**Figure 1: Public Health Events Reported during this week**

Keynotes and Events of Public Health Significance

- **A total of 92 events** of public health importance including **15 deaths** were reported

- **Completeness and timeliness** of health facility reports were 100% for both

- **Ongoing Lassa fever** outbreaks in four counties

- **Measles** outbreak in three counties

**Table 1: Health Facility Weekly DSR Reporting Coverage, Liberia, Epi week 47, 2019**

<table>
<thead>
<tr>
<th>County</th>
<th>Expected Report from Health Facility</th>
<th>Reports Received</th>
<th>Report Received on Time</th>
<th>Completeness (%)</th>
<th>Timeliness (%)</th>
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<tbody>
<tr>
<td>Bomi</td>
<td>26</td>
<td>26</td>
<td>26</td>
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<td>100</td>
</tr>
<tr>
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<td>57</td>
<td>57</td>
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<td>100</td>
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<tr>
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<td>16</td>
<td>16</td>
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<td>100</td>
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<td>34</td>
<td>34</td>
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<tr>
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<td>100</td>
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<td>24</td>
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<td>100</td>
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<td>844</td>
<td>844</td>
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</table>

**Legend:**
- **≥80**
- **<80**

- The national target for weekly DSR reporting is 80%
- Health facility timeliness is monitored at District level
- Twelve of the fifteen counties submitted their weekly DSR report to the national level on time, while 3 reported late (Bong, Nimba, & Maryland)
Vaccine Preventable Diseases

Measles

- Thirty-one (31) suspected cases were reported from Gbarpolu (10), Rivercess (5), Nimba (3), Bong (3), Grand Kru (2), River Gee (2), Grand Bassa (2), Grand Gedeh (1), Sinoe (1), Montserrado (1), Lofa (1) Counties
- Eighteen (17) specimens were collected and pending laboratory confirmation
- Vaccination status among suspected cases
  - Vaccinated 22 (70.9%), Not vaccinated 7 (22.6%), Unknown 2 (6.5%)
- Age distribution among suspected cases:
  - <1 year: 0 (0%), 1 – 4 years: 9 (28.1%), ≥5 years: 22 (70.9%)
- Cumulatively, since Epi-week one, 1,600 suspected cases have been recorded; Of these, 676 have been tested by the laboratory and results showed 237 positive, 423 negative and 16 indeterminate
- Epi-classification is as follows: 1130 (72.7%) confirmed (237 lab-confirmed, 815 clinically confirmed, 109 epi-linked) (See Table 2, Figure 2)
  - Cumulative vaccination status among lab confirmed: 92(38.8%) vaccinated, 55(23.2%) not vaccinated, 90(38%) unknown
  - Age distribution among lab confirmed: <1 year: 14(5.9%), 1 – 4 years: 23(9.7%), ≥5 years: 200(84.4%)
- Of the 423 specimens tested negative for measles, 293 specimens were tested for rubella, as follows: 134 positive, 159 negative, 9 equivocal

Public Health Action

- Case Management, active case search, health education, and community engagement are ongoing in affected districts and communities

Table 2: Annualized Non-Measles Febrile Rash Illness Rate by Counties, Liberia, Epi-week 1 - 47, 2019

<table>
<thead>
<tr>
<th>Reporting County</th>
<th>Lab confirmed</th>
<th>Epi-linked</th>
<th>Clinically confirmed</th>
<th>Indeterminate (Equivocal)</th>
<th>Discarded (Negative)</th>
<th>Pending</th>
<th>Total</th>
<th>Annualized Non-Measles Febrile Rash Illness Rate</th>
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<td>Bomi</td>
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<td>0</td>
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<td>2</td>
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<td>1</td>
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<td>0</td>
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<td>14</td>
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<td>0</td>
<td>85</td>
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<td>37</td>
<td>0</td>
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<td>0</td>
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<td>0</td>
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<td>2</td>
<td>15</td>
<td>0</td>
<td>210</td>
<td>12.9</td>
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</table>

Liberia 237 109 815 16 423 0 1601 10.6

Target Achieved > = 2 Below Target < 2
Figure 2: Cumulative Epi-classification Measles Cases by Reporting weeks, Liberia, Epi-week 1 - 47, 2019

Figure 3: Cumulative Confirmed Measles Cases Reported by Health District, Liberia, Epi-week 1 - 47, 2019
Acute Flaccid Paralysis (Suspected Polio)

- Three (3) cases were reported from Montserrado (2) and Grand Gedeh (1) Counties
  - Specimens were collected and pending shipment
- Cumulatively, since Epi week one, 67 cases have been recorded with 45 negative and 9 NPENT
  - Proportion of cases reported with sample collected and tested 80.6% (n=54/67), 7 pending lab confirmation
  - Laboratory confirmed (+) zero

Neonatal Tetanus

- One case was reported Grand Cape Mount County
- Cumulatively, since Epi-week one, 34 clinically diagnosed cases have been recorded:
  - Attributable death 23.5% (n=8)

Viral Hemorrhagic Diseases

Ebola Virus Disease (EVD)

- Zero alert reported
- Cumulatively, since Epi-week one, 14 EVD alerts have been recorded and all tested negative

Lassa fever

- Eleven (9) suspected cases reported from Grand Bassa (5), Bong (2), one each from Grand Kru and Nimba Counties
  - Nine (9) specimens were collected and 7 tested; 4 positive, 3 negative, and 2 rejected
- Cumulatively, since Epi week one, 173 suspected cases have been recorded:
  - Proportion of suspected cases reported with sample collected 97.1% (n=168)
  - Proportion of suspected cases with specimens tested is 79.8% (n=138)
  - Laboratory confirmed 31.9% (n=44)
  - Case fatality in confirmed cases is 31.8% (14/44)
  - Epi-classification is as follows: 44 positive, 94 negative, and 35 suspected

![Figure 4: Cumulative Epi classification Lassa fever Cases Reported, Liberia, Epi-week 1 - 47, 2019](image-url)
Yellow fever

- Two (2) suspected cases reported from Grand Kru and Rivercess Counties
  - Specimens were collected and pending laboratory confirmation
- Cumulatively, since Epi-week one, 106 suspected cases have been recorded:
  - Zero laboratory confirmed:
  - Proportion of suspected cases reported with sample collected 96.2% (102/106)
  - Proportion of sample collected and tested 86.3% (n=88/102)

Monkeypox

- One case was reported from Nimba County
- Cumulatively, since Epi-week one, 59 suspected cases have been reported; 12 specimens shipped to Atlanta for confirmation and one pending shipment

Dengue fever

- Zero case was reported
- Cumulatively, since Epi-week one, 1 suspected case has been recorded

Meningitis

- One case was reported from Bomi County
- Specimen was collected and pending laboratory confirmation
- Cumulatively, since Epi-week one, 53 suspected cases have been recorded
  - Forty-three tested negative and three pending laboratory confirmation
- Six specimens were not collected from Gbarpolu (2), Lofa, Maryland, Nimba and Montserrado Counties

Events of Public Health Importance

Maternal Mortality

- Two (2) deaths reported from Grand Bassa and Bong Counties
- Causes of death: Abortion and Postpartum Hemorrhage
- Reporting sites: health facilities 2 (100%)
- Cumulatively, since Epi-week one, 259 maternal deaths have been recorded and the major attributable causes are:
  - Postpartum Hemorrhage 110 (42.5%), Eclampsia 35 (13.6%), and Sepsis 31 (12%)

<table>
<thead>
<tr>
<th>County</th>
<th>Estimated Annual Live birth (4.3%)</th>
<th>Current week</th>
<th>Cumulative</th>
<th>% of Cumulative Maternal deaths</th>
<th>Annualized Maternal Mortality Ratio/100,000</th>
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</thead>
<tbody>
<tr>
<td>Maryland</td>
<td>7347</td>
<td>0</td>
<td>14</td>
<td>6</td>
<td>230</td>
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<tr>
<td>Bong</td>
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<td>38</td>
<td>14</td>
<td>225</td>
</tr>
<tr>
<td>Grand Gede</td>
<td>6770</td>
<td>0</td>
<td>13</td>
<td>5</td>
<td>214</td>
</tr>
<tr>
<td>Margibi</td>
<td>11345</td>
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<td>18</td>
<td>7</td>
<td>181</td>
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<tr>
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<td>9</td>
<td>3</td>
<td>175</td>
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<tr>
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<td>38</td>
<td>13</td>
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<tr>
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<td>116</td>
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<td>4</td>
<td>91</td>
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<td>89</td>
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<td>67</td>
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<td>2</td>
<td>259</td>
<td>100</td>
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</table>
Neonatal Mortality
- Thirteen (13) deaths were reported from Montserrado (5), Margibi (2), Maryland (2), and one each from Nimba, Rivercess, Grand Bassa, Gbarpolu Counties
- Causes of deaths: Asphyxia (7), Sepsis (4), Preterm (2)
- Reporting sites: health facilities 11 (84.6%) and Community 2 (15.4%)
- Cumulatively, since Epi-week one, 685 neonatal deaths have been reported (See Table 4) and the major attributable causes are: Asphyxia 345 (50.4%), Sepsis 236 (33.3%) and Preterm 57 (8.3%)

Table 4: Annualized and Cumulative Neonatal Death Reported by County, Liberia, Epi-week 1 – 47, 2019

<table>
<thead>
<tr>
<th>County</th>
<th>Estimated Annual Live birth (4.3%)</th>
<th>Current week</th>
<th>Cumulative</th>
<th>% of Cumulative Neonatal deaths</th>
<th>Annualized Neonatal Mortality Ratio/100,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grand Kru</td>
<td>3130</td>
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<td>4.7</td>
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<td>685</td>
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</table>

Other Reportable Diseases

Animal Bites (Human Exposure to Rabies)
- Sixteen (16) cases reported: Grand Kru (3), Montserrado (3), Rivercess (2), Nimba (2), Bong (2), One each from River Gee, Grand Bassa, Sinoe and Lofa Counties
- Cumulatively, since Epi-week one, 1,653 cases of animal bites have been recorded

Acute Bloody Diarrhea (Suspected Shigellosis)
- Eleven (11) cases reported from Montserrado (2), Grand Gedeh (2), one each from River Gee, Sinoe, Lofa, Bomi, Gbarpolu, Margibi and Maryland Counties
  - Three (3) specimens were collected and pending laboratory confirmation
- Cumulatively, since Epi-week one, 289 acute bloody diarrhea cases have been recorded with 161 stool specimens collected and 90 tested. Results: 13 positive and 77 negative

Severe Watery Diarrhea (Cholera)
- Two (2) suspected cases reported from Grand Kru and Bomi Counties
  - One specimen was collected and pending laboratory confirmation
- Cumulatively, since Epi-week one, 115 suspected cases have been recorded with 58 specimens collected and 51 tested negative and zero positive
Unexplained Cluster of Health Events

- Zero unexplained death was reported
- Cumulatively, since Epi-week one, 13 cases of unexplained death has been reported

Points of Entry

- Zero IDSR alert detected and verified
- A total of 4174 travelers were recorded for the week (See Table 5)

Table 5: Total Travelers, IDSR Alerts Detected and Verified at Points of Entry, Liberia, Epi-week 47, 2019

<table>
<thead>
<tr>
<th>Type of Ports</th>
<th>Point of Entry</th>
<th>Weekly total</th>
<th>Arrival</th>
<th>Departure</th>
<th>Yellow Book Issued</th>
<th>Yellow Book Damage</th>
<th>Card Replaced</th>
<th>Travelers Vaccinated</th>
<th>Alerts Verified</th>
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<td>Loguatuo</td>
<td>145</td>
<td>70</td>
<td>75</td>
<td>30</td>
<td>12</td>
<td>18</td>
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</tr>
<tr>
<td>Total Traveler for the Week</td>
<td>4907</td>
<td>2162</td>
<td>2745</td>
<td>111</td>
<td>39</td>
<td>54</td>
<td>18</td>
<td>0</td>
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</tbody>
</table>

Note: Yellow book issue for both arrival and departure; Vaccination coverage for both arrival and departure

AFRO Public Health Events

The National Public Health Institute of Liberia continues to monitor acute public health emergencies and outbreaks occurring in the African Region in order to ensure preparedness and preventive measures are implemented.

During this week, 61 ongoing events are being monitored through WHO Health Emergencies Program in the African Region. Key events highlighted during the week include the following:

- Lassa fever in Sierra Leone
- Ebola virus disease in Democratic Republic of the Congo
- Cholera in Ethiopia
- Humanitarian crisis in Mali

Source: WHO Week 46 Bulletin on Outbreaks and Other Emergencies
Public Health Measures

National level
♦ Providing technical, logistical and financial support to counties
  ♦ Heighten surveillance in affected and surrounding communities
  ♦ **URGENCY! URGENCY! URGENCY!**
    ♦ No Human Rabies Vaccine in Country to provide post exposure prophylaxis

County level
♦ Publication of situational reports to inform stakeholders
♦ Active case search ongoing in affected and surrounding communities
♦ Contact tracing, health education, and community engagement ongoing in affected communities
♦ Case management ongoing for isolated cases

Outbreaks

**Lassa fever**

**District 3A & B, Grand Bassa County**
- **One new** confirmed case reported this week
- Case is isolation and undergoing ribavirin treatment
- Five contacts link to this case
- Two contacts were health care workers (all no risk) and three were community members all high risk
- Total contacts under followed up is 12

**Cumulative:** 16 confirmed cases reported since wk 1-47
  - Since September 11 confirmed cases have been reported
  - **CFR 1/11 (9%)**

**Sanniquillie-Mah District, Nimba County**
- **One case** confirmed
- The case expired on November 18, 2019
- Forty-three contacts link to this case including 24 health care workers
- 14 contacts lost to followed up. 37 contacts were seen and under followed up

**Cumulative:** 8 confirmed cases reported since wk 1-47
  - Since November, 1 confirmed case have been reported
  - **CFR (100%)**

**Somalia drive District, Montserrado County**
- **One case** confirmed
- The case expired November 26, 2019
  - **CFR 1/11 (9%)**

**Measles**

**Jaedae District, Sinoe County**
- Two new cases reported including five Lab confirmed
- Plan to conduct mini campaign in affected and surrounding communities
- Total of 87 suspected cases recorded
- All were treated and discharged
- Median age 16 years, range: 2 –36 years

**Grand Gedeh: Gbao District**
- Reported one new case (epi-link)
- Conducted 4-days mini campaign and vaccinated 250 children (Nov 4-7, 2019), ages 6-59 months, in affected and surrounding communities
- Total of 58 suspected cases
- 3 lab confirmed
- All were treated and discharged
- 63% (n=36) not vaccinated
Liberia IDSR Epidemiology Bulletin
2019 Epi-week 47 (November 18–24, 2019)

- Median age 7 years, range: 3 months – 14 years
- 200 contacts line listed

Bong County: Kpaai District
- No new case reported this week
- Total of 20 suspected cases
- 3 lab confirmed

- Median age 5 years
- Conducted ring vaccination campaign
- Vaccinated 203 children: 3 months – 10 years

Public Health Actions
- Active case search and community engagement ongoing in affected and surrounding communities

Notes
- Completeness refers to the proportion of expected weekly IDSR reports received (target: ≥80%)
- Timeliness refers to the proportion of expected weekly IDSR reports received by the next level on time (target: ≥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: ≥2/100,000)
- Non-measles febrile rash illness rate refers to the proportion of Negative 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
### Appendix 1: Summary of immediately reportable diseases, conditions, and events by County during Epi week 47 and cumulative report, Liberia, 2019

| Counties | No. of Health Districts Reported | No. of Health Districts Reported (Suspected Cases) | Acute Rhabdovirus (Shigellosis) | Acute Acute Respiratory Infection (Aegypti) | Acute Acute Diarrhea (Shigellosis) | Severe Acute Diarrhoea (Shigellosis) | Human Exposure to Animal Bites (Suspected Rabies) | Lassa fever | Measles | Meningitis | Maternal Mortality | Neonatal Mortality | Neonatal Tetanus | Ebola Virus Disease | Yellow fever | Monkeypox | Dengue Fever | Buruli Ulcer | MDRTB | Tuberculosis | Yaws | Unexplained Cluster of Deaths | Unexplained Cluster of Events/Disease | Other Diseases/Events |
|----------|---------------------------------|-----------------------------------------------|-------------------------------|---------------------------------|---------------------------------|----------------------------------|-------------------------------------------|-----------|---------|-----------|-----------------|-----------------|----------------|----------------|-------------|----------|-------------|--------------|---------------|------|-----------------|----------------|----------------|
National Public Health Institute of Liberia (NPHIL)

MISSION
To prevent and control public health threats by promoting healthy outcomes and serving as a source of knowledge

VISION
A center of excellence to create health outcomes for Liberians through a strong preventive health system and expertise

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