudan on 11 Nov 2019 to harvest cassava from his garden.
- While in Ajira, MS developed fever and headache on 15 Nov 2019 and was treated for malaria without improvement. MS returned to Palorinya refugee camp (Uganda) from Kajo-keji (South Sudan) on 20 Nov 2019.
- He thereafter received treatment from a native healer; then in Temundi medical clinic; Balemaling HCII; and eventually in Moyo hospital where he was isolated; a blood sample obtained, before he passed away on 21 Nov 2019. A supervised burial was done.

Fig. 1: Map of RVF affected areas at the South Sudan – Uganda border

Fig. 2: Common RVF symptoms in affected persons

Rapid Response Team (RRT) deployment to Kajo-keji

- Based on the RVF incubation period of 2-6 days, it is possible that MS was exposed during his visit to Ajira from 11th to 14th Nov 2019.
- WHO and FAO supported the Min. of Health and Min. of Livestock and Fisheries to deploy a multidisciplinary team with a medical officer; veterinary officer; two laboratory experts, an entomologist; communications expert, and IPC expert
- The team departed from Juba for Kajo-keji on 5 Dec 2019.

Update on the RRT Field investigations

- On 6 Dec 2019; the RRT met with the public health and veterinary officials in Moyo (Uganda) where they were updated on the situation (no additional cases confirmed in Uganda) and the intensified surveillance and community engagement activities on RVF in Uganda.
- The RRT has also met with the County Commissioner of Kangapo county, Kajo-keji (South Sudan) and will from 7 Dec 2019 travel to the index case village where epidemiological, laboratory, entomological, and animal investigations will be conducted in the health facilities and community.
- A debriefing meeting will be conducted for health workers; partners; and local authorities at the end of the mission.

Additional context information

- Nearly one million people in South Sudan have been affected by Floods. How ever, Kajo-keji has not reported any flooding.
- South Sudan confirmed a RVF outbreak in Eastern Lakes state in 2018. At least 58 cases (4 deaths) were reported.
- In Sudan an ongoing floods-precipitated RVF outbreak has registered 345 cases (11deaths) from six states.

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Response| Summary of major ongoing outbreaks in 2019

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								
Measles	**Wau County and PoC-AA**	28/1/2019	1	653 (0.0015)	yes	Yes	yes	N/A
Rubella	**Wau PoC-AA**	25/3/2019	NR	11(0)	yes	No	yes	N/A
Hepatitis E	**Bentiu PoC**	03/01/2018	3	110 (0.027)	Yes	No	Yes	Yes
Measles	**Pibor**	17/01/2019	NR	2073 (4.82)	yes	No	yes	N/A
Measles	**Bentiu PoC**	24/04/2019	11	187(0.059)	Yes	Yes	Yes	N/A
Measles	**Budi**	03/10/2019	2	31(0.165)	Yes	No	Yes	N/A
Measles	**Ikotos**	15/11/2019	9	28(0.032)	Yes	No	Yes	N/A
Measles	**Aweil South**	15/03/2019	NR	94(0.032)	Yes	No	Yes	N/A
Measles	**Jur River**	06/02/2019	2	105(0.016)	Yes	No	Yes	N/A
Measles	**Juba**	21/11/2019	1	6(0.1667)	Yes	No	Yes	N/A

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Measles Highlights in 2019

- **Measles outbreaks confirmed in 2019**
  - **21 counties** – Pibor; Abyei; Mayom; Gogrial West; Aweil South; Melut; Gogrial East; Juba; Tonj North; Aweil West; Aweil East; Renk; Wau; Tonj North; Jur River; Yambio, Budi, Ikotos, Maban and Aweil East.
  - **4 PoC/IDP sites** – Wau PoC AA; Bentiu PoC; Malakal PoC; & Juba PoC; Mangateen IDPs.
  - **New confirmed measles outbreaks and response dates:**
  - Ikotos: **planned campaign on 9th Dec, 2019**
  - Aweil South; **planned campaign**
  - Budi; **planned campaign on 9th Dec, 2019**
  - Mangateen IDPs/ Juba: **planned campaign**
  - Maban: **campaign started on 5th Dec, 2019**

Measles Outbreak situation & response by county as of week 47, 2019

No	County	Population	Confirmed cases	Probable cases	Total cases	Cases per 100,000	Total deaths	CFR %	Date first reported	Emergency Campaign	Admin Coverage	Status	Comments
1	Abyei	79,854	9	297	306	383.2	0	0.0%	2-Jan-19	Done	13,335 (88%)	controlled	
2	Mayom	197,510	3	16	19	9.6	0	0.0%	17-Jan-19	Done	56,647 (152%)	controlled	
3	Juba	597,171	12	51	63	10.5	3	4.8%	15-Jan-19	Done	96,180 (99%)	controlled	
4	Gogrial West	388,469	4	152	156	40.2	0	0.0%	2-Jan-19	Done	193,958 (97.2%)	controlled	6m-15yrs targeted
5	Gogrial East	157,422	4	26	30	19.1	1	3.3%	10-Mar-19	Done	56,423 (94.93%)	controlled	
6	Tonj North	249,895	6	14	20	8.0	2	10.0%	2-Apr-19	Done	44,400 (91%)	controlled	
7	Tonj South	131,857	6	41	47	35.6	0	0.0%	30-Jul-19	Done	30,903(118%)	active	
8	Jur River	192,937	7	98	105	54.4	1	1.0%	3-Feb-19	Done	35%	active	mop up underway
9	Wau	256,363	13	641	653	254.7	5	0.8%	26-Jan-19	Done	23,018 (85%)	active	
10	Aweil East	489,714	7	15	22	4.5	0	0.0%	23-Feb-19	Done	71,460 (93%)	controlled	
11	Aweil West	258,616	16	32	48	18.6	0	0.0%	4-Apr-19	Done	26477 (97%)	controlled	
12	Aweil South	112,162	10	84	94	94.0	0	0.0%	15-Mar-19	Done	24,261 (116%)	reactive	
13	Melut	323,920	3	6	9	2.8	0	0.0%	15-Mar-19	Done	12,035 (78%)	controlled	
14	Pibor	224,613	8	2065	2073	922.9	9	0.4%	12-Jan-19	Done	13,965 (30%)	controlled	mop up underway
15	Renk	218,083	3	4	7	3.2	0	0.0%	9-Jan-19	Done	7,712 (79.8%)	controlled	
16	Juba PoC	38,500	2	3	5	13.0	0	0.0%	5-Apr-19	Done	74%	controlled	
17	Bentiu PoC	103,424	45	140	185	178.9	1	0.5%	1-Jan-19	Done	19084 (112%)	active	
18	Malakal PoC	24,402	2	0	2	8.2	0	0.0%	11-Apr-19	Done	112%	controlled	
19	Wau PoC	12,959	5	98	103	794.8	0	0.0%	23-Feb-19	Done	85.00%	active	
20	Yambio	231,489	4	12	16	0.1	1	6.3%	5-Sep-19	Done	63.00%	controlled	
21	Budi	12,986	5	18	31	283.7	0	0.0%	1-Oct-19	pending		active	
22	Ikotos		5	23	28		7	0.3%	15-Nov-19	pending		active	
23	Juba/Mangateen		4	2	6		0	0.0%	1-N0v-2019	pending		active	
24	Maban		11	2	13		0	0.0%		pending	7394.00%	active	
	Total	4,289,360	169	3,795	3,963	92.4	23	0.6%					

Measles and Rubella Laboratory Test Results, week 47 of 2019 (1)

Location/Health Facility	Date sent to Juba	Date Received at PHL	Suspected Disease	Lab results
Maban/MSF-Doro PHCC	11/25/2019	11/27/2019	measles	Measles IgM positive
Maban/MSF-Doro PHCC	11/25/2019	11/27/2019	measles	Measles IgM positive
Maban/MSF-Doro PHCC	11/25/2019	11/27/2019	measles	Measles IgM positive
Maban/MSF-Doro PHCC	11/25/2019	11/27/2019	measles	Measles IgM positive
Maban/MSF-Doro PHCC	11/25/2019	11/27/2019	measles	Measles IgM positive
Maban/MSF-Doro PHCC	11/28/2019	11/28/2019	measles	Measles IgM positive
Maban/MSF-Doro PHCC	11/28/2019	11/28/2019	measles	Rubella IgM Positive
Maban/MSF-Doro PHCC	11/28/2019	11/28/2019	measles	Measles IgM positive
Maban/MSF-Doro PHCC	11/28/2019	11/28/2019	measles	Measles IgM positive
Maban/MSF-Doro PHCC	11/28/2019	11/28/2019	measles	Measles IgM positive
Maban/MSF-Doro PHCC	11/28/2019	11/28/2019	measles	Measles IgM positive
Maban/MSF-Doro PHCC	11/28/2019	11/28/2019	measles	Measles IgM positive
Maban/MSF-Doro PHCC	11/28/2019	11/28/2019	measles	Measles IgM positive
Aweil West/Aweil Hospital	11/22/2019	11/27/2019	measles	Measles&Rubella IgM Negative
Awel East/Aweil Hospital	11/22/2019	11/27/2019	measles	Measles IgM positive
Aweil West/Aweil Hospital	11/22/2019	11/27/2019	measles	Measles IgM positive
Aweil West/Aweil Hospital	11/22/2019	11/27/2019	measles	Measles IgM positive
Aweil East/Aweil Hospital	11/22/2019	11/27/2019	measles	Measles IgM positive
Aweil West/Aweil Hospital	11/22/2019	11/27/2019	measles	Measles IgM positive
Ikotos/Lopudi	11/22/2019	11/27/2019	measles	Rubella IgM Positive
Ikotos/Lopudi	11/22/2019	11/27/2019	measles	Rubella IgM Positive
Ikotos/Lopudi	11/22/2019	11/27/2019	measles	Measles IgM positive
Ikotos/Lopudi	11/22/2019	11/27/2019	measles	Measles IgM positive
Yirol west PHCC	11/22/2019	11/27/2019	measles	Measles&Rubella IgM Negative
Nzara/Nangirimo	11/22/2019	11/27/2019	measles	Measles IgM positive

Measles and Rubella Laboratory Test Results, week 47 of 2019 (2)

During this week 27 sample results were released as fellows :

- **Maban (13) samples:**
  - **(12) measles IgM positive**
  - **(1) rubella measles IgM positive**
- **Aweil West/ Aweil Hospital (6) samples:**
  - **(5) measles IgM positive**
  - **(1) measles/rubella IgM negative**
- **Aweil East (2) samples:**
  - **(2) measles IgM positive**
- **Ikotos/ Lopudi (4) samples:**
  - **(2) measles IgM positive**
  - **(2) rubella IgM positive**
- **Yirol West PHCC (1) sample:**
  - **(1) measles/rubella IgM positive**
- **Nzara/ Nangirimo (1) sample:**
  - **(1) measles IgM positive**

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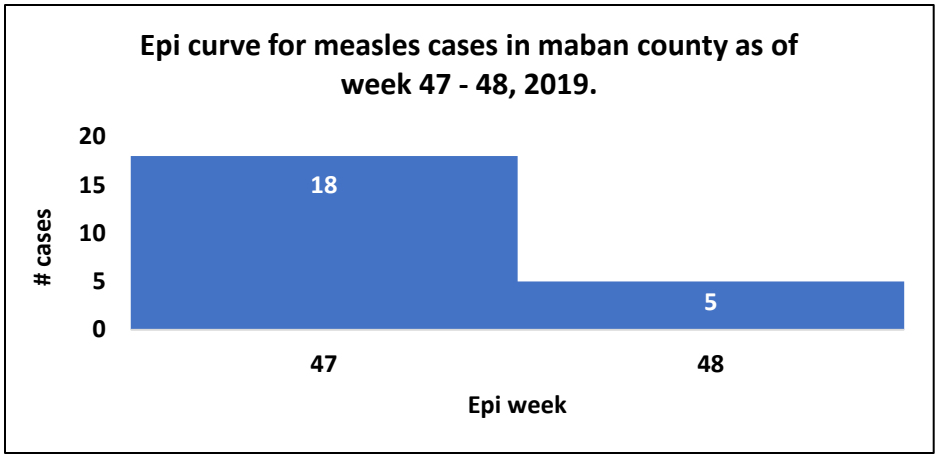
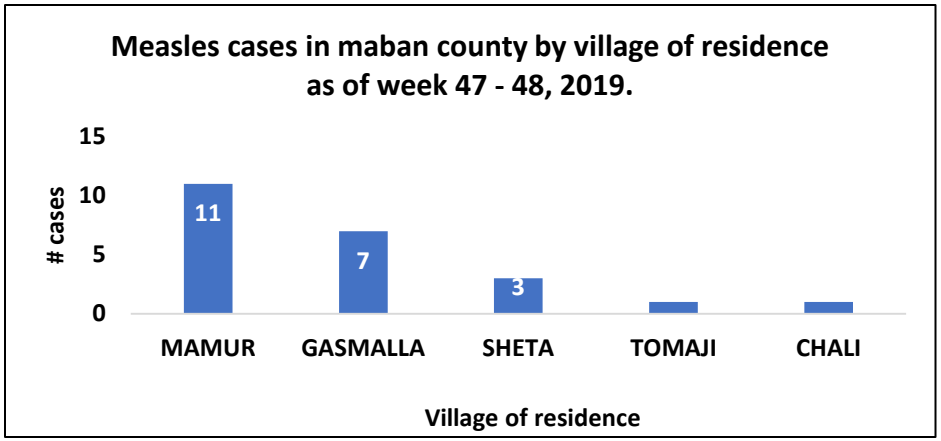
Confirmed Measles Outbreak in Maban County





Age group	Cases	Percentage	Cum. %
0 - 4 Years	19	83%	83%
10 - 14 Years	2	9%	91%
5 - 9 Years	2	9%	100%
Grand Total	23	100%	

Descriptive Epidemiology:

- Initial cases were reported on 1th November 2019
- A total of 23 Suspected Measles case have been line listed in Maban county
- 05 new cases were reported in week 48, 2019
- 12 samples were collected of which, 11 samples tested positive for measles and (1) positive for Rubella IgM
- The most affected payams are: Mamur and Gasmalla
- 83% of the cases are less than 5 years of age
- 39% of cases are females while 61% are male
- No deaths reported

- **Response and Recommendations:**
- Rapid response team deployed to support the response
- Reactive campaign micro plan has been developed
- Surveillance and line-listing are ongoing
- Case management underway
- SMoH, MSF-B are conducting a reactive campaign from 4th Dec, targeting 7394 children age 6 months to 15 years in the affected areas in Maban.

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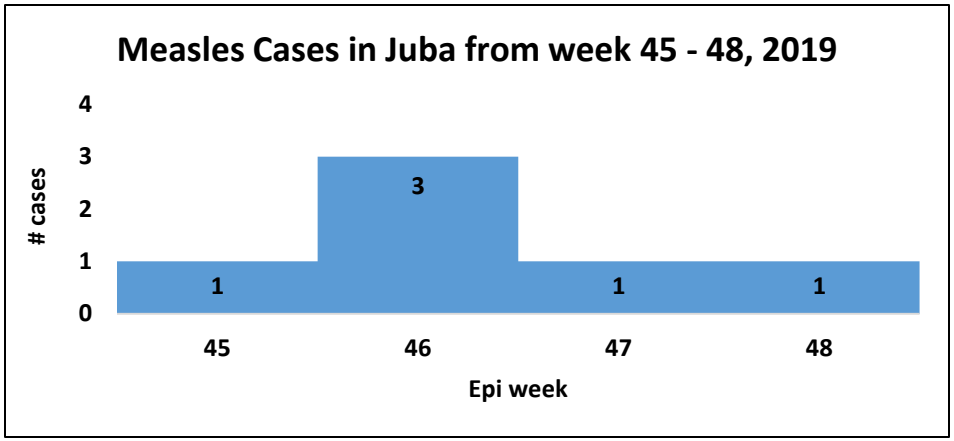
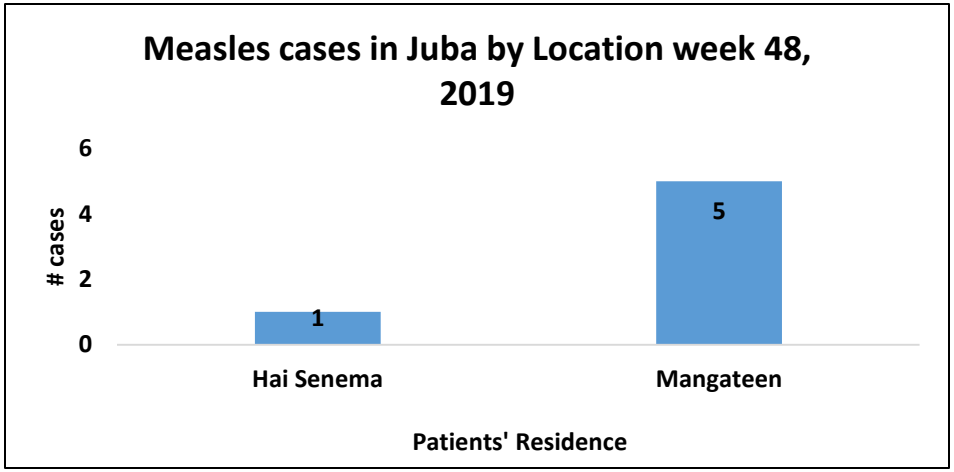
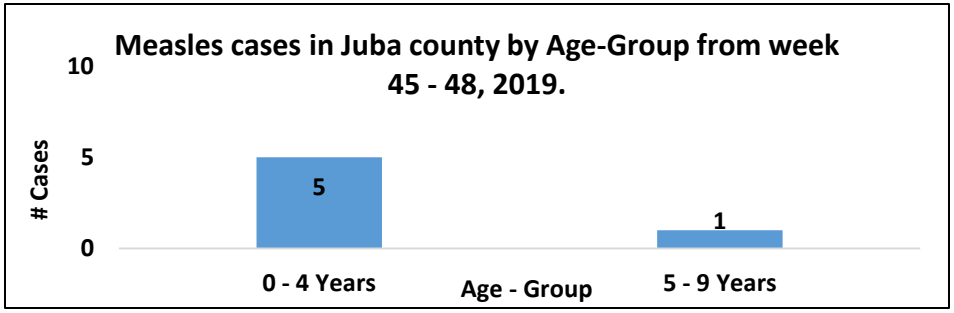
Confirmed Measles Outbreak in Juba County / Mangateen IDP Camp







Descriptive Epidemiology:

- Initial cases were reported on 11th November 2019
- A total of 06 suspected measles case have been in Juba county since week 45 of 2019.
- 01 new cases were reported in week 48, 2019
- 04 samples were collected and all tested positive for measles IgM
- The most affected payam is Mangateen
- 83% of the cases are less than 5 years of age
- 17% of cases are females while 83% are male
- No deaths were reported

- **Response and Recommendations:**
- Rapid response team deployed to support the response
- Reactive campaign micro plan has been developed
- Surveillance and line-listing are ongoing
- Case management underway

Age-Group	Cases	Percentage	Cum. %
0 - 4 Years	5	83%	83%
5 - 9 Years	1	17%	100%
Grand Total	6	100%	

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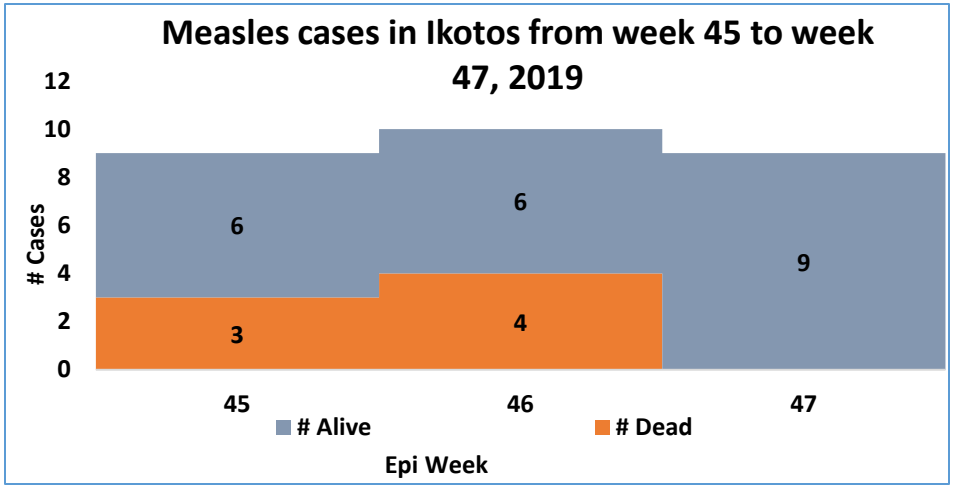
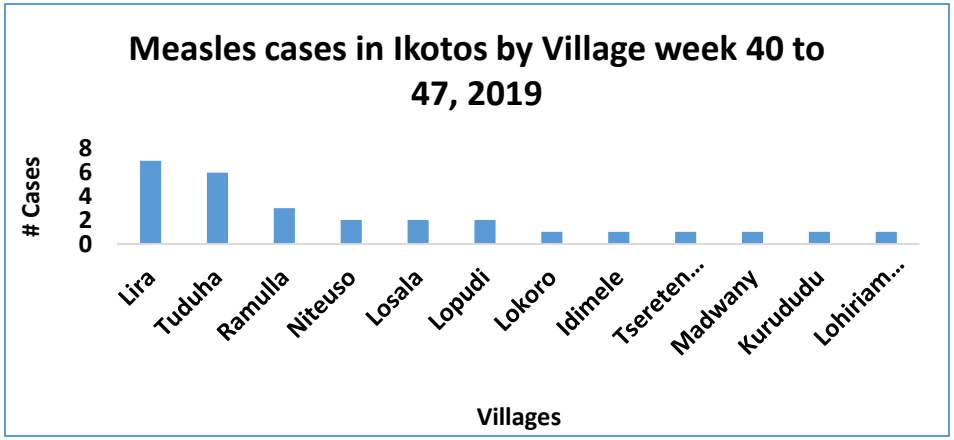
Confirmed Measles Outbreak in Ikotos County





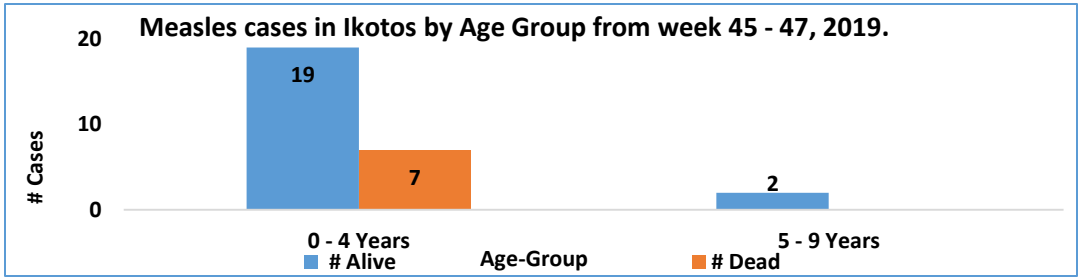
Age-Group	Cases	Percentage	Cum. %
0 - 4 Years	26	93%	93%
5 - 9 Years	2	7%	100%
Grand Total	28	100%	

Descriptive Epidemiology:

- Initial cases were reported on 15th November 2019
- A total of 28 Suspected Measles case have been in Ikotos county since week 45 of 2019.
- 09 new cases were reported in week 47, 2019
- 06 samples were collected last week of which, 05 samples tested positive for measles and (1) negative for measles/Rubella IgM negative
- The most affected payams are: Lira and Tuduha
- 93% of the cases are less than 5 years of age
- 60% of cases are females while 40% are male
- Total of 7 deaths reported CFR of (25%)

Response and Recommendations:

- Rapid response team deployed to support the response
- Reactive campaign micro plan has been developed, SMoH, HLSS are planning to initiate the campaign by 9th Dec 2019
- Surveillance and line-listing are ongoing
- Case management underway



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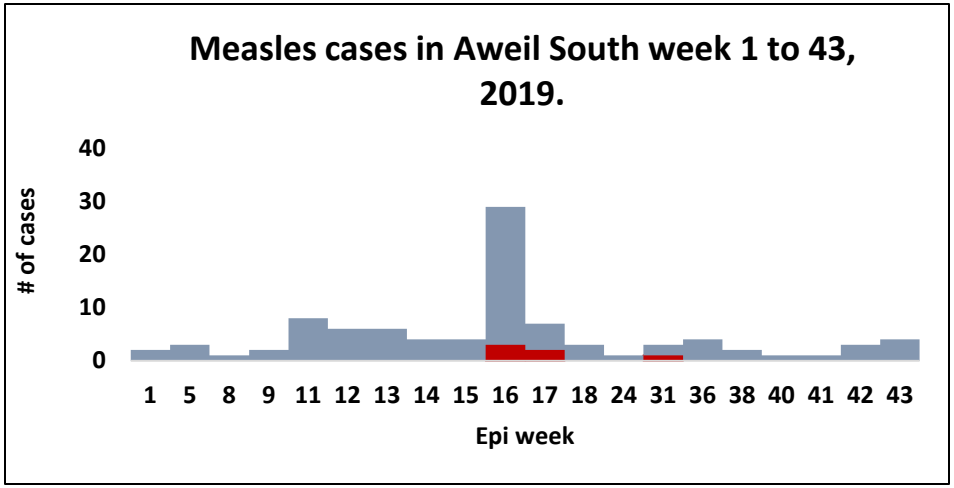
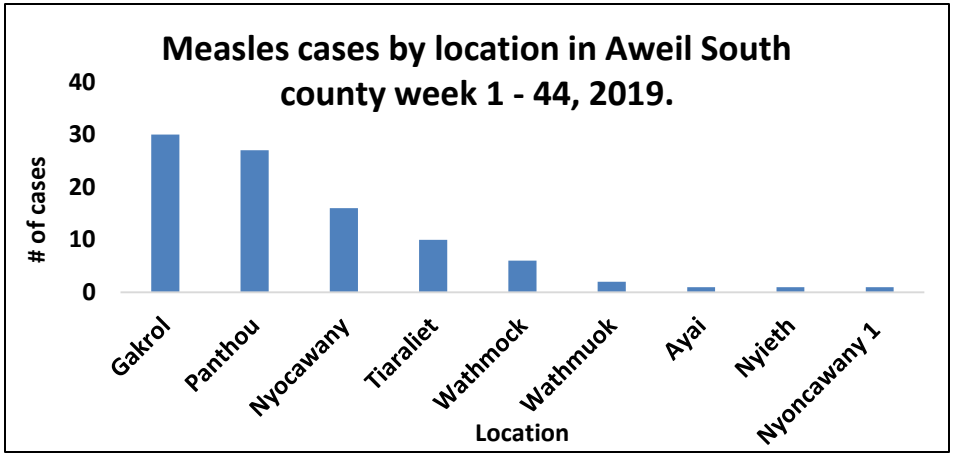
Confirmed Measles Outbreak in Aweil South County





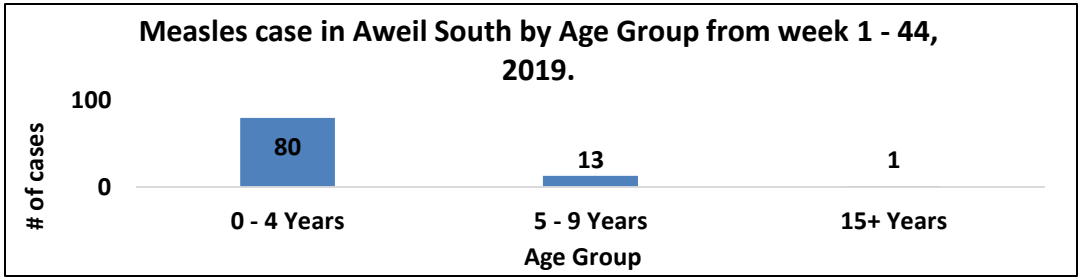
Age Group	Cases	Percentage	Cum. %
0 - 4 Years	80	85%	85%
5 - 9 Years	13	14%	99%
15+ Years	1	1%	100%
Grand Total	94	100%	

Descriptive Epidemiology:

- Initial cases were reported on 15/03/2019
- A total of 94 Suspected Measles case have been line listed since week 01 of 2019.
- 03 new cases were reported in week 43, 2019
- Six (6) samples tested positive for measles IgM
- The most payams affected are; Gakrol and Panthou
- 85% of the cases are less than 5 years of age
- 44% of cases are females while 58% are male
- **Outbreak was detected earlier, and campaign was conducted in June with coverage of 24,261 (116%)**

Response and Recommendations:

- Rapid response team deployed to support the response
- Reactive campaign micro plan development is ongoing
- Surveillance and line-listing are ongoing
- Case management underway



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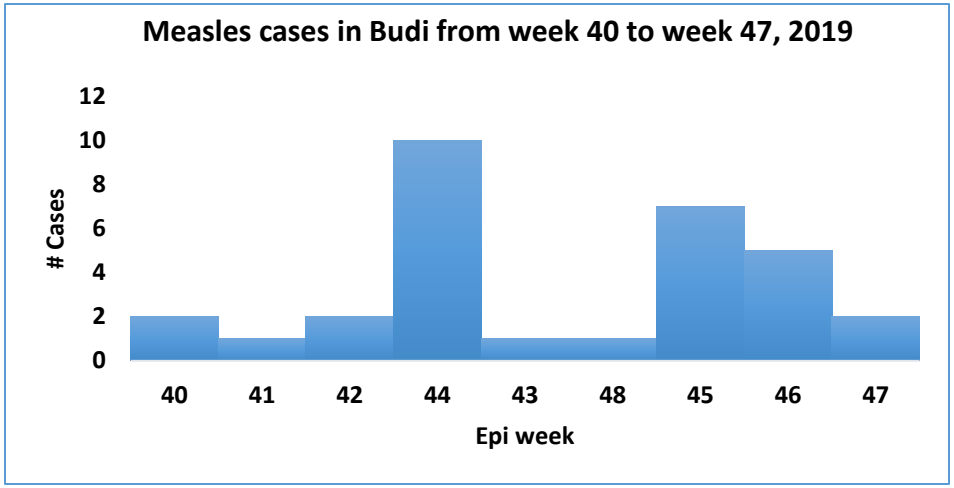
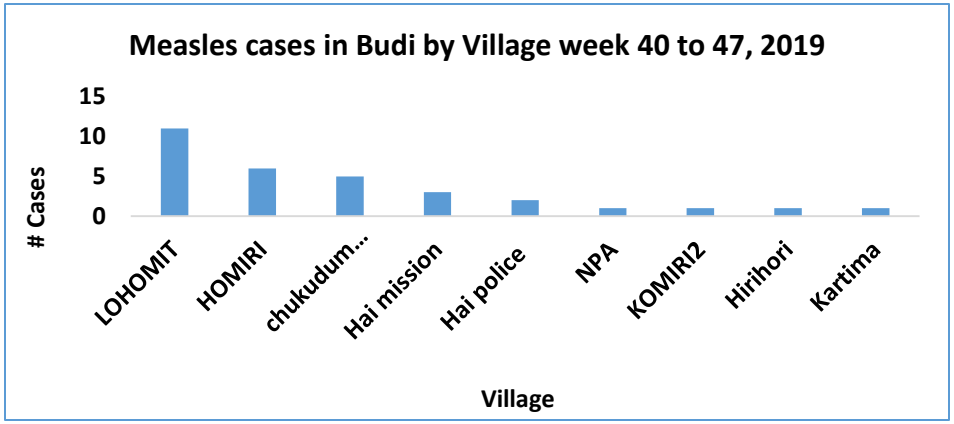
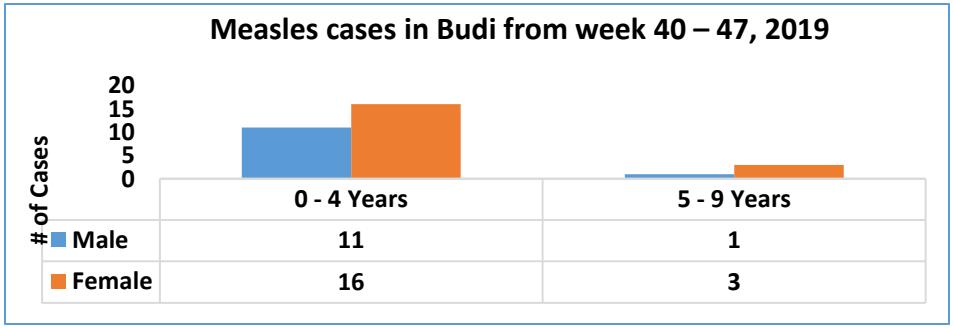
Confirmed Measles Outbreak in Budi County







Descriptive Epidemiology:

- A total of 31 Suspected Measles case have been in Budi county since week 40 of 2019.
- 2 new cases were reported in week 47, 2019
- Initially 3 samples were collected for testing in which 2 samples tested positive for measles and I negative
- 10 samples were collected last week of which(8) samples tested positive for measles and (2) negative
- 87% of the cases are less than 5 years of age
- 61% of cases are females while 39% are male
- The most affected payams are; Lohomit, Homiri and Chukudum
- One deaths reported in week 44 from Chukudum with CFR (3.22)%

Response and Recommendations:

- Rapid response team deployed to support the response
- Reactive campaign micro plan has been developed, SMoH, Cordaid and partners are conducting the on 9th Dec, 2019
- Surveillance and line-listing are ongoing
- Case management underway in Chukudum hospital

Age Group	Cases	Percentage	Cum. %
5 - 9 Years	4	13%	13%
0 - 4 Years	27	87%	100%
Grand Total	31	100%	

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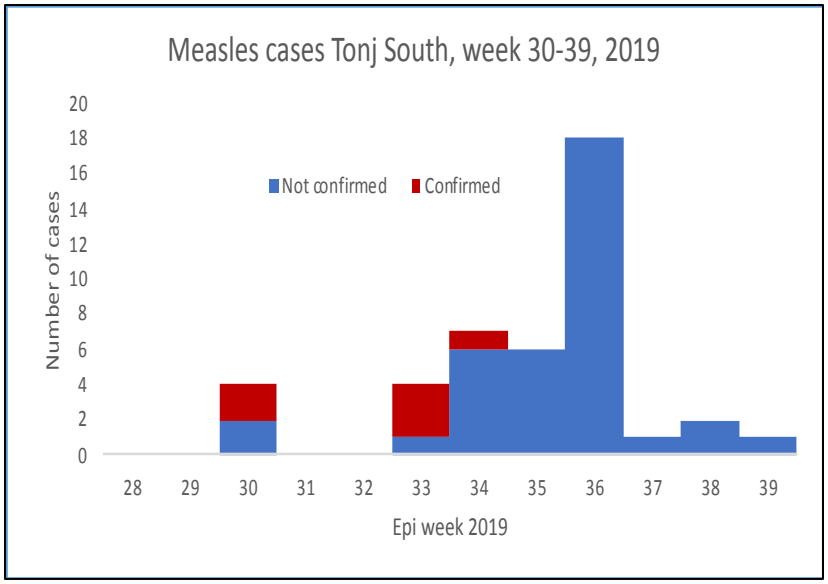
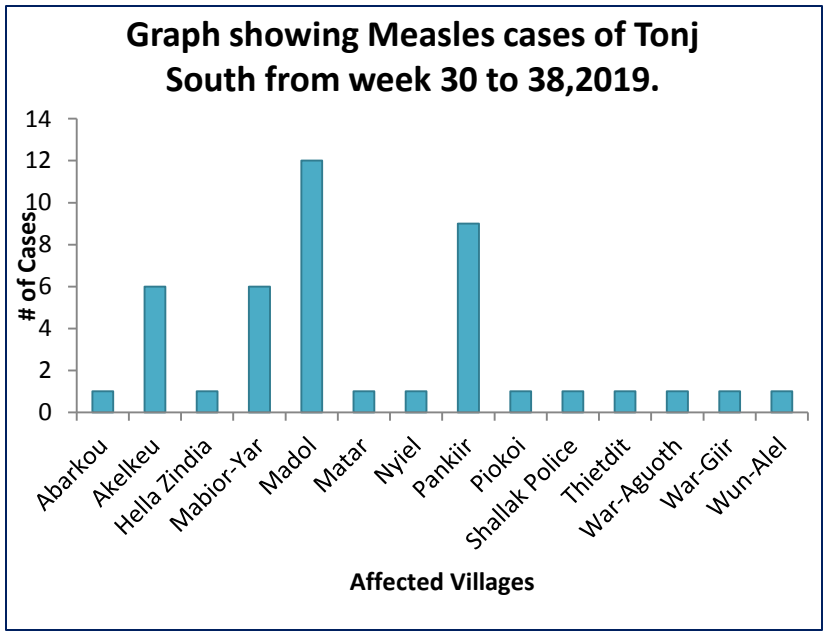
Measles cases in Tonj South County





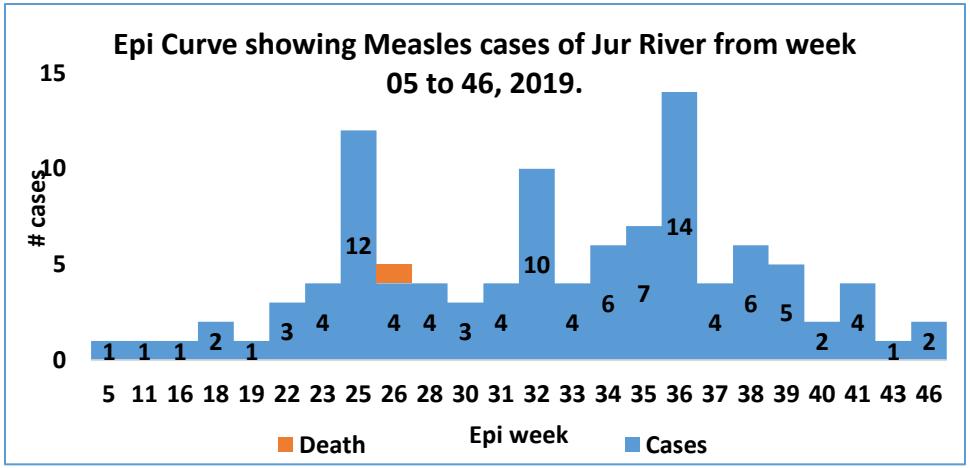
Descriptive Epidemiology:

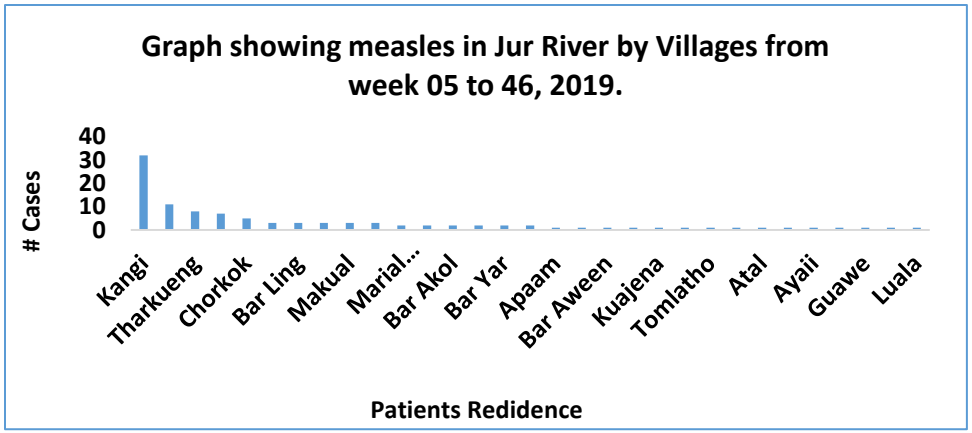
- Suspected measles case was initially detected at Tonj hospital in a 10-month-old female on 30th July 2019
- A total of eight (8) samples collected (6 measles IgM positive & 1 rubella IgM positive) thus confirming a measles outbreak
- 47 measles cases (0 death) reported since week 30
- Four (4) out of five (5) Payams are affected; with Tonj & Wanhalel Payams being the most affected. Most cases originate from Tonj and Wanhalel payam. No new cases reported as of week 38, 2019.
- 56% of the cases are less than 5 years of age and 31 % of the cases reported have not received measles vaccine

Response and Recommendations:

- Following the confirmation of a measles outbreak in the county, a reactive vaccination microplan targeting 26,244 children 6-59 months in five payams of Jak; Thiet; Manyang Ngok; Tonj; and Wanh Alel has been developed.
- *The other interventions include:*
- Intensified surveillance and line-listing of new measles cases
- Treating suspect cases with oral rehydration, vitamin A, and antibiotics for suprainfections
- Social mobilization and health education on measles case symptoms; prompt health care seeking; and routine immunization.
- **SMoH, CCM and partners conducted a reactive campaign on the 3rd week of October with total of 30,903 children vaccinated and coverage of 118 %**
- **PCE coverage in Tonj South is 96%**
- **No new cases reported since week 39, 2019**

Measles cases in Jur River





Age-Group	Cases	Percentage	Cum. %
10 - 14 Years	4	4%	4%
15+ Years	11	10%	14%
5 - 9 Years	17	16%	30%
0 - 4 Years	73	70%	100%
Grand Total	105	100%	

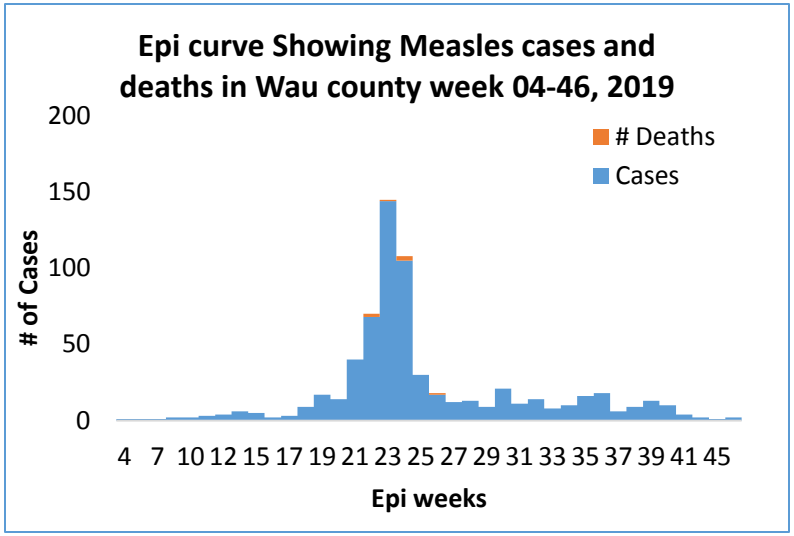
Descriptive Epidemiology:

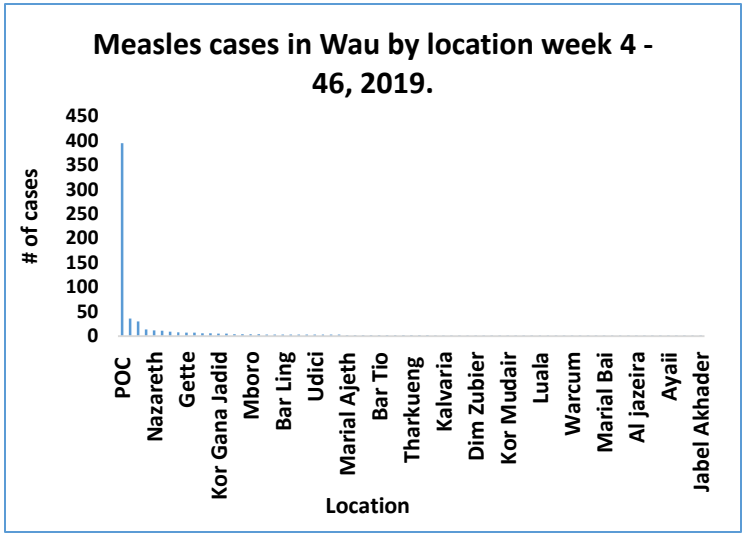
- Initial cases were reported on 6 Feb from Marialbai PHCC from Bar Aween village
- 7 measles IgM positive cases recorded since outbreak onset
- 105 cases in total were reported since the beginning of the outbreak. Most of the cases have been reported from Kingi; Tharkueng and Chorok
- 2 new cases were reported in week 46, 2019
- 70% of cases were under 5 yrs old of age
- 51% are female and 49% male
- 69 % of the cases reported are not vaccinated against measles

Response and Recommendations:

- Following the confirmation of a measles outbreak in the county, a reactive vaccination microplan targeting 60,435 children 6-59 months in five payams of Rocroc; Kuajina; Udici; Kangi; and Marial Bai/ Wau Bai has been developed.
- *The other interventions include:*
- Intensified surveillance and line-listing of new measles cases
- Treating suspect cases with oral rehydration, vitamin A, and antibiotics for suprainfections
- Social mobilization and health education on measles case symptoms; prompt health care seeking; and routine immunization.
- **SMoH, Cordaid and partners finalized a reactive campaign conducted with (92.4%) coverage**

Confirmed Measles Outbreak in Wau County and Wau POCAA





Age-Group	Cases	# Deaths	Percentage	CFR	Cum. %
0 - 4 Years	487	7	75%	1.4%	75%
5 - 9 Years	89	0	14%	0.0%	88%
15+ Years	39	0	6%	0.0%	94%
10 - 14 Years	38	0	6%	0.0%	100%
Grand Total	653	7	100%	1.4%	

Introduction

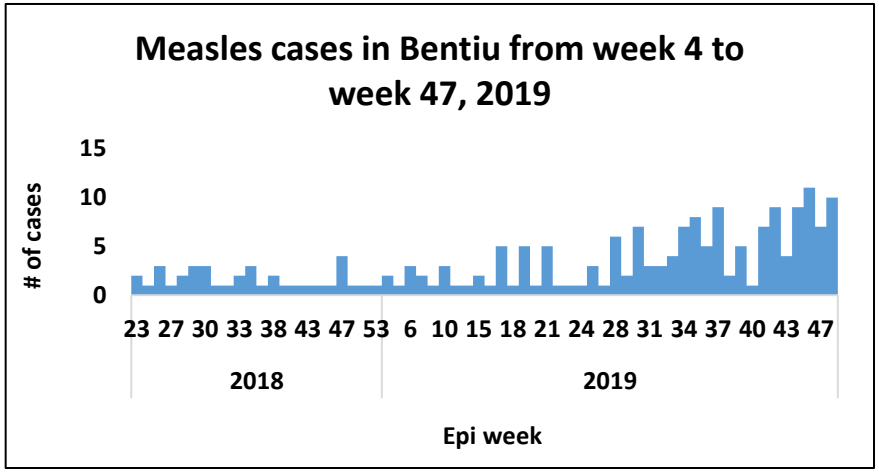
- In week 19, 2019 a measles outbreak was confirmed in Wau county & Wau POC AA.
- Of the 46 samples tested in 2019; a total of 13 tested measles IgM positive while 15 tested rubella IgM positive
- The outbreak of measles was confirmed in May 2019.

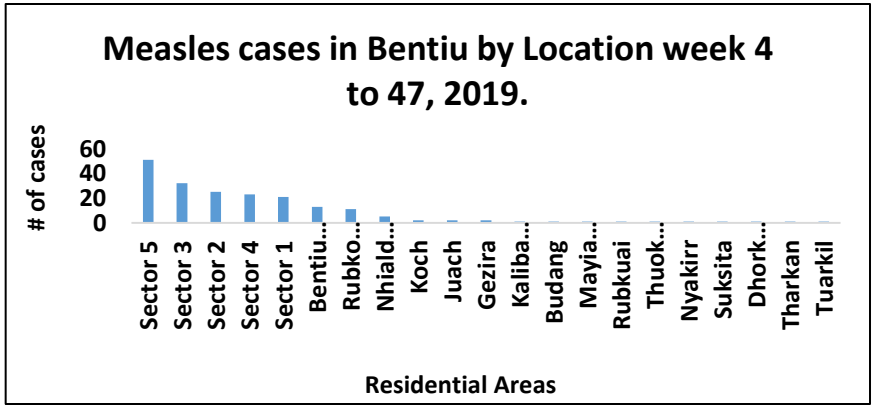
Descriptive Epidemiology:

- Since week 4 of 2019; a total of 653 cases including 6 deaths (CFR 1.2%) have been reported from Wau County. The outbreak peaked in week 22, 23 and 24 and later came down to 2 cases in week 45 and 1 case in week 46, 2019
- 75% of the cases are under the age of 5years with 85 % of the cases not vaccinated against measles.
- **Response and recommendations**
- IOM, UNICEF and partners conducted a campaign covered Wau municipality and extended to some IDPs collective sites in Jur River from 3rd – 10th June
- Target populations (27,166) child from 6-59 months, the coverage was 85% as (23,028) child vaccinated including (1,628) child from IDPs collective site in Jur River County. PCE by MoH and WHO showed a coverage of 89.15%.
- Vaccination post for measles has been fixed at the entrance of the POC-AA is continuing with vaccination for the new arrivals and children who missed vaccination during the reactive campaign.

Response| Confirmed epidemics

Confirmed Measles and Rubella outbreak in Bentiu PoC





Age-Group	Cases	Percentage	Cum. %
10 - 14 Years	4	2%	2%
15+ Years	2	1%	3%
5 - 9 Years	8	4%	7%
0 - 4 Years	183	93%	100%
Grand Total	197	100%	

Epidemiological description

- Bentiu PoC has been reporting suspected measles/rubella cases since week 4 of 2019.
- 11 new cases reported in week 47, 2019
- At least 197 measles cases including 1 death (CFR 0.54%) reported since then.
- Cumulatively, 36 tested cases have tested measles IgM positive while 15 tested rubella IgM positive.
- 51% of cases are female and 49% are male
- 93% are under 5 yrs old, 8% are 5 yrs old and above
- Cases have been reported from inside and outside the PoC with most of the cases originating from the PoC (most cases from sector 5 but generally all the sectors are affected).

Response actions

- IOM completed a reactive campaign in Bentiu POC on 31 May 2019. with 21,285 children 6-59 months (126%) receiving measles vaccination
- PCE was done by MoH & WHO, coverage was 74.6%.
- Bentiu has continued to experience an upsurge of returnee refugees many of whom have ended up in Bentiu PoC. Hence the increased movements and congestion have precipitated and facilitated the current transmission of measles in Bentiu PoC.
- Consequently, measles vaccination posts have been mounted at bus stops and at the entrance to the PoC to ensure that all children under 15 years that are arriving in Bentiu receive measles vaccine.

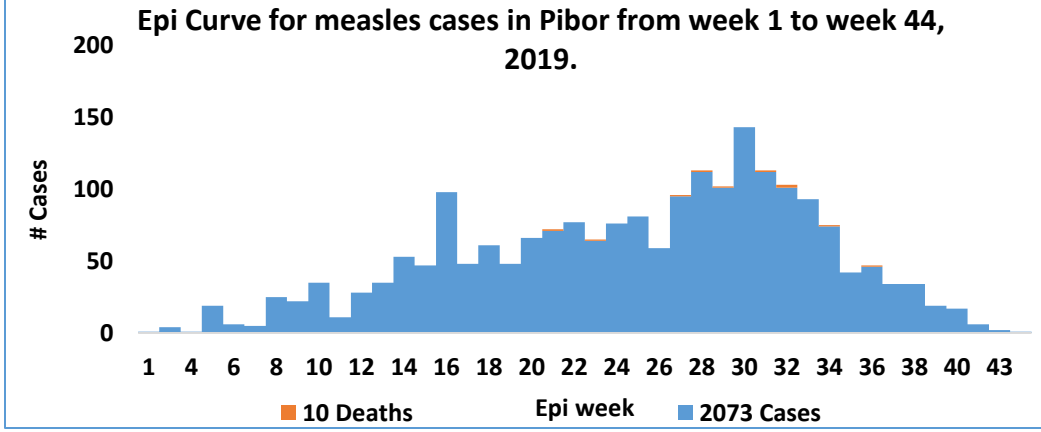
Measles in Pibor County

Background and descriptive epidemiology

- Measles transmission has persisted in Pibor County despite of the vaccination campaign conducted in February and March and October, 2019
- A total of 2073 measles cases (9 deaths – [CFR 0.43%] reported since week 2 of 2019
- A total of eight (8) measles IgM positive cases recorded since outbreak onset
- 70.% of the cases are less than 5 years of age
- 32.3 % of the cases reported are not vaccinated against measles
- Most of the cases shave been reported from Pibor; Gumruk; Lekuangole; Verteth. In addition, cases were recently confirmed in Labarab & Marua.

Response actions:

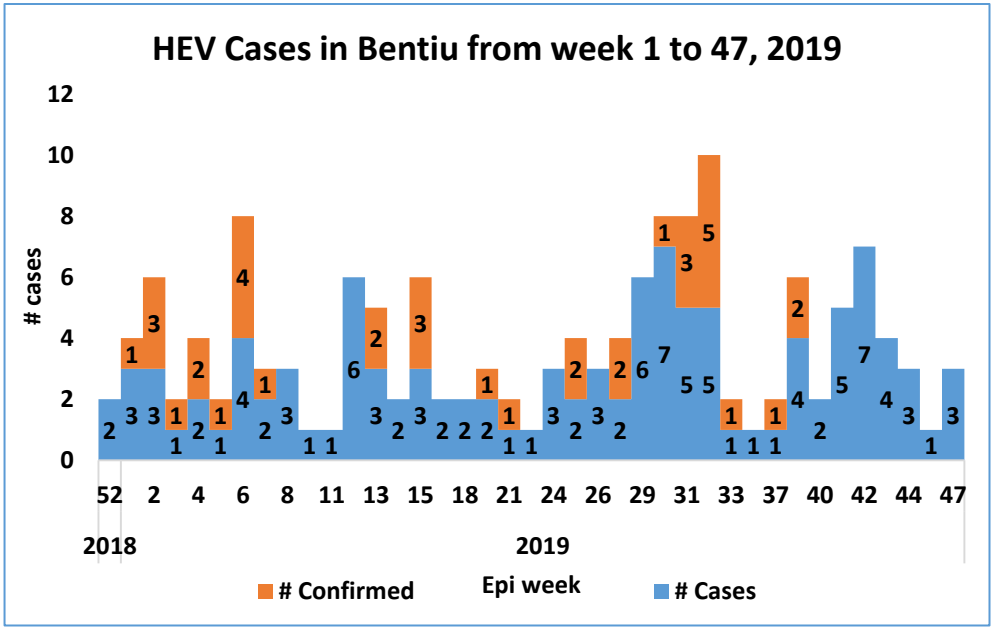
- Due to persistent transmission; MedAir and LiveWell implemented a measles campaign in Pibor; Lekuangole; Verteth; Gumuruk to interrupt transmission.
- The campaign started on 1st September 2019, targeting 27,122 (6-59 months and 5-15 years combined).
- LiveWell and WHO eMMT started on 7th October a vaccination campaign targeting at least 3,200 children aged 6 – 59 months in Marua and Labarab



Age-Group	Cases	Percentage	Cum. %
0 - 4 Years	1453	70%	70%
5 - 9 Years	453	22%	92%
10 - 14 Years	88	4%	96%
15+ Years	79	4%	100%
Grand Total	2073	100%	

- **Labarab: Target population: 1,574; children age 6 months to 15 years (45%). The total number vaccinated is 592 with coverage of 38%**
- **Marua: Target Population: 1712, children age 6 months to 15 years (45%). Total number Vaccinated is 1,783 with coverage of 104%**
- **No reported AEFIs in both areas**

Hepatitis E, Bentiu PoC



Descriptive epidemiology

- The persistent transmission of HEV in Bentiu PoC continues with 108 cases since beginning of 2019
- Total of (108) cases line listed
- There was (01) cases reported in week 46; & one (03) case in week 47, 2019.
- All the cases were managed as outpatient cases except for seven cases who were admitted
- Two deaths one on 12th, April 2019 and the second on 11th July 2019
- Over half (52%) out of 108 cases are male.
- Age group less than 15 years had the most cases with 78 (71%) cases.
- At risk of adverse outcomes when infected in the 3rd trimester of pregnancy
- Use of unsafe drinking water likely to be source of infection
- Up to week 46, 2019; there were 106 cases of HEV in Bentiu PoC including 2 deaths (CFR 1.88%)

Recommended actions

- Supportive case management guided by the HEV protocol is ongoing
- Social mobilization to raise awareness on modes of transmission, symptoms and where to seek for care
- Case identification and follow up in the communities is ongoing
- The other WASH interventions entail provision of safe water and water quality surveillance along the water chain

Age-Group	Alive	Dead	Grand Total	Percentage	Cum. %
1 - 4 Years	33		33	30%	30%
10 - 14 Years	21		21	19%	49%
15+ Years	31	1	32	29%	78%
5 - 9 Years	23	1	24	22%	100%
Grand Total	108	2	110	100%	

World Health Organization South Sudan

Response| Summary of major Controlled outbreaks in 2019 (1)

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
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**	17/01/2019	0	19 (0.010)	Yes	Yes	Yes	N/A
Measles	**Gogrial West**	04/02/2019	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	0	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	**Gogrial East**	4/04/2019	0	30 (0.003)	Yes	Yes	Yes	N/A
Measles	**Malakal PoC**	24/04/2019	0	2 (0.01)	Yes	Yes	Yes	N/A

Response| Summary of major Controlled outbreaks in 2019 (2)

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
Hepatitis E	**Lankein**	28/2/2019	0	10 (0.1)	yes	No	yes	N/A
Measles	**Juba & PoC**	15/01/2019	0	68 (0)	Yes	Yes	Yes	N/A
Rubella	**Bentiu Poc**	-	0	51 (0)	yes	No	yes	N/A
Measles	**Tonj North**	2/04/2019	0	20 (0)	Yes	Yes	Yes	N/A
Measles	**Aweil West**	4/04/2019	0	48 (0)	Yes	Yes	Yes	N/A
Measles	**Aweil East**	13/05/2019	2	19 (0.14)	Yes	Yes	Yes	N/A
Measles	**Renk County**	28/2/2019	0	7(0)	yes	Yes	Yes	N/A
Rubella	**Yirol West**	06/08/2018	NR	19(0.21)	Yes	No	Yes	N/A
Measles	**Tonj South**	30/07/2019	0	47(0.021)	Yes	No	Yes	N/A
Measles	**Yambio**	06/09/2019	NR	16(0.186)	Yes	No	Yes	N/A

EBOLA VIRUS DISEASE[EVD] PREPAREDNESS IN SOUTH SUDAN

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

World Health Organization
South Sudan

Ebola update DRC 26 November 2019

Current situation

- Currently as **of 24 November 2019**
- **3303** Cases [3185 confirmed &118 probable]
- **2199** Deaths [2105 confirmed & 94 probable]

Response update

- 1 August 2019 marked one year since the Government of the Democratic Republic of the Congo declared the Ebola outbreak

Affected health zones

- In the past 21 days (from 4 to 24 November 2019), 12 health areas and four health zones have reported cases.
- During this period, a total of 28 confirmed cases were reported, with the majority reported from Mabalako (54%; n=15 cases) and Beni (32%; n=9).
- There have been no new confirmed cases in Nyakunde Health Zone for 42 days.

Source: WHO Ebola situation report

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

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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

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