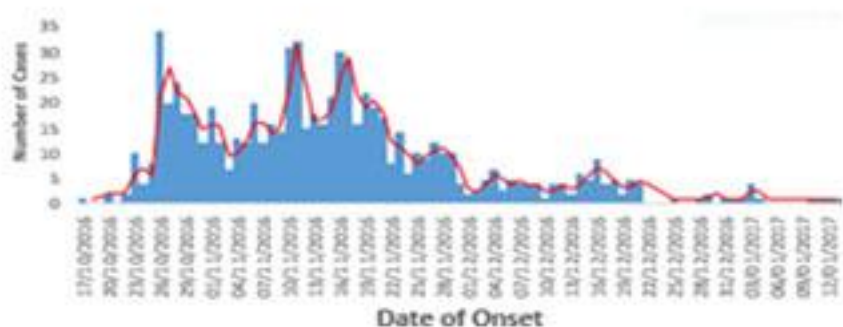




# Ghana Weekly Epidemiological Report



## IN THIS ISSUE

- Improving Meningitis Surveillance in Upper West Region, 2019; A Review of Cases and Orientation of Personnel
- All cases of Meningitis recorded in Nadowli-Kaleo and Nandom districts confirmed negative

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## **Improving Meningitis Surveillance in Upper West Region, 2019; A Review of Cases and Orientation of Personnel**

### **BACKGROUND**

Meningitis remains a major public health problem in Africa. Countries within the 'African meningitis belt' experience the highest incidence and fatalities during the meningitis season. Regions in Ghana occurring within the 'meningitis belt' include Upper West, Northern and Upper East; meningitis has been described to be endemic in these regions. The Upper West region is one of the regions that has consistently reported relatively high number of meningitis cases over the years. Ghana recorded the last meningitis outbreak in the 2015/2016 meningitis season and districts involved, Jirapa, Nadowli-Kaleo and Nandom were all in the Upper West Region. Following this outbreak, Jirapa, Nadowli-Kaleo, Lawra, Wa, Daffiama-Bussie-Issa and Nandom have reported seasonal high number of cases. Though the number of suspected cases have been high in these districts and the region as a whole, the proportion of confirmed cases has been relatively low. As part of efforts to improve on surveillance in the region and review case detection, a technical team visited the Region.

### **METHODS**

#### **Study Sites**

The team from the National level and the Regional Health Directorate reviewed folders of reported meningitis cases in the selected districts from 2017 to 2019. The team was made up of epidemiologists, clinicians and Technical officers. They visited; Upper West Regional Health Directorate, District Health Directorates of Jirapa, Nadowli-Kaleo and Nandom, St. Joseph Hospital-Jirapa, Nadowli-Kaleo District Hospital and St. Theresa's Hospital-Nandom

#### **Procedures**

A two-tier method was adopted in the activity; Data review and Dissemination of review findings and orientation of personnel. A technical working group was formed to develop a data retrieval tool. The tool was deemed important to bring objectivity to the data review and classification of cases. The data extraction and review tool was developed using meningitis signs and symptoms as presented in the meningitis Case Based Surveillance Standard Operating Procedures (SOP). All patients' folders (suspected meningitis cases) were reviewed using the tool. Cases were then classified as 'Not a Case', 'Suspected case', 'Probable case' or 'Confirmed case' using the information in the folder. An Epi Info template was developed for data entry. Data were then cleaned and

analysed using Microsoft Excel Pivot table. After the clinical review of the cases, a dissemination and orientation meeting was organized which involved presentations and discussion of key findings from the patient folder review and case studies. Selected cases from the folder reviews were presented to participants to classify appropriately based on the information available in patients' folders. Information in the folders as well as districts and facilities where cases were selected were made anonymous. Following the review of folders, a dissemination and orientation meeting was organized for all District Directors, District Disease Control Officers and a Clinician from all 11 districts in the region. The dissemination meeting focused on providing feedback on the key findings of the review to ascertain and address factors that affect meningitis diagnosis in the region. Participants (48) were oriented on meningitis case definition as provided in the SOP using a job aid.

### **FINDINGS**

There were 606 cases on the line list from 2017 to 2019 but only 337 (55.6%) were retrieved. The highest number of folders were retrieved from Nadowli-Kaleo [Table 1]. All districts visited recorded high LP rate above 80% of the meningitis suspected cases. Gram stain was done for about 88.7% of cases reviewed with Nandom recording the highest percentage of cases with gram staining results. Latex agglutination test was the performed in very few cases of the folders reviewed. In about 74% of the cases, CSF agglutination test was not done., Culture was done in only Jirapa due to its large capacity. Results showed no growth in 25 of the 26 samples for which culture was done. Macroscopy indicated that 74.8% of CSF extracted had a clear appearance. One case was however confirmed positive by culture. Based on the criteria for classifying meningitis cases provided in the case-based meningitis SOP, 58.2% of the cases reviewed were classified as 'Not cases', and 24.3% classified as 'Suspected cases'. About 17.2% met the case definition of 'Probable case' whilst only one case was classified as a 'Confirmed case' [Table 2]. Per case definitions (suspected case), 18.9% of the cases classified as "Not cases" recorded temperatures of 38°C < whilst the remainder did not have temperatures above 38°C. All the 37 cases with temperatures of 38°C and above did not report or document any other sign of meningitis and therefore were classified as "Not cases"

**Table 1; Summary of Folders Reviewed, Jirapa, Nandom and Nadowli-Kaleo, 2017-2019**

District	Cases on Line list	Folders Retrieved	% of Folders Retrieved
Jirapa	192	72	37.5
Nadowli-Kaleo	210	136	64.8
Nandom	204	129	63.2
<b>Total</b>	<b>606</b>	<b>337</b>	<b>55.6</b>

**Table 2; Summary of Case Classification in Jirapa, Nandom and Nadowli-Kaleo, 2017-2019**

Case Classification	Number	% Percentage
Confirmed Case	1	0.3
Not a Case	196	58.2
Probable Case	58	17.2
Suspected Case	82	24.3
<b>Grand Total</b>	<b>337</b>	<b>100</b>

### Key Discussion Points from Dissemination

The following were the key discussion areas after the presentation:

- ❖ Most clinicians in the region have a very high suspicion index due to experiences and events with respect to meningitis. With this premise, clinicians tend to over diagnose without having the evidence of signs or symptoms of meningitis.
- ❖ Though the high alert was encouraged and appreciated, the other possible effects were highlighted. These included the invasive nature of LP and the possible development of antimicrobial resistance following inappropriate use of antibiotics.
- ❖ The need for clinicians and all those involved in meningitis activities to adhere to the standard protocol and to thoroughly examine patients with appropriate history taking before drawing conclusions

- ❖ Importance of examining clients for Kerning's as this is another key indicator for suspecting meningitis.
- ❖ Other signs and symptoms including consciousness and coma among adults should not be over looked but should thoroughly be examined.
- ❖ Improved documentation for all activities and procedures should be carried out to arrive at diagnosing meningitis and all other priority diseases.
- ❖ District Surveillance Officers were encouraged to ensure appropriate and regular update of line lists including confirmatory result as and when it is received from the laboratory.
- ❖ Limited number of clinicians (Doctors) in the region

### Case Studies

Three cases were presented for discussion; participants were able to appropriately classify the cases as 'Not a case', 'Suspected' and 'Probable'. Participants also raised concerns for discussions on what was done right or otherwise using the meningitis tool aid provided and the meningitis classification tool developed. Participants also assigned various reasons for the classification. The strengths of districts based on the findings included: High indices of case suspicion, LP rate, Gram stain tests, CSF Microscopy, and the availability of line lists in all districts

### CONCLUSION

A very high suspicion index for meningitis was found across all sites visited. High LP rate, non-adherence to the meningitis standard case definition, inadequate documentation of patients' histories and other procedures were discovered as barriers to appropriate Case detection in the Upper West region. Challenges with sample transportation to Tamale Zonal Laboratory for the PCR and limited number of doctors in the region contribute to difficulties in meningitis surveillance in the Upper West region.

### RECOMMENDATIONS

The following recommendations are suggested to improve case detection and meningitis surveillance in the region

- Meningitis Classification Tool should be used and adopted at various health administrative levels
- There should be regular review of cases using Meningitis Classification Tool (Hospital, DHD and RHD)
- Standardise Laboratory reporting format for CSF
- Meningitis Case-Based Meningitis SOP should be adhered to at all levels

## Summary of Weekly Epidemiological Data for Week 09, 2019

### Weekly Spotlight:

- All cases of Meningitis recorded in Nadowli-Kaleo and Nandom districts confirmed negative

### SUMMARY OF PRIORITY DISEASES AND EVENTS - WEEK 09, 2019

The total all-cause notifiable disease morbidity for the week (as per IDSR Weekly Summary Reporting Form) was 1,296 with three maternal deaths and one meningitis related death. Acute watery diarrhoea in persons aged 5 years and above being the highest proportion of cases reported, contributed 60% of the notifiable diseases case load during Week 9 [See Figure 1 and Annex 1]

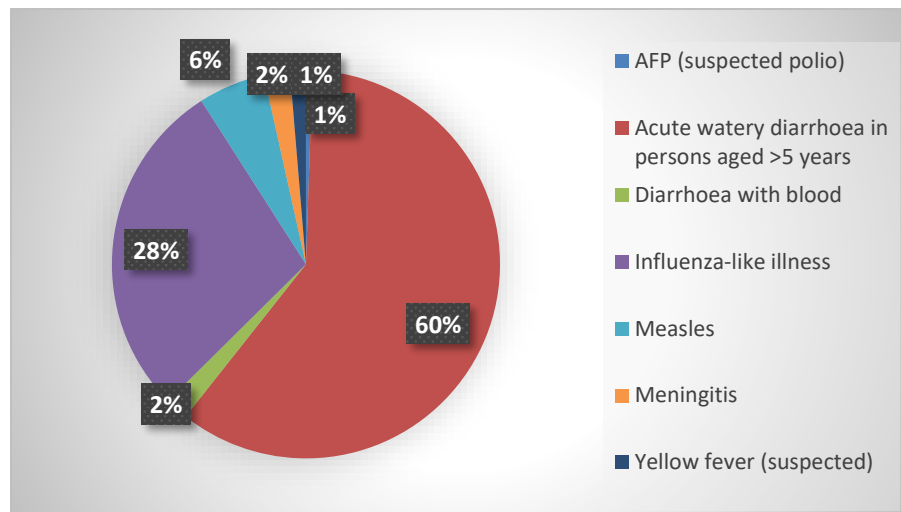


Figure 1: Proportion of recorded diseases/conditions, Ghana, Week 09, 2019

### INFLUENZA-LIKE ILLNESS (IDSR Weekly Report)

A total of 366 cases with no deaths were reported through the IDSR weekly reporting [Table 1]. Samples were sent from sentinel sites to the Noguchi Memorial Institute for Medical Research (NMIMR) for laboratory testing [See Table 3].

Table 1: Reported Influenza-Like Illness cases by Region and District, Ghana, Week 09, 2019

Region	Districts	Cases	Deaths
Brong-Ahafo	Sunyani	10	0
Eastern	New Juaben	77	0
Greater Accra	Accra	23	0
	Adentan	6	0
	Ga Central	8	0
	Ga East	21	0
	La-Dade-Kotopon	9	0
	Ledzokuku Krowor	26	0
	Shai Osudoku	72	0
	Tema	70	0
Upper East	Kassena Nankana	1	0
	Bolgatanga	5	0
Volta	Ketu South	5	0
Western	Sekondi-Takoradi	4	0
<b>Total</b>		<b>366</b>	<b>0</b>

### MATERNAL DEATHS

During the Week, three maternal deaths were recorded across the country at health facilities from the following districts [Table 2].

Table 2: Maternal Deaths by Region and District, Ghana, Week 09, 2019

Region	Districts	Deaths
Eastern	Lower Manya Krobo	1
	New Juaben	1
Greater-Accra	Accra	1
<b>Total</b>		<b>3</b>

### Influenza Sentinel Reporting, Week 09, 2019

A total of 110 samples were taken from 23 Sentinel Sites, which included 96 samples from Influenza Like –Illnesses (ILI) and 14 from Severe Acute Respiratory Infection (SARI) patients [Table 3]. The laboratory results were as follows; H1N1-1 case, H3N2-3 cases, Flu B VIC-1 case. This could be described as a low positivity rate compared with previous years.

Table 3: Reported ILI and SARI cases by Region, Ghana, Week 09, 2019

Region	Number of Sentinel Sites	Number of Samples			
		ILI	Confirmed	SARI	Confirmed
Ashanti	2	9	0	1	0
Brong-Ahafo	2	9	0	0	0
Central	1	6	1	0	0
Eastern	2	11	0	5	1
Greater Accra	7	21	1	3	0
Northern	3	11	0	2	0
Upper East	1	5	1	0	0
Upper West	0	0	0	0	0
Volta	2	13	1	0	0
Western	3	11	0	3	0
<b>Ghana</b>	<b>23</b>	<b>96</b>	<b>4</b>	<b>14</b>	<b>1</b>

### HUMAN RABIES

No case of Human Rabies was recorded in Week 9

### NEONATAL TETANUS

No case of Neonatal Tetanus was reported in Week 9.



**MEASLES**

During the Week, a total of 72 suspected cases of Measles were reported across the country [Table 4]. Samples were taken and sent to the National Public Health and Reference Laboratory [NPHRL] for investigations with results pending.

**Table 4: Reported Suspected Measles cases by Region and District, Ghana, Week 09, 2019**

Region	Districts	Cases	Deaths
Ashanti	Kumasi	1	0
Brong-Ahafo	Asunafo South	3	0
	Asutifi South	1	0
	Atebubu-Amanten	8	0
	Berekum	1	0
	Dormaa Central	2	0
	Jaman North	1	0
	Jaman South	2	0
	Sunyani	1	0
	Sunyani West	2	0
	Tano North	2	0
	Tano South	2	0
	Wenchi	2	0
Central	Assin North	1	0
	Gomoa West	1	0
Eastern	Akyemansa	1	0
	Birim Central	3	0
	Birim South	1	0
	Fanteakwa	1	0
	Kwaebibirem	1	0
Greater Accra	Kwahu North	2	0
	Accra	1	0
	Ada East	2	0
	Ada West	1	0
	Ashaiman	1	0
	Ledzokuku Krowor	3	0
Upper East	Bawku	1	0
	Bole	1	0
Upper West	Jirapa	1	0
	Lawra	1	0
	Sissala West	2	0
	Wa	2	0
	Wa East	1	0
Volta	Agortime-Ziope	2	0
	Central Tongu	4	0
	Ho	1	0
	Ketu South	2	0
Western	Aowin	3	0
	Ellembelle	1	0
	Jomoro	1	0
	Prestea-Huni Valley	2	0
<b>Total</b>		<b>72</b>	<b>0</b>

**SURGE IN SUSPECTED MEASLES CASES IN ATEBUBU-AMANTEN DISTRICT**

The Atebubu-Amanten district in the Brong-Ahafo region recorded eight (8) suspected cases of measles in week 9 [Table 4]. Preliminary investigations revealed that these cases were clustered with majority of cases coming from the Amanten sub district. Samples have been collected and sent to the National Public Health and Reference Laboratory [NPHRL] for investigations with results pending due to lack of reagents. Staff were however charged to investigate thoroughly all reported events by the Community Based Surveillance Volunteers (CBVs) for further response actions. The district team has been tasked to follow up on reported suspected measles cases from the sub-districts and report with pictures of the rash to the Brong-Ahafo Regional Public Health Unit.

**YELLOW FEVER**

Seventeen suspected Yellow Fever cases were reported across the country [Table 5]. Samples were sent to the National Public Health and Reference Laboratory with results pending due to lack of reagents.

**Table 5: Suspected Yellow Fever cases by Region, Ghana, Week 09, 2019**

Region	District	Cases	Deaths
Ashanti	Sekyer Kumawu	1	0
Brong-Ahafo	Asunafo South	1	0
	Asutifi South	1	0
	Dormaa Central	1	0
	Techiman South	1	0
	Assin North	1	0
Central	Assin North	1	0
Greater-Accra	Ada West	1	0
Eastern	Atiwa	1	0
	Birim Central	1	0
Upper East	Kwahu North	1	0
	Builsa	1	0
Upper West	Sissala West	3	0
	Nadowli-Kaleo	1	0
Volta	Nkwanta North	1	0
Western	Wassa East	1	0
<b>Total</b>		<b>17</b>	<b>0</b>

**MENINGITIS**

In Week nine, 29 cases of meningitis were recorded with one death [Table 6]. Builsa South in the Upper East region recorded 2 cases and crossed the alert threshold with an attack rate of 4.9 cases per 100,000 population. Nadowli-Kaleo and Nandom districts both in the Upper West region were also in alert phase recording 5 and 3 cases respectively and recorded attack rates of 6.8 and 5.6 per 100,000 population respectively. Lumbar Puncture was done for 27 out of 28 cases recorded with PCR results being negative.

**Table 6: Meningitis cases and deaths by Region, Ghana, Week 09, 2019**

Region	Cases	Cerebrospinal Fluid (CSF)	Cerebrospinal Fluid (CSF) Lab Test Positive	Deaths	CFR (%)	District in Alert	District in Epidemic
Ashanti	0	0	0	0	-	0	0
Brong-Ahafo	4	4	0	0	-	0	0
Central	0	0	0	0	-	0	0
Eastern	0	0	0	0	-	0	0
Greater Accra	1	0	0	0	-	0	0
Northern	4	4	0	0	-	0	0
Upper East†	8	8	0	1	12.5	1	0
Upper West†	9	9	0	0	0	2	0
Volta	2	2	0	0	0	0	0
Western	0	0	0	0	0	0	0
<b>Total (Ghana)</b>	<b>28</b>	<b>27</b>	<b>0</b>	<b>1</b>	<b>3.6</b>	<b>3</b>	<b>0</b>

† Attack Rate per 100,000 population [District; Builsa South; 2 cases (AR= 4.9), Nadowli-Kaleo; 5 cases (AR=6.8), Nandom; 3 cases (AR=5.6)]

**CHOLERA**

No cholera case was reported during the Week.

**ACUTE FLACCID PARALYSIS (SUSPECTED POLIOMYELITIS)**

Seven cases of Acute Flaccid Paralysis (AFP) were reported during the Week [Table 7]. All the stool specimens tested at the Polio Laboratory at NMIMR were negative for wild polio virus.

**Table 7: Suspected Poliomyelitis cases and deaths by Region and District, Ghana, Week 09, 2019**

Region	Districts	Cases	Deaths
Brong-Ahafo	Asunafo South	1	0
	Techiman North	1	0
Eastern	Kwaebibirem	1	0
Greater-Accra	Shai Osudoku	1	0
Upper East	Garu Tempane	1	0
Upper West	Lawra	1	0
Volta	Nkwanta North	1	0
<b>Total</b>		<b>7</b>	<b>0</b>

**RECOMMENDATIONS**

- Regions and districts are requested to update their preparedness and response plans for Meningitis and influenza and are urged to continue surveillance on meningitis with respect to monitoring of thresholds by sub districts (alert threshold is now an attack rate of 3.0 per 100,000 population for a district of 30,000 to 100,000 population).
- For every case of meningitis, a lumbar puncture should be done and cerebrospinal fluid tested with Gram stain and latex agglutination; samples should be inoculated into Trans-Isolate bottles for confirmation by culture at the respective regional laboratory.
- Regions are to ensure that influenza sentinel sites pick samples from the first five influenza-like illnesses (ILI) each week and send to Noguchi for testing. For all hospitalized Acute Respiratory Infections referred to as SARI (e.g., pneumonia), nasal and oropharyngeal swabs are to be sent to the National Influenza Center. All SARI and ILI patients seen by sentinel and non-sentinel sites should be entered on the weekly summary forms in the DHIMS.

**ANNEX 1: SUMMARY OF REPORTED CASES/ EVENTS: WEEK 09 (WEEK ENDING 03 MARCH 2019)**

Disease/Health Event (suspected/confirmed)	Week 08			Week 09			Cumulative to Week 09		
	Cases (susp)	Deaths	CFR (%)	Cases (susp)	Deaths	CFR (%)	Cases (susp)	Deaths	CFR (%)
AFP (suspected polio)	12	0	0	7	0	0	73	0	0
Acute haemorrhagic fever syndrome	0	0	-	0	0	-	0	0	-
Adverse events following immunization	7	0	0	5	0	0	27	0	-
Anthrax	0	0	-	0	0	-	0	0	-
Acute watery diarrhoea in persons aged >5 years	777	0	0	776	0	0	6,785	0	0
Cholera	0	0	-	0	0	-	0	0	-
Dengue fever	0	0	-	0	0	-	0	0	-
Diarrhoea with blood	67	0	0	25	0	0	277	0	0
Dracunculiasis (Guinea worm)	0	0	-	0	0	-	0	0	-
Influenza-like illness	664	0	0	366	0	0	4,010	0	0
Maternal deaths	-	2	-	-	3	-	-	16	-
Measles	58	0	0	72	0	0	420	0	0
Meningitis	43	2	4.7	28	1	3.6	405	14	3.5
Neonatal tetanus	0	0	-	0	0	-	3	1	33.3
Plague	0	0	-	0	0	-	0	0	-
Public health event of international concern (PHEIC)	0	0	-	0	0	-	0	0	-
Human rabies	0	0	-	0	0	-	1	1	100.0
SARS	0	0	-	0	0	-	0	0	-
Smallpox	0	0	-	0	0	-	0	0	-
Yellow fever (suspected)	23	0	0	17	0	0	142	0	0
<b>NATIONAL TOTAL</b>	<b>1,651</b>	<b>4</b>	<b>0.1</b>	<b>1,296</b>	<b>4</b>	<b>0.1</b>	<b>12,143</b>	<b>32</b>	<b>0.1</b>

\*CFR does not include maternal deaths

*This report and subsequent ones should be shared with regional and district heads as well as heads of other agencies.  
A feedback addressed to the Editor-In-Chief is welcome*



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