Liberia IDSR Epidemiology Bulletin

2017 Epi Week 39 (September 25 – October 1, 2017)

Highlights

Figure1. Public Health Events Reported in Epi-week 39

Figure1. Public Health Events Reported in Epi-week 39 (Suspected Cases / Samples Collected)

- Human exposure to animal bites (Suspected rabies): 37
- Measles: 23
- Neonatal Death: 16
- Acute Bloody Diarrhea: 11
- Cholera: 6
- Meningitis: 3
- Lassa Fever: 3
- Maternal Death: 3
- EVD (Alerts): 2
- Neonatal Tetanus: 1
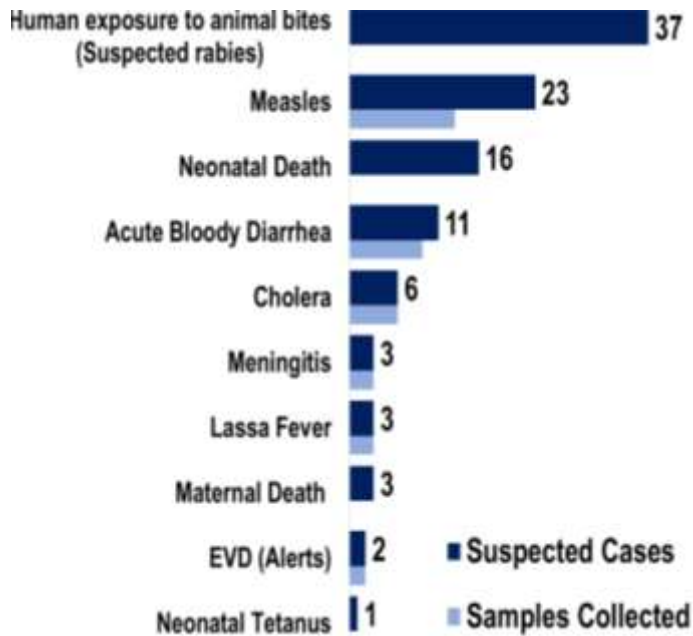
Keynotes and Events of Public Health Significance

- A total of **105** suspected cases of immediately reportable diseases and events including **23 deaths** were reported from 15 counties

- Health facility reporting **completeness and timeliness are 99.8% and 99.8%** respectively
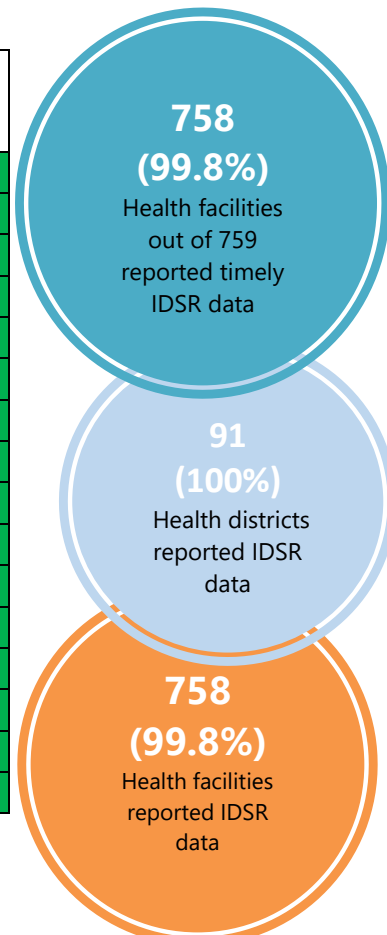
- **Measles outbreak ongoing** in Nimba County

Reporting Coverage

Table 1. Weekly IDSR Reporting Coverage, Liberia, Epi week 39, 2017

County	Number of Expected Health Facility Report	Number of Reports Received	Number Received on Time	Completeness (%)	Timeliness (%)
Bomi	23	23	23	100	100
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	19	100	100
Sinoe	35	35	35	100	100
Liberia (National)	**759**	**758**	**758**	**99.8**	**99.8**

Legend	≥80	<80

- *All counties submitted weekly IDSR report on time except Bomi county*
- *The national target for weekly IDSR reporting is 80%*

758 (99.8%) Health facilities out of 759 reported timely IDSR data

91 (100%) Health districts reported IDSR data

758 (99.8%) Health facilities reported IDSR data

Vaccine Preventable Diseases

Measles

- Twenty-three suspected cases were reported from the following counties: Nimba (17), Lofa (2), River Gee (2), Grand Bassa (1) and Sinoe (1)
- Of the 23 suspected cases reported this week, 4 (17%) were reported to have been previously vaccinated, 14 (61%) had unknown vaccination status and 5 (22%) were not vaccinated
- Twelve (52%) of the suspected cases were <5 years and 11 (48%) were ≥5 years of age
- Of the cases reported, one have been laboratory confirmed from Sanniquellie Mah district, Nimba County and one laboratory confirmed case from St. Paul district, Montserrado County
- Cumulatively, since Epi week one, 1,143 suspected cases have been reported, of which 948 were tested: 163 (17%) positive, 734 (77.5%) negative, 51 (5.4%) equivocal. One hundred seventy-eight of the suspected cases were compatible and epi-linked. Of the 785 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 12 suspected cases and sent to the National Reference Laboratory for confirmation
- Vaccination campaign has been launched in three affected communities
- Active case search has been initiated in outbreak communities

Figure 3. Weekly trend of suspected cases of Measles reported, Liberia, Epi weeks 1 – 39, 2016 & 2017
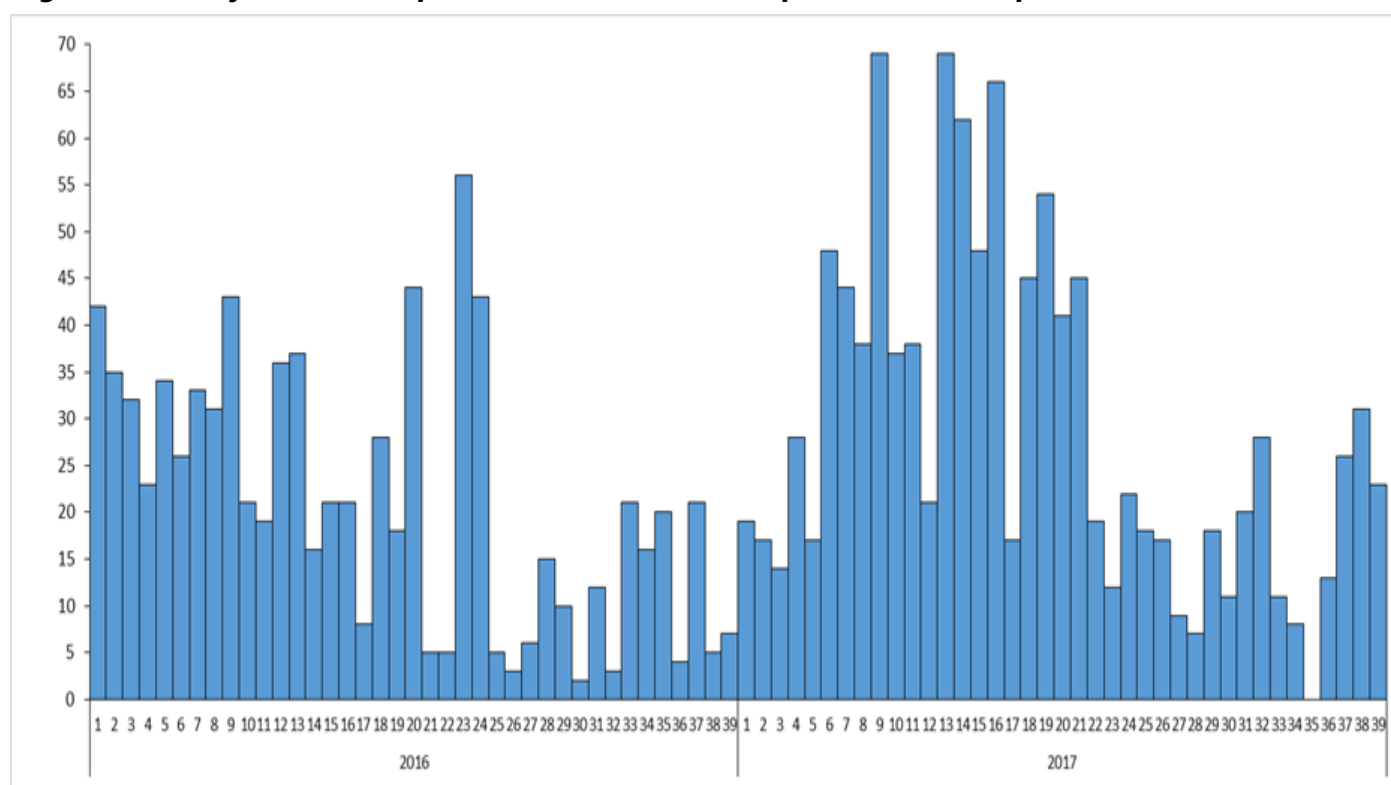
Acute Flaccid Paralysis (Suspected Polio)

- 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

Neonatal Tetanus

- One case of Neonatal tetanus was reported from Margibi County
- Cumulatively, since Epi-week one, 14 clinically diagnosed cases have been reported

Viral Hemorrhagic Diseases

Ebola Virus Disease (EVD)

- Two EVD alerts were reported from Grand Kru county
- Cumulatively, since Epi-week one, 307 EVD alerts have been reported, all of which have tested negative by PCR

Lassa fever

- Three suspected cases of Lassa Fever were reported from Grand Bassa (2) and Bong (1) Counties
- Cumulatively, since Epi-week one, 47 suspected cases have been reported, and samples were collected from two of the three cases
- Of the 47 samples, 11 have been confirmed positive by RT-PCR and ELISA-Antigen and 18 negatives. There are 15 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

- Zero cases of suspected yellow fever reported
- Cumulatively, since Epi-week one, 144 suspected cases have been reported, all of which have tested negative

Meningitis

- Three suspected cases of meningitis were reported from Grand Kru (2) and Montserrado (1) Counties
- All three samples tested negative by PCR
- Cumulatively, since Epi-week one, 56 suspected cases have been reported
- Of the 56 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

- Three maternal deaths were reported from Grand Gedeh (2) and Nimba (1) Counties
- Reported causes of deaths were: ruptured ectopic (2) and postpartum hemorrhage (1)
- Two of the deaths were reported to have occurred in the community and one in the health facility
- Cumulatively, since Epi-week one, 187 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 - 39, 2016 & 2017
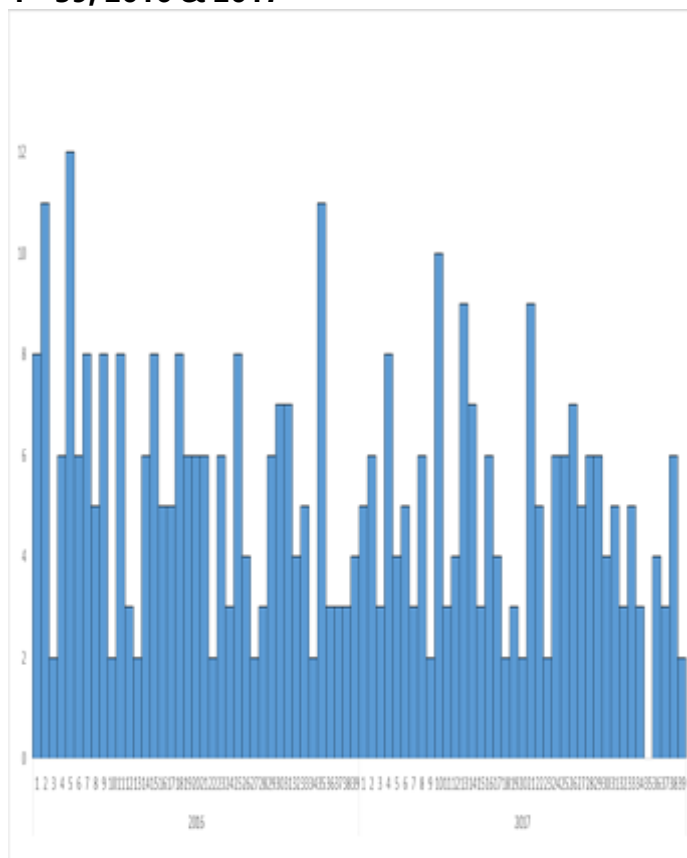
Table 3. Causes of Maternal Death, Liberia, Epi weeks 1 - 39, 2017 (n=187)

Maternal Death	Number	Percentage
Post-partum hemorrhage	64	34.2
Anemia	26	13.9
Sepsis	25	13.4
Eclampsia	20	10.7
Unknown	8	4.3
Ruptured uterus	9	4.8
Renal failure	6	3.2
Cardiac pulmonary failure	6	3.2
Congestive Heart failure	4	2.1
Pre-eclampsia	4	2.1
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
Total	**187**	**100**

Table 5. Cumulative Maternal Deaths Reported by Counties, Liberia, Epi weeks 1 - 39, 2017

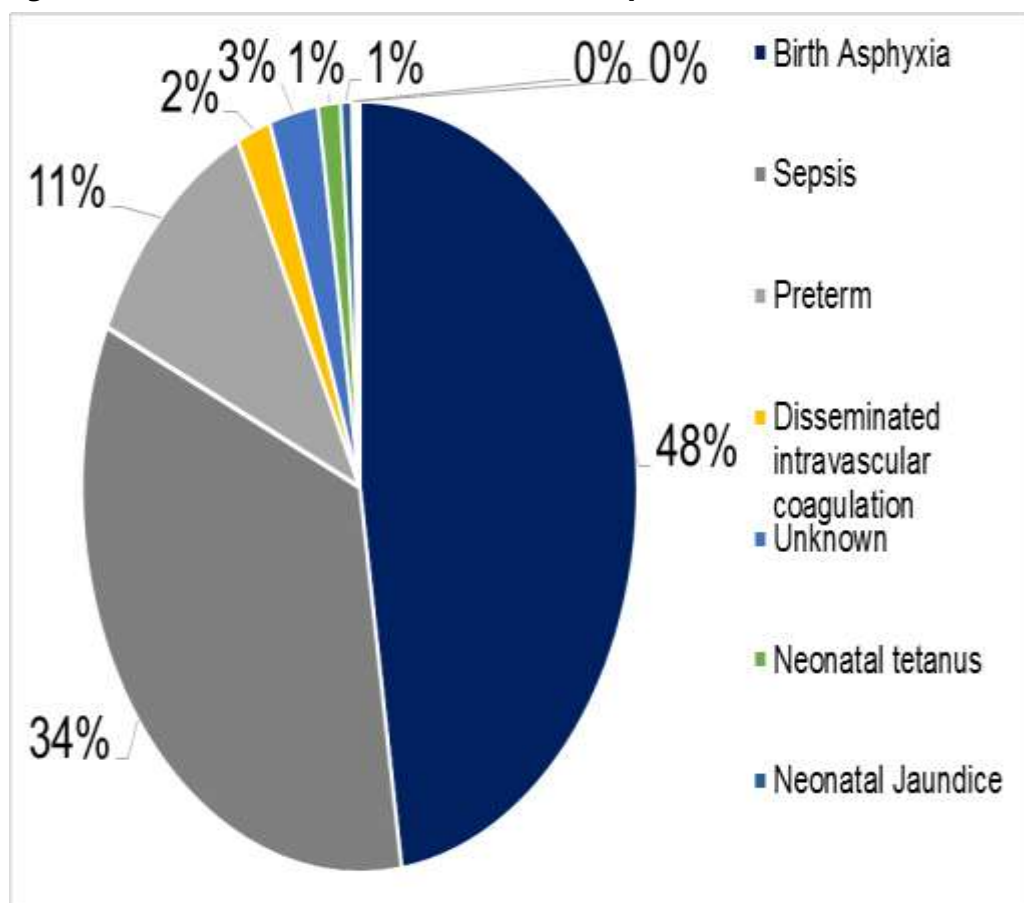| County	Annual Live birth [1]	Current week	Cumulative	% of Cumulative Maternal deaths	Annualized Maternal Mortality Ratio/100,000
Grand Bassa	11494	39	21	12	594
Maryland	7048	39	8	6	369
Bomi	4361	39	8	5	596
Grand Kru	3002	39	6	3	649
Sinoe	5308	39	7	5	429
River Gee	3707	39	5	3	438
Montserrado	57974	39	46	25	258
Bong	17289	39	20	11	376
Margibi	10883	39	15	8	448
Nimba	23953	39	22	13	298
Lofa	14354	39	12	8	272
Rivercess	3463	39	2	1	188
Gbarpolu	4323	39	4	2	301
Grand Cape Mount	6588	39	1	1	49
Grand Gedeh	6494	39	10	2	500
Liberia	**180242**	**39**	**187**	**100**	**337**

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

Neonatal Mortality

- Sixteen neonatal deaths were report from Montserrado (8), Bong (2), Margibi (2), Maryland (1), River Gee (1), Grand Kru (1), Grand Bassa (1) Counties
- Reported causes of death were:
  - Sepsis (9)
  - Birth asphyxia (2)
  - Anemia (1)
  - Depression (1)
  - Unknown (3)
- Fifteen of the deaths were reported to have occurred at health facility and one in the community
- Cumulatively, since Epi week one, 456 neonatal deaths have been reported.

Figure 5. Causes of Neonatal Death, Liberia, Epi weeks 1 - 39, 2017 (n=456)

Birth Asphyxia 48%; Sepsis 34%; Preterm 11%; Disseminated intravascular coagulation 2%; Unknown 3%; Neonatal tetanus 1%; Neonatal Jaundice 1%; 0% 0%

Table 5. Cumulative Neonatal Deaths Reported by Counties, Liberia, Epi weeks 1 - 39 2017

County	Annual Live birth	Current Week	Cumulative Neonatal deaths	% of Cumulative Neonatal deaths	Annualized Neonatal Mortality Rate/1000
River Gee	3707	39	32	7	28.1
Maryland	7048	39	48	11	22.1
Sinoe	5308	39	24	5	14.7
Grand Kru	3002	39	12	3	13.0
Montserrado	57974	39	160	35	9.0
Bong	17289	39	52	11	9.8
Rivercess	3463	39	12	3	11.3
Grand Gedeh	6494	39	16	4	8.0
Gbarpolu	4323	39	6	1	4.5
Grand Bassa	11494	39	15	3	4.2
Lofa	14354	39	45	10	10.2
Nimba	23953	39	14	3	1.9
Margibi	10883	39	14	3	4.2
Grand Cape Mount	6588	39	3	1	1.5
Bomi	4361	39	3	1	2.2
Liberia	**180242**	**39**	**456**	**100**	**8.2**

Human Exposure to Animal Bites (Suspected Rabies)

- Thirty-seven events of animal bites were reported from Sinoe (14), Montserrado (8), Nimba (4), Grand Bassa (4), Bomi (2), River Gee (1), Margibi (1), Grand Kru (1), Grand Cape Mount (1) and Bong (1) Counties
- Cumulatively, since Epi-week one, 1,047 events of animal bites have been reported

Bloody Diarrhea (Shigellosis)

- Eleven cases of bloody diarrhea were reported from Montserrado (3), Sinoe (3), Margibi (2), Rivercess (2) and Maryland (1) Counties
- Cumulatively, since Epi-week one, 211 cases of bloody diarrhea have been reported
- Stool specimens have been collected from 105 cases including 8 in the current week
- A total of 87 stool samples have been tested, 4 rejected due to poor quality, and 14 pending laboratory testing. Of the 88 tested, shigella was isolated through culture from 15 (17%) samples and no growth seen in 72 (82%) were negative

Severe Acute Watery Diarrhea (Cholera)

- Six suspected cases of cholera were reported from Sinoe and Maryland Counties; specimens were collected from all cases
- Cumulatively, since Epi-week one, 139 suspected cases of cholera have been reported, including 4 deaths attributable to cholera
- A total of 58 stool samples have been collected including six in the current week and sent to the National Reference Laboratory. Fifty-five of the samples tested had no growth one pending epi-classification and 1 is pending laboratory confirmation.

Outbreaks and Event of Public Health Concern

Measles Outbreak

- A total of 20 suspected cases of measles were reported from G.W. Harley Hospital and St. Mary's clinic in Sanniquellie-Mah District, Nimba County between September 18 – October 1, 2017
- The National Reference Laboratory confirmed 6 of the cases as IgM positive and 1 equivocal
- Age range (6 months- 30 years), 60% of cases were < 5years and 40% >5 years
- Sixty percent of the cases had unknown vaccination status while 20% had known vaccination status and 20% were not vaccinated
- Twelve of the cases were admitted, treated and discharged while 8 were treated on OPD basis
- A three days mini-measles vaccination campaign was conducted in affected communities in Sanniquellie-Mah District from 27-29 September 2017 which targeted age group 6-59 months
- The total of 607 children received a dose of measles vaccine and vitamin A during the mini campaign

Meningitis Outbreak

- Ten suspected cases of meningitis were reported from Jroah, Trehn & Barclayville Districts, Grand Kru County between August 29 – September 25, 2017
- Of the 10 suspected cases, 8 have been tested by the Laboratory (1 positive, 7 negatives) and 2 suspected deaths
- The confirmed case has been treated and discharged from Rally Time Hospital in Grand Kru
- Age range of suspected cases: 3-71 years (median age 29 years)
- Majority of suspected cases were females

- Administration of prophylaxis to 50 contacts including health workers (17), family members and immediate community members
- Contacts monitoring has been completed for contacts of the confirmed case and 2 suspected deaths

Event of Public Health Concern (Chemical Spill over)

- A chemical pollution occurred in Sayweh town, Kokoya District, Bong County on October 2, 2017
- A creek use by about 1000 inhabitants of Sayweh Town for cooking, drinking and bathing was contamination by a mining company called (Mehmet Nazi Gunaa)
- Thirty six people of the Sayweh town community were affected
- Age range of affected population was 1 to 65 years with 23 females and 13 males
- All cases were referred to Phebe hospital with signs and symptoms of skin itching & rash, diarrhea, eye pain & itching, stomach pain, body pain, headache, bloody diarrhea and chemical burn
- Of the 36 cases, six are still under observation and 30 were discharged after treatment
- No death has been reported up to date

Public Health Measures

National level

- Vaccination of 169 dogs in Montserrado County on World Rabies Day (September 28, 2017)
- Planned expansion of the Auto Visual AFP Detection and Reporting (AVADAR) to Grand Bassa and Nimba counties
- IDSR Supportive Supervision ongoing in 7 counties (Montserrado, Sinoe, Rivercess, RiverGee, Grand Gedeh, Grand Kru and Maryland) covering 41 health districts
- 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 prepositioning

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 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 maternal 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 39 and cumulative reports, Liberia, 2017

Counties	No. of Health Districts	No. of Health District reported	Acute Flaccid Paralysis (Polio) A	D	Bloody Diarrhoea (Shigellosis) A	D	Severe Acute Watery Diarrhoea (Cholera) A	D	Human Exposure to Animal bites (Suspected Rabies) A	D	Lassa Fever A	D	Measles A	D	Meningitis A	D	Maternal Mortality D	Neonatal Mortality D	Neonatal Tetanus A	D	VHF (including EVD) A	D	Yellow Fever A	D	Other Diseases/Events A	D
Bomi	4	4	0	0	0	0	0	0	2	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	1	0	1	0	0	0	0	0	0	2	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	0	0	0	0	0	0	0	0	0
Grand Bassa	8	8	0	0	0	0	0	0	4	0	2	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0
Grand Cape Mount	5	5	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Gedeh	6	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	1
Grand Kru	5	5	0	0	0	0	0	0	1	0	0	0	0	0	2	0	0	1	0	0	0	0	2	0	0	0
Lofa	6	6	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
Margibi	4	4	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	2	1	1	0	0	0	0	0	0
Maryland	6	6	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Montserrado	7	7	0	0	3	0	0	0	8	0	0	0	0	0	1	0	0	8	0	0	0	0	0	0	0	0
Nimba	6	6	0	0	0	0	0	0	4	0	0	0	17	0	0	0	0	1	0	0	0	0	0	0	0	0
Rivercess	6	6	0	0	2	0	0	0	0	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	1	0	0	0	2	0	0	0	0	1	0	0	0	0	0	0	0	0
Sinoe	10	10	0	0	3	0	5	0	13	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Weekly	**91**	**91**	**0**	**0**	**11**	**0**	**6**	**0**	**37**	**0**	**3**	**0**	**23**	**0**	**3**	**0**	**3**	**16**	**1**	**0**	**0**	**2**	**0**	**0**	**0**	**1**
Cumulative Reported			70	0	211	0	138	5	1147	1	26	18	1143	2	23	2	187	456	12	3	33	274	1403	1	1803	24
Cumulative Laboratory Confirmed			0	0	7	0	2	0	0	0	3	4	163	0	1	0			0	0	0	0	0	0	0	0

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

Editorial Team - MoH: *Roseline N. George – Deputy Director/DIDE; Advertus N. Mianah – Surveillance Coordinator/DIDE; Irene Pewu & Himiede W. Wilson – Epidemiologist/DIDE; Sumo Nuwolo, Musand Kromah, Lasee W. Colee, T. Lafayette Hall, Alberta B. Corvah, Sumor Flomo & Samuel Zayzay – Disease Investigators/DIDE; Trokon O. Yeabah – Data Manager/DIDE; Patrick Hardy – NRL/NPHIL;* **Partners:** *Dr. E. Kainne Dokubo, & Carl Kinkade – CDC; George Sie Williams, Kwuakuan D.M. Yealue & Jeremy Sesay – WHO*

National Public Health Institute of Liberia (NPHIL)

PURPOSE

In collaboration with the Ministry of Health, NPHIL strengthens existing infection prevention and control efforts, laboratories, surveillance, infectious disease control, public health capacity building, response to outbreaks, and monitoring of diseases with epidemic potential.

OUR MISSION

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

GOALS

Contribute to the development and sustainability of the public health workforce
Develop, enhance, and expand the surveillance and response platform
Develop and strengthen the laboratory system and public health diagnostics
Develop, enhance, and expand process and structures to protect environmental and occupation health
Expand, conduct, and coordinate public health and medical research to inform Liberian public health policies
Ensure sustainable financing and operations of the NPHIL

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For comments or questions, please contact
Thomas K. Nagbe, PA Dip., BSc, 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: 0886 937386/0777442444
Website: www.nationalphil.org