Liberia IDSR Epidemiology Bulletin
2019 Epi-week 52 (December 23–29, 2019)

Country Population: 4,433,398 | Volume 15 Issue 52 | Dec. 23 – 29, 2019 | Data Source: CSOs from 15 Counties and Lab

Highlights

Figure 1: Public Health Events Reported during this week

- Neonatal Death: 20
- Human Exposure to Rabies: 18
- Measles: 9
- Lassa fever: 6
- Acute Bloody Diarrhea: 5
- Maternal Death: 5
- Yellow fever: 1

Keynotes and Events of Public Health Significance

- A total of 64 events of public health importance including 26 deaths were reported
- Completeness and timeliness of health facility reports were both 100%
- Ongoing Lassa fever outbreaks in three counties
- Ongoing Measles outbreak in one county

Reporting Coverage

Table 1: Health Facility Weekly DSR Reporting Coverage, Liberia, Epi week 52, 2019

<table>
<thead>
<tr>
<th>County</th>
<th>Number of Expected Report from Health Facility</th>
<th>Number of Reports Received</th>
<th>Number Received on Time</th>
<th>Completeness (%)</th>
<th>Timeliness (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bomi</td>
<td>26</td>
<td>26</td>
<td>26</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Bong</td>
<td>57</td>
<td>57</td>
<td>56</td>
<td>100</td>
<td>98</td>
</tr>
<tr>
<td>Gbarpolu</td>
<td>16</td>
<td>15</td>
<td>15</td>
<td>94</td>
<td>94</td>
</tr>
<tr>
<td>Grand Bassa</td>
<td>34</td>
<td>34</td>
<td>34</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Grand Cape Mount</td>
<td>34</td>
<td>34</td>
<td>34</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Grand Gedeh</td>
<td>24</td>
<td>24</td>
<td>24</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Grand Kru</td>
<td>19</td>
<td>19</td>
<td>19</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Lofa</td>
<td>59</td>
<td>59</td>
<td>59</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Margibi</td>
<td>59</td>
<td>59</td>
<td>59</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Maryland</td>
<td>26</td>
<td>26</td>
<td>26</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Montserrado</td>
<td>330</td>
<td>330</td>
<td>330</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Nimba</td>
<td>83</td>
<td>83</td>
<td>83</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Rivercess</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>River Gee</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Sinoe</td>
<td>37</td>
<td>37</td>
<td>37</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Liberia</td>
<td>844</td>
<td>843</td>
<td>842</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

Legend:
- ≥80
- <80

- The national target for weekly IDSR reporting is 80%
- Health facility timeliness is monitored at District level
- All fifteen counties submitted their weekly IDSR report to the national level on time
Measles

- Nine (9) suspected cases were reported from River Gee (3), Grand Gedeh (2), one each from Nimba, Montserrado, Maryland and Lofa Counties
- Nine (9) specimens were collected; 8 tested negative, and 1 pending laboratory confirmation
- Vaccination status among suspected cases
  - Vaccinated 6 (66.7%), Unknown 3 (33.3 %)
- Age distribution among suspected cases:
  - 1 – 4 years: 2 (22.2%), ≥5 years: 7 (77.8%)
- Cumulatively, since Epi-week one, 1,701 suspected cases have been recorded; Of these, 766 have been tested by the laboratory and results showed 268 positive, 475 negative and 23 indeterminate
- A total of 1,202 confirmed cases (268 lab-confirmed, 826 clinically confirmed, 109 epi-linked) have been recorded. See Table 2 for Epi-classification
  - Cumulative vaccination status among lab confirmed: 119 (44.4%) vaccinated, 56 (20.9%) not vaccinated, 93 (34.7%) unknown
  - Age distribution among lab confirmed: <1 year: 17 (6.3%), 1 – 4 years: 26 (10.4%), ≥5 years: 224 (86.2%)
  - Of the 475 specimens tested negative for measles, 323 tested for rubella: 140 positive, 173 negative, 10 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 - 52, 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>
</tr>
</thead>
<tbody>
<tr>
<td>Bomi</td>
<td>11</td>
<td>0</td>
<td>13</td>
<td>2</td>
<td>18</td>
<td>0</td>
<td>44</td>
<td>18.4</td>
</tr>
<tr>
<td>Bong</td>
<td>19</td>
<td>0</td>
<td>39</td>
<td>1</td>
<td>23</td>
<td>0</td>
<td>82</td>
<td>5.7</td>
</tr>
<tr>
<td>Gbarpolu</td>
<td>7</td>
<td>21</td>
<td>59</td>
<td>0</td>
<td>15</td>
<td>0</td>
<td>102</td>
<td>15.5</td>
</tr>
<tr>
<td>Grand Bassa</td>
<td>3</td>
<td>2</td>
<td>68</td>
<td>2</td>
<td>21</td>
<td>0</td>
<td>96</td>
<td>8.2</td>
</tr>
<tr>
<td>Grand Cape Mount</td>
<td>1</td>
<td>0</td>
<td>7</td>
<td>0</td>
<td>18</td>
<td>0</td>
<td>26</td>
<td>12.2</td>
</tr>
<tr>
<td>Grand Gedeh</td>
<td>26</td>
<td>14</td>
<td>19</td>
<td>0</td>
<td>36</td>
<td>0</td>
<td>95</td>
<td>24.8</td>
</tr>
<tr>
<td>Grand Kru</td>
<td>19</td>
<td>20</td>
<td>49</td>
<td>1</td>
<td>19</td>
<td>0</td>
<td>108</td>
<td>28.3</td>
</tr>
<tr>
<td>Lofa</td>
<td>17</td>
<td>0</td>
<td>112</td>
<td>0</td>
<td>31</td>
<td>0</td>
<td>160</td>
<td>9.7</td>
</tr>
<tr>
<td>Margibi</td>
<td>14</td>
<td>0</td>
<td>36</td>
<td>1</td>
<td>37</td>
<td>0</td>
<td>88</td>
<td>15.2</td>
</tr>
<tr>
<td>Maryland</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>5</td>
<td>0</td>
<td>9</td>
<td>3.2</td>
</tr>
<tr>
<td>Montserrado</td>
<td>19</td>
<td>4</td>
<td>87</td>
<td>2</td>
<td>90</td>
<td>0</td>
<td>202</td>
<td>6.7</td>
</tr>
<tr>
<td>Nimba</td>
<td>14</td>
<td>10</td>
<td>44</td>
<td>1</td>
<td>48</td>
<td>0</td>
<td>117</td>
<td>9.0</td>
</tr>
<tr>
<td>River Gee</td>
<td>74</td>
<td>0</td>
<td>64</td>
<td>6</td>
<td>43</td>
<td>0</td>
<td>187</td>
<td>55.5</td>
</tr>
<tr>
<td>Rivercess</td>
<td>17</td>
<td>11</td>
<td>75</td>
<td>4</td>
<td>53</td>
<td>0</td>
<td>160</td>
<td>63.9</td>
</tr>
<tr>
<td>Sinee</td>
<td>25</td>
<td>27</td>
<td>152</td>
<td>3</td>
<td>18</td>
<td>0</td>
<td>225</td>
<td>15.2</td>
</tr>
</tbody>
</table>

Liberia 268 109 826 23 475 0 1701 11.6

Target Achieved >2 Below Target <2
Figure 2: Cumulative Epi-classification Measles Cases by Reporting weeks, Liberia, Epi-week 1 - 52, 2019

Figure 3: Cumulative Confirmed Measles Cases Reported by Health District, Liberia, Epi-week 1 - 52, 2019

Acute Flaccid Paralysis (Suspected Polio)

- Zero case was reported
- Cumulatively, since Epi week one, 69 cases have been recorded with 67 negative
  - Proportion of cases reported with sample collected and tested 97.1% (n=67/69), 2 pending lab confirmation
  - Laboratory confirmed (+) zero
Neonatal Tetanus

- Zero case was reported
- Cumulatively, since Epi-week one, 39 clinically diagnosed cases have been recorded:
  - Attributable death 25.7% (n=9)

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

- Six (6) suspected cases were reported: Montserrado (2 including 1 death), Margibi (2), one each from Bong and Grand Bassa Counties
  - Six (6) specimens were collected and tested: 2 positive and 4 negative
- Cumulatively, since Epi week one, 206 suspected cases have been recorded:
  - Proportion of suspected cases reported with sample collected 97% (n=200)
  - Proportion of suspected cases with specimens tested is 86% (n=171)
  - Laboratory confirmed 28.7% (n=49)
  - Case fatality in confirmed cases is 36.7% (18/49)
  - Epi-classification is as follows: 49 confirmed, 122 not a case, and 34 suspected

**Figure 4: Cumulative Epi classification Lassa fever Cases Reported, Liberia, Epi-week 1 - 52, 2019**

Yellow fever

- One suspected case was reported from Montserrado County
  - Specimens was collected and tested negative
- Cumulatively, since Epi-week one, 118 suspected cases have been recorded:
  - One presumptive positive, pending confirmation from Institute Pastuer, Dakar
  - Proportion of suspected cases reported with sample collected 96.6% (114/118)
  - Proportion of sample collected and tested 87.2% (n=103/118)
Monkeypox

- Zero case reported
- 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

- Zero case reported
- Cumulatively, since Epi-week one, 60 suspected cases have been recorded
  - Fifty (50) tested negative and four pending Laboratory confirmation
  - Five (5) specimens were not collected from Gbarpolu (2), Nimba (2) and Lofa Counties

Events of Public Health Importance

Maternal Mortality

- Five deaths were reported from Grand Bassa (2) one each from Bong, Montserrado and Lofa Counties
- Causes of deaths: ruptured uterus (2), postpartum Hemorrhage, abortion and prolonged labor
- Reporting site: Health facilities 5 (100%)
- Cumulatively, since Epi-week one, 282 maternal deaths have been recorded and the major attributable causes are: Postpartum Hemorrhage 113 (40%), Eclampsia 41 (14.5%), and Sepsis 33 (11.7%)

<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>
</tr>
</thead>
<tbody>
<tr>
<td>Maryland</td>
<td>7347</td>
<td>0</td>
<td>15</td>
<td>6</td>
<td>230</td>
</tr>
<tr>
<td>Bong</td>
<td>18775</td>
<td>1</td>
<td>40</td>
<td>14</td>
<td>225</td>
</tr>
<tr>
<td>Grand Gedeh</td>
<td>6770</td>
<td>0</td>
<td>13</td>
<td>5</td>
<td>214</td>
</tr>
<tr>
<td>Margibi</td>
<td>11345</td>
<td>0</td>
<td>20</td>
<td>7</td>
<td>181</td>
</tr>
<tr>
<td>Sinoe</td>
<td>5534</td>
<td>0</td>
<td>10</td>
<td>3</td>
<td>175</td>
</tr>
<tr>
<td>Nimba</td>
<td>24970</td>
<td>0</td>
<td>40</td>
<td>13</td>
<td>160</td>
</tr>
<tr>
<td>Bomi</td>
<td>4546</td>
<td>0</td>
<td>8</td>
<td>2</td>
<td>160</td>
</tr>
<tr>
<td>Montserrado</td>
<td>62479</td>
<td>1</td>
<td>88</td>
<td>33</td>
<td>157</td>
</tr>
<tr>
<td>Rivercess</td>
<td>3865</td>
<td>0</td>
<td>4</td>
<td>2</td>
<td>125</td>
</tr>
<tr>
<td>Grand Cape Mount</td>
<td>6868</td>
<td>0</td>
<td>7</td>
<td>3</td>
<td>123</td>
</tr>
<tr>
<td>Grand Kru</td>
<td>3130</td>
<td>0</td>
<td>3</td>
<td>1</td>
<td>116</td>
</tr>
<tr>
<td>Gbarpolu</td>
<td>4507</td>
<td>0</td>
<td>4</td>
<td>2</td>
<td>107</td>
</tr>
<tr>
<td>Grand Bassa</td>
<td>11981</td>
<td>2</td>
<td>13</td>
<td>4</td>
<td>91</td>
</tr>
<tr>
<td>Lofa</td>
<td>14911</td>
<td>1</td>
<td>13</td>
<td>4</td>
<td>89</td>
</tr>
<tr>
<td>River Gee</td>
<td>3610</td>
<td>0</td>
<td>4</td>
<td>1</td>
<td>67</td>
</tr>
<tr>
<td>Liberia (National)</td>
<td>190636</td>
<td>5</td>
<td>282</td>
<td>100</td>
<td>148</td>
</tr>
</tbody>
</table>

Neonatal Mortality

- Twenty (20) deaths were reported: Montserrado (17), one each from Bong, Rivercess and Grand Gedeh Counties
- Causes of deaths: asphyxia (16), sepsis (3) and Preterm (1)
- Reporting sites: Health facilities 20 (100%)
- Cumulatively, since Epi-week one, 747 neonatal deaths have been reported (See Table 4) and the major attributable causes are: Asphyxia 377 (50.4%), Sepsis 255 (34.1%) and Preterm 63 (8.4%)
Table 4: Annualized and Cumulative Neonatal Death Reported by County, Liberia, Epi-week 1 – 52, 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 Rate/1000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grand Kru</td>
<td>3130</td>
<td>0</td>
<td>34</td>
<td>5</td>
<td>10.9</td>
</tr>
<tr>
<td>Grand Gedeh</td>
<td>6770</td>
<td>1</td>
<td>42</td>
<td>6</td>
<td>6.2</td>
</tr>
<tr>
<td>Maryland</td>
<td>7347</td>
<td>0</td>
<td>45</td>
<td>6</td>
<td>6.1</td>
</tr>
<tr>
<td>Montserrado</td>
<td>62479</td>
<td>17</td>
<td>325</td>
<td>43</td>
<td>5.2</td>
</tr>
<tr>
<td>Gbarpolu</td>
<td>4507</td>
<td>0</td>
<td>22</td>
<td>3</td>
<td>4.9</td>
</tr>
<tr>
<td>Margibi</td>
<td>11345</td>
<td>0</td>
<td>52</td>
<td>7</td>
<td>4.6</td>
</tr>
<tr>
<td>River Gee</td>
<td>3610</td>
<td>0</td>
<td>15</td>
<td>2</td>
<td>4.2</td>
</tr>
<tr>
<td>Bong</td>
<td>18775</td>
<td>1</td>
<td>77</td>
<td>10</td>
<td>4.1</td>
</tr>
<tr>
<td>Rivercess</td>
<td>3865</td>
<td>1</td>
<td>15</td>
<td>2</td>
<td>3.9</td>
</tr>
<tr>
<td>Lofa</td>
<td>14911</td>
<td>0</td>
<td>37</td>
<td>5</td>
<td>2.5</td>
</tr>
<tr>
<td>Sinoe</td>
<td>5534</td>
<td>0</td>
<td>13</td>
<td>2</td>
<td>2.3</td>
</tr>
<tr>
<td>Nimba</td>
<td>24970</td>
<td>0</td>
<td>55</td>
<td>7</td>
<td>2.2</td>
</tr>
<tr>
<td>Bomi</td>
<td>4546</td>
<td>0</td>
<td>7</td>
<td>1</td>
<td>1.5</td>
</tr>
<tr>
<td>Grand Bassa</td>
<td>11981</td>
<td>0</td>
<td>6</td>
<td>1</td>
<td>0.5</td>
</tr>
<tr>
<td>Grand Cape Mount</td>
<td>6868</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0.3</td>
</tr>
<tr>
<td>Liberia (National)</td>
<td>190636</td>
<td>20</td>
<td>747</td>
<td>100</td>
<td>3.9</td>
</tr>
</tbody>
</table>

Other Reportable Diseases

Animal Bites (Human Exposure to Rabies)
- Eighteen (18) animal bites cases reported from Montserrado (6), Margibi (3), Grand Gedeh (3), Nimba (2), Bong (2), River Gee (1), and Sinoe (1) Counties
- Cumulatively, since Epi-week one, 1,806 cases of animal bites have been recorded

Acute Bloody Diarrhea (Suspected Shigellosis)
- Five (5) cases reported: Maryland (2), one each from Gbarpolu, Rivercess and Margibi Counties
  - Four (4) specimens were collected and tested: 2 negative and 2 pending laboratory confirmation
- Cumulatively, since Epi-week one, 331 acute bloody diarrhea cases have been recorded with 192 stool specimens collected and 117 tested. Results: 13 positive and 104 negative

Severe Watery Diarrhea (Cholera)
- Zero case was reported
- Cumulatively, since Epi-week one, 126 suspected cases have been recorded with 92 specimens collected and 61 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 4918 travelers were recorded for the week (See Table 5)
**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, 67 ongoing events are being monitored through WHO Health Emergencies Program in the African Region. Key events highlighted during the week include the following:

- Malaria in Burundi
- Ebola virus disease in Democratic Republic of the Congo
- Humanitarian crisis in Nigeria

*Source: WHO Week 52 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 on 2 January 2020
- A total of 13 contacts were generated of which 10 are being follow-up and 3 are symptomatic
- The confirmed case along with the three contacts are in isolation
- Since the outbreak in August 2019:
  - 11 confirmed cases including 1 death was reported
    - **Cumulative:** 17 confirmed cases reported since Epi week one to date
    - 14 alive
    - 3 confirmed deaths (CFR = 17.6%)

**Jorquelleh District, Bong County**
- No new confirmed case reported
- All contacts have completed their 21 days follow-up
- Since the outbreak in August 2019, 8 confirmed cases including 3 deaths have been reported
  - **Cumulative:** since Epi week one to date, 16 confirmed cases reported
  - 6 confirmed deaths (CFR = 37.5%)

#### Commonwealth District, Montserrado County:
- One new confirmed case reported on 30 December 2019
- Twenty-nine Contacts generated are being follow up
- No case in isolation
  - **Cumulative:** 2 confirmed cases (all dead) reported since Epi week one to date
  - **CFR = 100%**

#### Measles

**Gbaepo District, River Gee County**
- No new cases reported
- A total of 15 cases have been recorded including 9 laboratory confirmed
- 20 contacts line-listed
- Vaccination coverage January – November, 2019 is 66%
- Community engagement and health education ongoing
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:
  o Health facility - required on or before 5:00pm every Saturday to the district level
  o Health district - required on or before 5:00pm every Sunday to the county level
  o 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 52 and cumulative report, Liberia, 2019

| Counties     | No. of Expected Health District | No. of Health District Reported | Acute Poliomyelitis (Sustained Polio) | Acute 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 | Ebola Virus Disease | Yellow Fever | Monkeypox | Dengue Fever | Buruli Ulcer | MDR Tuberculosis | Meningitis | Other Diseases/Events |
|--------------|--------------------------------|---------------------------------|---------------------------------------|--------------------------------------|----------------------------------------|-----------------------------------------------|-------------|---------|------------|-------------------|-------------------|-----------------|---------------------|------------|----------|-------------|----------------|-----------------|------------|---------------------|<br/>**Total Weekly**|<br/>93 | 92 | 0 | 0 | 5 | 0 | 0 | 0 | 18 | 0 | 5 | 1 | 9 | 0 | 0 | 5 | 20 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |<br/>**Cumulative Reported**|<br/>70 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |<br/>**Cumulative Lab-confirmed**|<br/>0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |<br/>**D** = Dead  
**A** = Alive
Epidemiological bulletin published with support of WHO and CDC

For comments or questions, please contact

Thomas K. Nagbe, MPH
Director, Infectious Disease and Epidemiology Division
National IHR Focal Person
National Public Health Institute of Liberia
Republic of Liberia
Email: tnknue31112@gmail.com
Phone: +231 886 937386/777442444
Website: www.nationalphil.org

Ralph W. Jetoh, MD
Deputy Director
Infectious Disease and Epidemiology Division
National Public Health Institute of Liberia
Republic of Liberia
Email: ralphica2000@gmail.com
Phone: +231 886526388/777372655
Website: www.nationalphil.org

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

EDITORIAL TEAM

NPHIL
Roseline N. George
Advertus N. Miah
Irene P. Pewu
Godwina B. Williams
Samuel K. Zayzay
Lasee W. Colee
T. Lafayette Hall
SumorL.Flomo
McAllen S. Quiah
Trokon O. Yeabah

Ministry of Health

Partners: WHO & US CDC