



# Liberia IDSR Epidemiology Bulletin

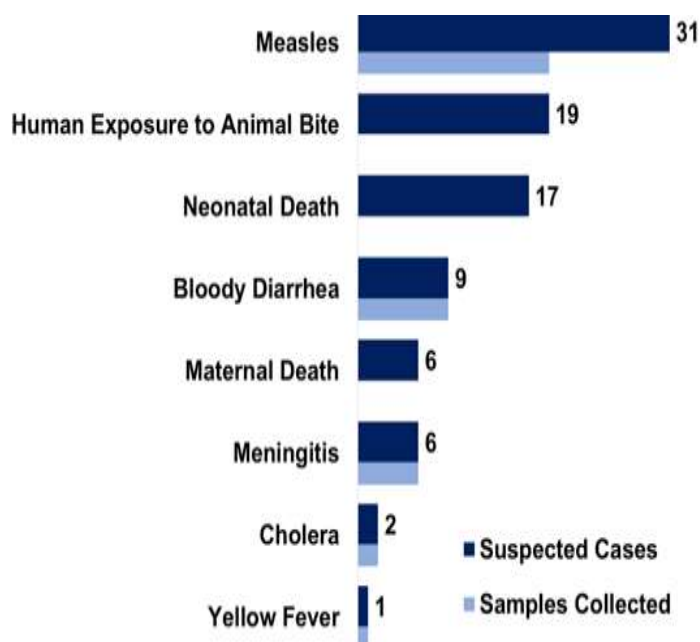
2017 Epi Week 38 (Sept. 18-24, 2017)



Country Population: 4,373,279 | Volume 09, Issue 38 Sept. 18 – 24, 2017 | Data Source: CSOs from 15 Counties and Lab

## Highlights

**Figure 1. Public Health Events Reported in Epi-week 38**



## Keynotes and Events of Public Health Significance

- A total of **ninety-one suspected cases** of immediately reportable diseases and events including 23 deaths were reported from 15 counties
- Health facility reporting **completeness and timeliness are 98% and 94%** respectively
- **Measles outbreaks confirmed** in Bong and Nimba Counties
- **Eight neonatal deaths identified** retrospectively in Bong County
- Grand Kru County reached **alert threshold for meningitis** with six suspected cases reported.
  - However, only one case was confirmed and the other five discarded due to negative lab results

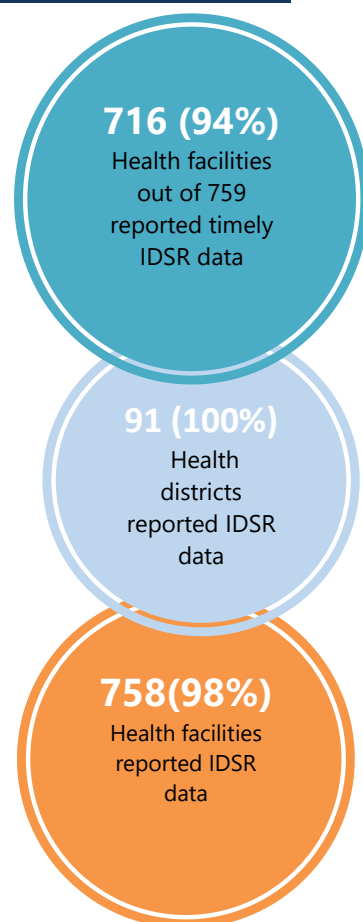
## Reporting Coverage

**Table 1. Weekly IDSR Reporting Coverage, Liberia, Epi week 38, 2017**

County	Number of Expected Health Facility Report	Number of Reports Received	Number Received on Time	Completeness (%)	Timeliness (%)
Bomi	23	23	0	100	0
Bong	55	54	54	98	98
Gbarpolu	15	15	15	100	100
Grand Bassa	33	33	33	100	100
Grand Cape Mount	32	32	32	100	100
Grand Gedeh	24	24	24	100	100
Grand Kru	19	19	19	100	100
Lofa	59	59	59	100	100
Margibi	44	44	44	100	100
Maryland	25	25	25	100	100
Montserrado	283	283	283	100	100
Nimba	74	74	74	100	100
Rivercess	19	19	19	100	100
River Gee	19	19	0	100	0
Sinoe	35	35	35	100	100
<b>Liberia (National)</b>	<b>759</b>	<b>758</b>	<b>716</b>	<b>97</b>	<b>94</b>

<b>Legend</b>	≥80	<80
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- All counties submitted weekly IDSR report on time except River Gee & Bomi counties
- The national target for weekly IDSR reporting is 80%





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## Vaccine Preventable Diseases

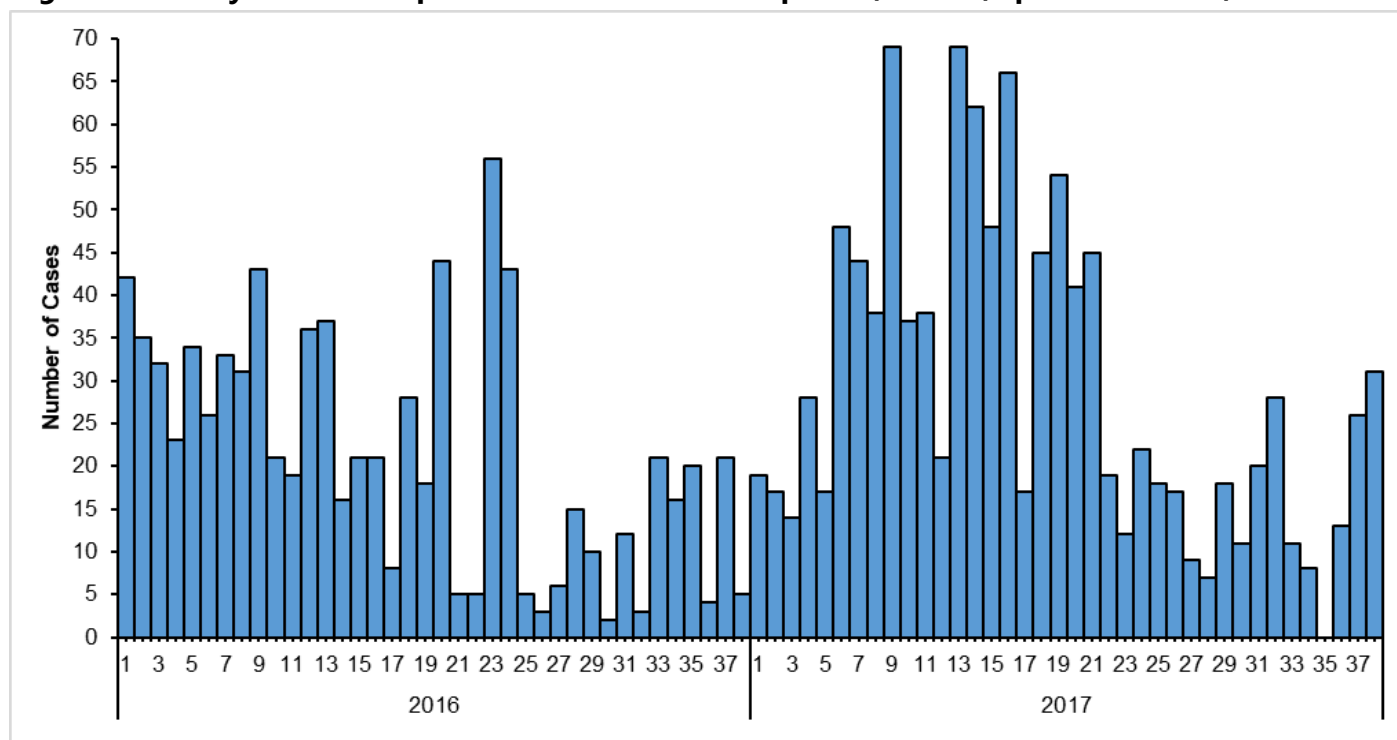
### Measles

- Thirty-one suspected cases were reported from the following counties: Bong (8), Nimba (11), Margibi (6) Montserrado (3) and Sinoe (3)
- Of the 31 suspected cases reported this week, 9 (29%) were reported to have been previously vaccinated, 20 (65%) had unknown vaccination status and 2 (6%) were not vaccinated
- Twelve (39%) of the suspected cases were <5 years and 19 (61%) were ≥5 years of age
- Of the cases reported, five have been laboratory confirmed from Sanniquellie Mah district, Nimba County and three laboratory confirmed in Suakoko district, Bong County. These results confirmed an outbreak of measles in the two districts. **See outbreak section below for more details**
- Cumulatively, since Epi week one, 1,120 suspected cases have been reported, of which 942 were tested: 161 (17.1%) positive, 730 (77.5%) negative, 51 (5.4%) equivocal. One hundred seventy-eight of the suspected cases were compatible and epi-linked. Of the 781 equivocal and negative cases, 746 (95.5%) samples have been tested for rubella, of which, 318 (42.6%) were positive

### Public Health Actions

- Case management initiated for all suspected cases
- Samples were collected from 19 suspected cases and sent to the National Reference Laboratory for confirmation
- Active case search has been initiated in outbreak communities

Figure 3. Weekly trend of suspected cases of Measles reported, Liberia, Epi weeks 1 – 38, 2016 & 2017



Note: The x-axis showing only odd numbers of the Epi week

### Acute Flaccid Paralysis (Suspected Polio)

- Zero cases of Acute Flaccid Paralysis reported
- Cumulatively, since Epi week one, 70 AFP cases have been reported, of which, 68 (97%) have tested negative for poliovirus and 2 (3%) are pending laboratory confirmation



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**Table 2: Non-polio AFP rate/100,000 <15yrs, Liberia, Epi weeks 1 - 38, 2017**

County	<15 years pop	# of AFP Cases Reported	# of Cases with Lab Result	Non-Polio AFP Rate	# of cases within 14 days specimen collected	% of stool <14days	# of NPENTs	% of NPENT
Bomi	45,639	4	4	12	4	100	1	25
Bong	180,932	5	4	3.8	5	100	0	0
Gbarpolu	45,243	0	0	-	0	-	0	-
Grand Bassa	120,281	2	2	2.3	1	50	2	100
Grand Cape Mount	68,945	2	2	4	2	100	0	0
Grand Gedeh	67,959	4	4	8.1	4	100	2	50
Grand Kru	31,421	1	1	4.4	0	0	0	0
Lofa	150,214	9	9	8.2	8	89	1	11
Margibi	113,895	8	8	9.6	8	100	2	25
Maryland	73,754	2	2	3.7	1	50	0	0
Montserrado	606,708	12	12	2.7	6	50	1	8
Nimba	250,675	8	7	4.4	8	100	1	14
Rivercess	36,237	6	6	22.7	5	83	3	50
River Gee	38,798	3	3	10.6	1	33	2	67
Sinoe	55,553	4	4	9.9	3	75	0	0
<b>Liberia</b>	<b>1,886,254</b>	<b>70</b>	<b>68</b>	<b>5.1</b>	<b>55</b>	<b>80</b>	<b>15</b>	<b>22</b>
<b>Non-Polio AFP Rate</b>	<b>&lt;2</b>	<b>Stool Adequacy</b>		<b>&lt;80%</b>	<b>Non-Polio Enterovirus</b>	<b>&lt;10%</b>	<b>Silent</b>	
	<b>≥2</b>			<b>≥80%</b>		<b>≥10%</b>		

## Neonatal Tetanus

- Zero cases of Neonatal tetanus reported
- Cumulatively, since Epi-week one, 13 clinically diagnosed cases have been reported

## Viral Hemorrhagic Diseases

### Ebola Virus Disease (EVD)

- Zero EVD alerts reported
- Cumulatively, since Epi-week one, 305 EVD alerts have been reported, all of which have tested negative by PCR

### Lassa fever

- Zero cases of Lassa Fever were reported
- Cumulatively, since Epi-week one, 41 suspected cases have been reported, and samples were collected from all cases
- Of the 41 samples, 11 have been confirmed positive by RT-PCR and ELISA-Antigen and 18 negatives. There are 12 cases pending final epi-classification
- Of the 11 confirmed cases, 4 deaths were reported. The case fatality rate among confirmed cases is 36.4%

### Yellow fever

- One suspected case was reported from Grand Gedeh County
- Samples were collected from the suspected case and sent to the National Reference laboratory.
- Cumulatively, since Epi-week one, 144 suspected cases have been reported, all of which have tested negative



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## Meningitis

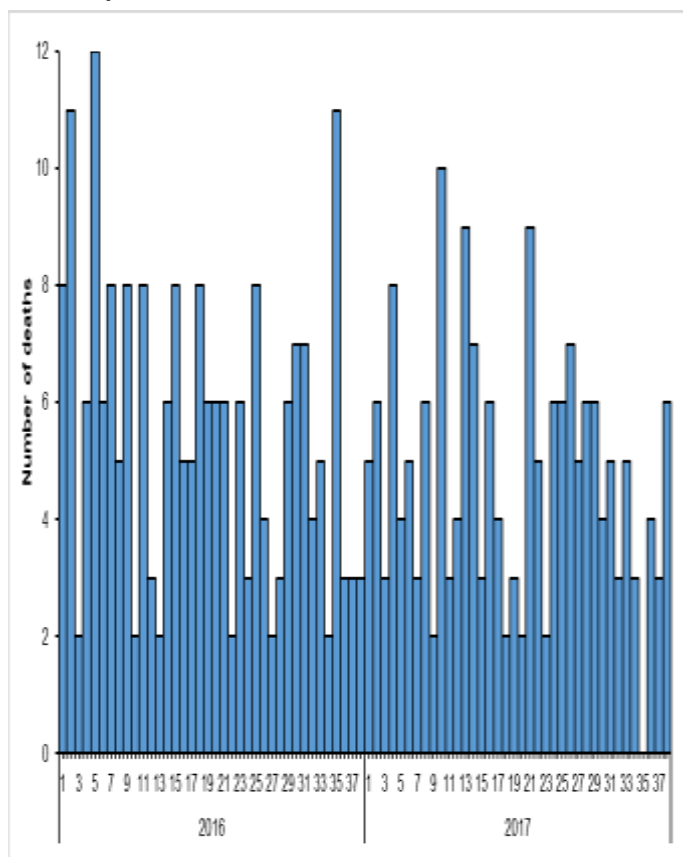
- Six suspected cases of meningitis were reported from Grand Kru County
- Of the six suspected cases, one was confirmed positive from Barclayville and five negatives
- Cumulatively, since Epi-week one, 53 suspected cases have been reported
- Of the 53 suspected cases, 31 (including 13 deaths) were reported as part of an outbreak in three counties (Grand Bassa, Montserrado and Sinoe), with *Neisseria meningitidis* serogroup C confirmed in 13 cases, including 11 deaths (case fatality rate among confirmed cases is 85%)

## Events of Public Health Importance

### Maternal Mortality

- Six maternal deaths were reported from Montserrado (2), Margibi (2), Bong (1) and Lofa (1) Counties
- Reported causes of deaths were: postpartum hemorrhage, eclampsia, anemia and sepsis
- Four of the deaths were reported to have occurred in the health facility and two in the community
- Cumulatively, since Epi-week one, 184 maternal deaths have been reported (see Table 3 for causes of death)

**Figure 4. Comparison of the weekly trend of Maternal Deaths Reported, Liberia, Epi weeks 1 - 38, 2016 & 2017**



Note: The x-axis showing only odd numbers of the Epi week

**Table 3. Causes of Maternal Death, Liberia, Epi weeks 1 - 38, 2017 (n=184)**

Maternal Death	Number	Percentage
Post-partum hemorrhage	63	34.2
Anemia	26	14.1
Sepsis	25	13.6
Eclampsia	20	10.9
Unknown	8	4.3
Ruptured uterus	7	3.8
Renal failure	6	3.3
Cardiac pulmonary failure	6	3.3
Congestive Heart failure	4	2.2
Pre-eclampsia	4	2.2
Abruptio placenta	3	1.6
Multiple organ failure	2	1.1
Obstructed labor	2	1.1
Respiratory Distress	2	1.1
Dissimilated intravascular coagulation	1	0.5
Amniotic fluid embolism	1	0.5
Umbilical Hernia (Omphalocele)	1	0.5
Spinal shock	1	0.5
Prolong Labour	1	0.5
Hepatitis B	1	0.5
<b>Total</b>	<b>184</b>	<b>100</b>



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**Table 5. Cumulative Maternal Deaths Reported by Counties, Liberia, Epi weeks 1 - 38, 2017**

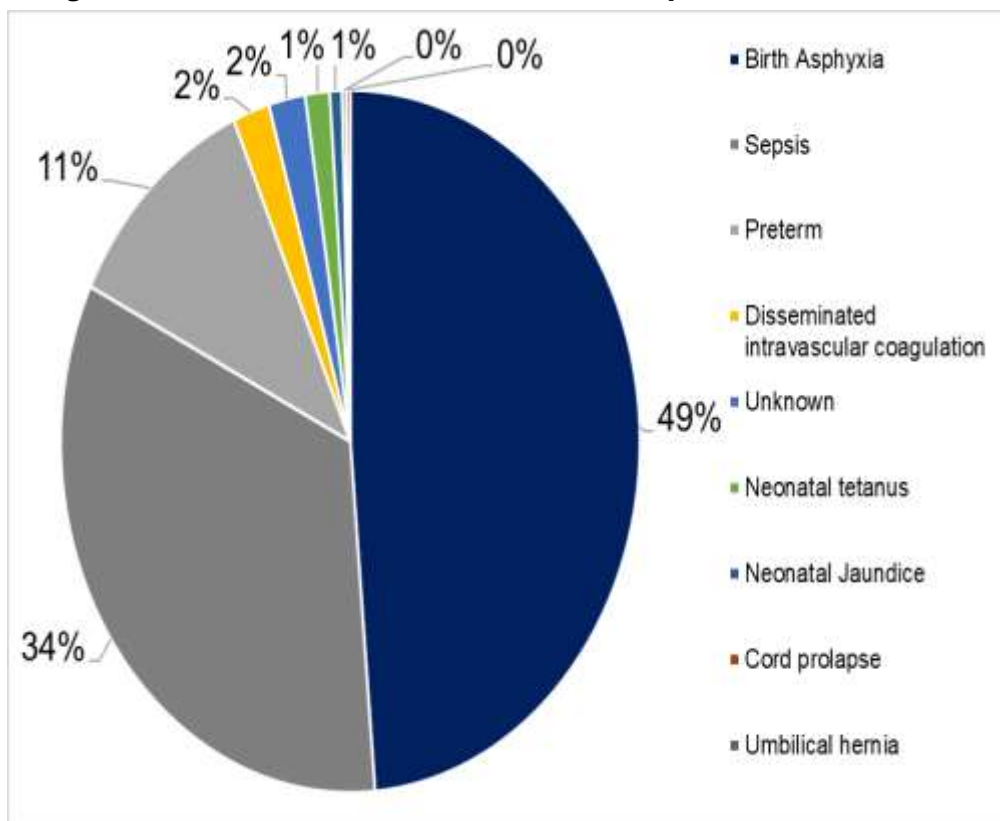
County	Annual Live birth <sup>1</sup>	Current week	Cumulative	% of Cumulative Maternal deaths	Annualized Maternal Mortality Ratio/100,000
Grand Bassa	11494	38	21	12	594
Maryland	7048	38	8	6	369
Bomi	4361	38	8	5	596
Grand Kru	3002	38	6	3	649
Sinoe	5308	38	7	5	429
River Gee	3707	38	5	3	438
Montserrado	57974	38	46	25	258
Bong	17289	38	20	11	376
Margibi	10883	38	15	8	448
Nimba	23953	38	21	13	285
Lofa	14354	38	12	8	272
Rivercess	3463	38	2	1	188
Gbarpolu	4323	38	4	2	301
Grand Cape Mount	6588	38	1	1	49
Grand Gedeh	6494	38	8	2	400
<b>Liberia</b>	<b>180242</b>	<b>38</b>	<b>184</b>	<b>100</b>	<b>332</b>

<sup>1</sup> Number of live birth is at 4.3% of the estimated population for 2017 (Source: EPI/MoH)

## Neonatal Mortality

- Seventeen neonatal deaths were report from Bong (8), Montserrado (3), Lofa (2), River Gee (1), Gbarpolu (1), Sinoe (1) and Grand Cape Mount (1) Counties
- Reported causes of death were:
  - Sepsis (8)
  - Birth asphyxia (3)
  - Preterm (3)
  - Neonatal Jaundice
  - Anemia
  - Pneumonia
- All of the deaths were reported to have occurred at health facility
- Cumulatively, since Epi week one, 440 neonatal deaths have been reported.

**Figure 5. Causes of Neonatal Death, Liberia, Epi weeks 1 - 38, 2017**





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**Table 5. Cumulative Neonatal Deaths Reported by Counties, Liberia, Epi weeks 1 - 38 2017**

County	Annual Live birth	Current Week	Cumulative Neonatal deaths	% of Cumulative Neonatal deaths	Annualized Neonatal Mortality Rate/1000
River Gee	3707	38	31	7	27.2
Maryland	7048	38	47	11	21.7
Sinoe	5308	38	24	5	14.7
Grand Kru	3002	38	11	3	11.9
Montserrado	57974	38	152	36	8.5
Bong	17289	38	50	11	9.4
Rivercess	3463	38	12	3	11.3
Grand Gedeh	6494	38	16	4	8.0
Gbarpolu	4323	38	6	1	4.5
Grand Bassa	11494	38	14	3	4.0
Lofa	14354	38	45	10	10.2
Nimba	23953	38	14	3	1.9
Margibi	10883	38	12	3	3.6
Grand Cape Mount	6588	38	3	1	1.5
Bomi	4361	38	3	1	2.2
<b>Liberia</b>	<b>180242</b>	<b>38</b>	<b>440</b>	<b>100</b>	<b>7.9</b>

## Human Exposure to Animal Bites (Suspected Rabies)

- Nineteen events of animal bites were reported from Montserrado (6), Margibi (4), Nimba (3), Grand Bassa (2), Rivercess (2), Lofa (1), and Grand Gedeh (1), Counties
- Cumulatively, since Epi-week one, 1,010 events of animal bites have been reported

## Bloody Diarrhea (Shigellosis)

- Nine cases of bloody diarrhea were reported from Margibi (3), Sinoe (2), Rivercess (1), Nimba (1), Grand Bassa (1) and Montserrado (1) Counties.
- Cumulatively, since Epi-week one, 200 cases of bloody diarrhea have been reported
- Stool specimens have been collected from 97 cases including 9 in the current week
- A total of 79 stool samples have been tested, 4 rejected due to poor quality, and 14 pending laboratory testing. Of the 79 tested, shigella was isolated through culture from 14 (17.7%) samples and no growth seen in 64 (81%) were negative

## Severe Acute Watery Diarrhea (Cholera)

- Two suspected cases of cholera were reported from Sinoe and Grand Bassa Counties; specimens were collected from both cases
- Cumulatively, since Epi-week one, 133 suspected cases of cholera have been reported, including 4 deaths attributable to cholera.
- A total of 52 stool samples have been collected including two in the current week and sent to the National Reference Laboratory. Of these, 50 samples have been tested and 2 are pending. *Vibrio cholera* has been isolated from two of the samples while there have been no growth in 48 samples.



## Outbreak and Public Health Emergencies

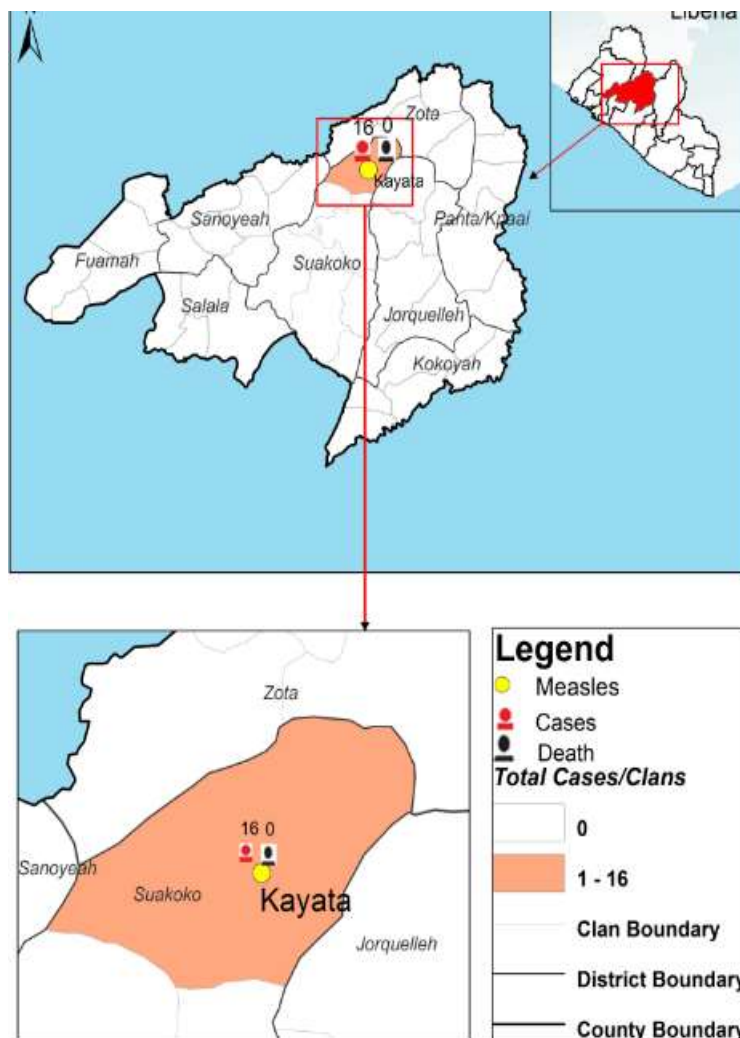
### Suakoko district, Bong County: Measles

On 18 September 2017, Bong County notified the national level of 8 suspected cases of measles from Kayata Community, Suakoko District. The cases were initially identified by a Community Health Assistant in the area who alerted the district level on 14 September 2017. The index case was a 3-year old female with symptom onset on 6 September 2017 who presented with fever, red eyes, cough, and maculopapular rash and was treated at the Phebe Hospital.

From 14 – 21 September 2017, a total of 16 cases with zero deaths have been identified in Kayata Community of which four are lab confirmed and twelve are epidemiologically linked to the lab confirmed cases. Ten of the cases (63%) are females and six (37%) are males. The age of the cases range from 2 months to 29 year-old. Ten of the cases (63%) are 5 year-old and below. All cases were reportedly not previously vaccinated. The attack rate in the community is 10 per 1,000 population. No new case has been reported since 21 September 2017.

A 5-day mini-immunization campaign from 21 – 25 September 2017 was launched in Kayata and surrounding communities targeting age group 6 months to 10 years in response to the outbreak. A total of 971 children received both a dose of measles vaccine and vitamin A capsule in Kayata and five surrounding communities. This represents a cumulative coverage of 97% of the target age group in these communities.

**Figure 2. Geographic distribution of measles outbreak cases, Kayata Community, Suakoko District, Bong County, Liberia, September 2017**



### Sanniquellie Mah district, Nimba County: Measles

On 18 September 2017, Bong County notified the national level of four suspected cases of measles cases from Sanniquellie-Mah district. All cases presented with fever, rash, and conjunctivitis and were detected at G. W. Harley Hospital and St. Mary's Clinic in the district from 18 – 23 September 2017. On 20 September 2017, results released from the National Reference Laboratory confirmed three of the cases as IgM-positive and one equivocal.

All the four cases have been treated and discharged. Active case search in the area has been intensified and record reviews are planned. Detail findings will be provided subsequently.



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## Public Health Measures

### National level

- Liberia Intermediate Field Epidemiology Training Program workshop 4, of cohort 1 is ongoing
- IDSR Supportive Supervision ongoing in 7 counties (Montserrado, Sinoe, Rivercess, RiverGee, Grand Gedeh, Grand Kru and Maryland).
- Weekly meeting with the laboratory to ensure data verification and harmonization
- Work with Counties to determine response state of preparedness (lab specification for CSF collection and transportation, medical supplies and IPC)
- Follow up with counties to conduct maternal deaths investigation, revision of forms and implementation of recommendations made
- Counties are encouraged to conduct health education for all public health diseases based on risk
- Counties are encouraged to update their cholera preparedness plans and review existing stocks of supplies for repositioning

## Notes

- *Completeness* refers to the proportion of expected weekly IDSR reports received (target:  $\geq 80\%$ )
- *Timeliness* refers to the proportion of expected weekly IDSR reports received by the next level on time (target:  $\geq 80\%$ ). Time requirement for weekly IDSR reports:
  - Health facility - required on or before 5:00pm every Saturday to the district level
  - Health district - required on or before 5:00pm every Sunday to the county level
  - County - required on or before 5:00pm every Monday to the national level
- *Non-polio AFP rate* is the proportion of non-polio AFP cases per 100,000 among the estimated population under 15 years of age in 2017 (annual target:  $\geq 2/100,000$ )
- *Non-measles febrile rash illness rate* refers to the proportion of discarded measles cases per 100,000 population
- *Annualized maternal mortality rate* refers to the maternal mortality rate of a given period less than one year and it is the number of maternal deaths per 100,000 live births
- *Annualized neonatal mortality rate* refers to the neonatal mortality ratio of a given period less than one year and it is the number of neonatal deaths per 1,000 live births
- *Epi-linked* refers to any suspected case that has not had a specimen taken for serologic confirmation but is linked to a laboratory confirmed case
- *Confirmed case* refers to a case whose specimen has tested positive or reactive upon laboratory testing, or has been classified as confirmed by either epidemiologic linkage with a confirmed case, or clinical compatibility with the disease or condition
- *Case Fatality Rate (CFR)* is the proportion of deaths among confirmed cases





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Appendix 1: Summary of immediately reportable diseases, conditions, and events by County during Epi week 38 and cumulative reports, Liberia, 2017

Counties	No. of Health Districts	No. of Health District reported	Acute Flaccid Paralysis (Polio)		Bloody Diarrhoea (Shigellosis)		Severe Acute Watery Diarrhoea (Cholera)		Human Exposure to Animal bites (Suspected Rabies)		Lassa Fever		Measles		Meningitis		Maternal Mortality	Neonatal Mortality	Neonatal Tetanus		VHF (including EVD)		Yellow Fever		Other Diseases/Events	
			A	D	A	D	A	D	A	D	A	D	A	D	A	D	D	D	A	D	A	D	A	D	A	D
Bomi	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bong	8	8	0	0	0	0	0	0	0	0	0	0	8	0	0	0	1	8	0	0	0	0	0	0	0	0
Gbarpolu	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Grand Bassa	8	8	0	0	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Cape Mount	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Grand Gedeh	6	6	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Grand Kru	5	5	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0
Lofa	6	6	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0
Margibi	4	4	0	0	3	0	0	0	4	0	0	0	6	0	0	0	2	0	0	0	0	0	0	0	0	0
Maryland	6	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Montserrado	7	7	0	0	1	0	0	0	6	0	0	0	3	0	0	0	2	3	0	0	0	0	0	0	0	0
Nimba	6	6	0	0	1	0	0	0	3	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0
Rivercess	6	6	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
River Gee	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Sinoe	10	10	0	0	2	0	1	0	0	0	0	0	3	0	0	0	0	1	0	0	0	0	0	0	0	0
<b>Total Weekly</b>	<b>91</b>	<b>91</b>	<b>0</b>	<b>0</b>	<b>9</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>19</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>31</b>	<b>0</b>	<b>6</b>	<b>0</b>	<b>6</b>	<b>17</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Cumulative Reported</b>			<b>70</b>	<b>0</b>	<b>200</b>	<b>0</b>	<b>132</b>	<b>5</b>	<b>1010</b>	<b>1</b>	<b>23</b>	<b>18</b>	<b>1120</b>	<b>2</b>	<b>20</b>	<b>2</b>	<b>184</b>	<b>440</b>	<b>11</b>	<b>2</b>	<b>33</b>	<b>272</b>	<b>143</b>	<b>1</b>	<b>1803</b>	<b>23</b>
<b>Cumulative Laboratory Confirmed</b>			<b>0</b>	<b>0</b>	<b>6</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>4</b>	<b>161</b>	<b>0</b>	<b>1</b>	<b>0</b>			<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Note: **A** = Alive  
**D** = Dead

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