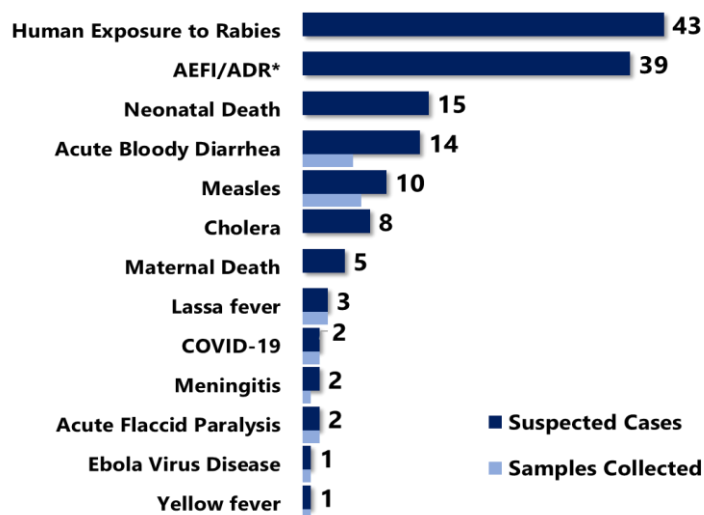


Highlights

Figure 1: Public Health Events Reported during this week



Keynotes and Events of Public Health Significance

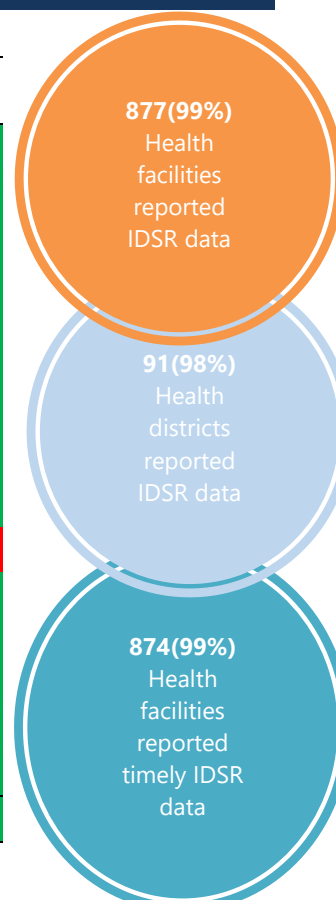
- ◆ A total of **145** events of public health importance including **22** deaths were reported
- ◆ Completeness and timeliness of health facility reports were both **99% respectively**
- ◆ **Adverse Events Following Immunization** surveillance heightened at all levels
- ◆ **Ongoing Lassa fever** outbreaks in Bong, Grand Bassa, and Montserrado Counties
- ◆ **Two new confirmed COVID-19** cases recorded from Nimba County

*Adverse Event Following Immunization/Adverse Drug Reaction

Reporting Coverage

Table 1: Health Facility Weekly DSR Reporting Coverage, Liberia, Epi week 45, 2021

County	Expected Report from Health Facility	Reports Received	Received on Time	Completeness (%)	Timeliness (%)
Bomi	26	26	26	100	100
Bong	57	52	52	91	91
Gbarpolu	15	15	15	100	100
Grand Bassa	36	36	36	100	100
Grand Cape Mount	34	34	34	100	100
Grand Gedeh	24	24	24	100	100
Grand Kru	19	19	19	100	100
Lofa	61	61	61	100	100
Margibi	55	55	55	100	100
Maryland	27	24	21	89	78
Montserrado	367	367	367	100	100
Nimba	87	87	87	100	100
Rivercess	20	20	20	100	100
River Gee	20	20	20	100	100
Sinoe	37	37	37	100	100
Liberia	885	877	874	99	99



- ◆ The national target for weekly IDSR reporting is 80%. Health facility timeliness is monitored at health district level
- ◆ All counties submitted weekly IDSR reports to the national level on time, except for Maryland County.

Legend: ≥80 <80

Vaccine Preventable Diseases

Measles

☞ Ten (10) suspected cases were reported from Grand Gedeh (5), Bomi (2), Nimba (2) and River Gee (1) Counties

- Eight (8) specimens were collected and pending laboratory testing

☞ Vaccination status among suspected cases

- Vaccinated: 4 (40%)
- Not Vaccinated: 0 (0%)
- Unknown: 6 (60%)

☞ Vaccination status among confirmed cases

- Vaccinated: 0 (0%)
- Not Vaccinated: 0 (0%)
- Unknown: 0 (0%)

☞ Age distribution among suspected cases

- ≥ 5 years: 7 (70%)
- < 5 years: 3 (30%)

☞ Cumulatively, since Epi week one, four hundred thirty-two (432) cases have been reported and classified as follows (see Figure 3):

☞ Proportion of samples tested: 91% (301/330)

- Laboratory confirmed: 56, clinically compatible: 131, epidemiologically linked: 10, non-measles discarded cases: 233 (negative laboratory test)
- One hundred twenty-nine non-measles discarded cases were tested negative for rubella and eleven was positive representing 9% of the total tested for rubella

Figure 2: Epidemiological classification of Measles cases by Geographical Distribution (Health Districts), Liberia, Epi week 1 – 45, 2021

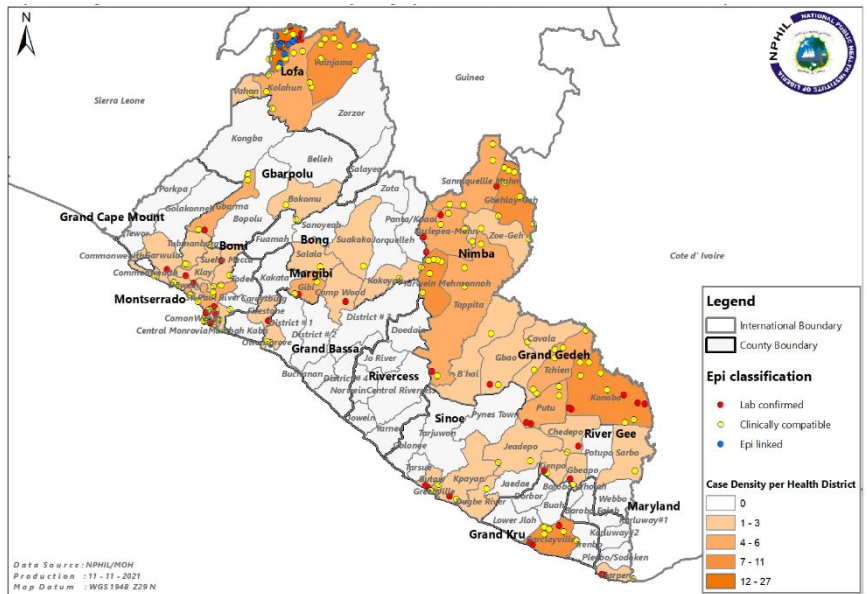
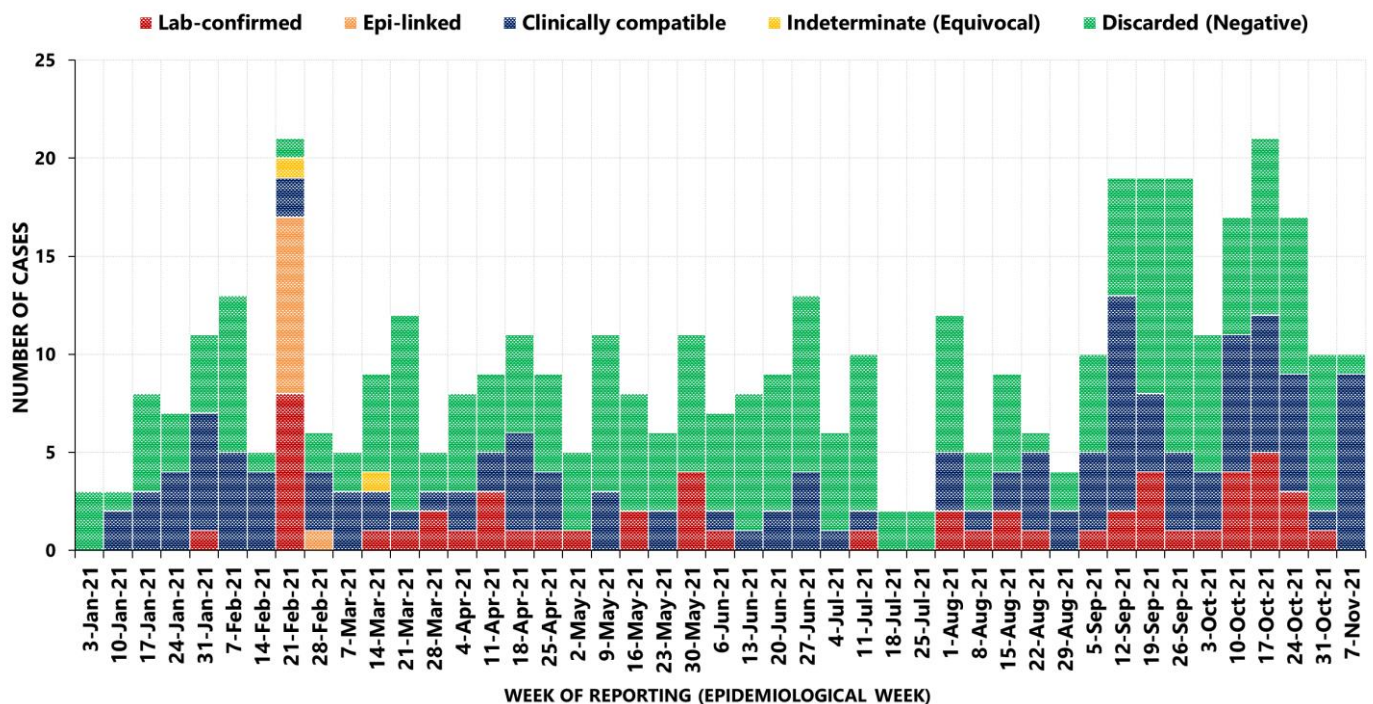


Figure 3: Epi-classification of Measles Cases by Reporting Weeks, Liberia, Epi-week 1 - 45, 2021



Acute Flaccid Paralysis (AFP)

- 👉 Two (2) cases were reported from Bong and River Gee Counties
 - Specimens were collected, package and shipped for laboratory testing
- 👉 Cumulatively, since Epi week one, 132 AFP cases have been reported
 - Of the total cases, 123 specimens have reached the national level and onward shipment process completed (see Table 2) with 108 tested and result available
- 👉 As of this week, non-polio AFP rate is at 6.9 per 100,000 population in less than 15 years of age

Table 2: Non-polio Acute Flaccid Paralysis Rate per 100,000 <15yrs, Liberia, Epi week 1 - 45, 2021

County	< 15 years pop	# of AFP Cases Reported	# of Cases with Lab Result	Non-Polio AFP Rate	# of cases <14 days specimen collected	% of stool <14days	# of NPENTs	% of NPENT
Bomi	49595	3	3	7.0	3	100%	1	33.3%
Bong	204820	18	15	10.2	18	100%	7	38.9%
Gbarpolu	49162	7	6	16.5	7	100%	2	28.6%
Grand Bassa	130703	7	7	6.2	7	100%	1	14.3%
Grand Cape Mount	74927	2	2	3.1	2	100%	0	0.0%
Grand Gedeh	73848	11	9	17.2	11	100%	2	18.2%
Grand Kru	34151	4	4	13.5	4	100%	0	0.0%
Lofa	162671	11	10	7.8	11	100%	1	9.1%
Margibi	123772	7	6	6.5	7	100%	0	0.0%
Maryland	80145	1	1	1.4	1	100%	0	0.0%
Montserrado	681600	18	17	3.1	18	100%	4	22.2%
Nimba	272406	26	21	11.0	26	100%	4	15.4%
Rivercess	42160	3	2	8.2	3	100%	1	33.3%
River Gee	39381	2	2	5.9	2	100%	0	0.0%
Sinoe	60373	3	3	5.7	3	100%	1	33.3%
Liberia	2079713	123	108	6.8	123	100%	24	19.5%
Non-Polio AFP Rate	<2			<80%			<10%	
	≥2	Stool adequacy		≥80%	Non-Polio Enterovirus		≥10%	Silent

Note: Further investigation of 10 AFP cases of the cumulative cases is ongoing to ascertain the status of these cases.

Neonatal Tetanus

- 👉 Zero case was reported
- 👉 Cumulatively, since Epi week one, thirty-nine (39) clinically diagnosed cases have been reported

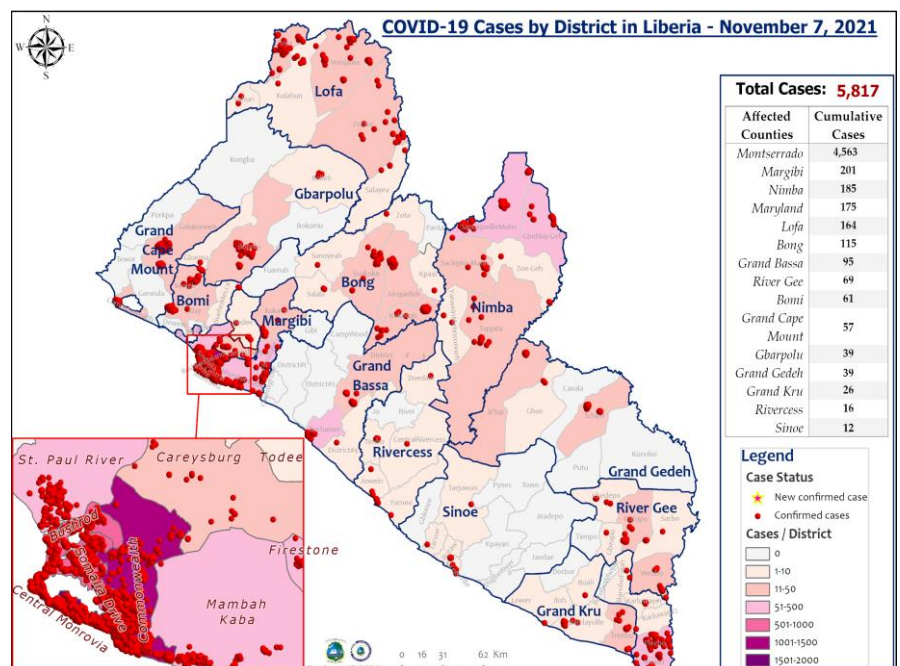
Influenza-Like Illnesses

Coronavirus Disease (COVID-19)

Outbreak

- 👉 Two new confirmed cases were reported from Nimba County
- 👉 Since Epi week one, a total of three thousand seven hundred seventy-one (3,771) confirmed cases have been reported
- 👉 Cumulatively, five thousand eight hundred seventeen (5,817) confirmed cases recorded including 287 deaths

Figure 3: Geographical Distribution of Laboratory Confirmed COVID-19 Cases by Health Districts, Liberia, Epi week 1 – 45, 2021



Public Health Actions

- 👉 Daily IMS coordination meeting on-going
- 👉 Surveillance activities including active case search, contact tracing and case investigation on-going in affected counties using WHO interim guidelines
- 👉 Reinforcing hand washing in all public areas (markets, health facilities, public offices, checkpoints etc.)
- 👉 Case management ongoing for confirmed cases
- 👉 Compulsory testing among outgoing and incoming travelers ongoing

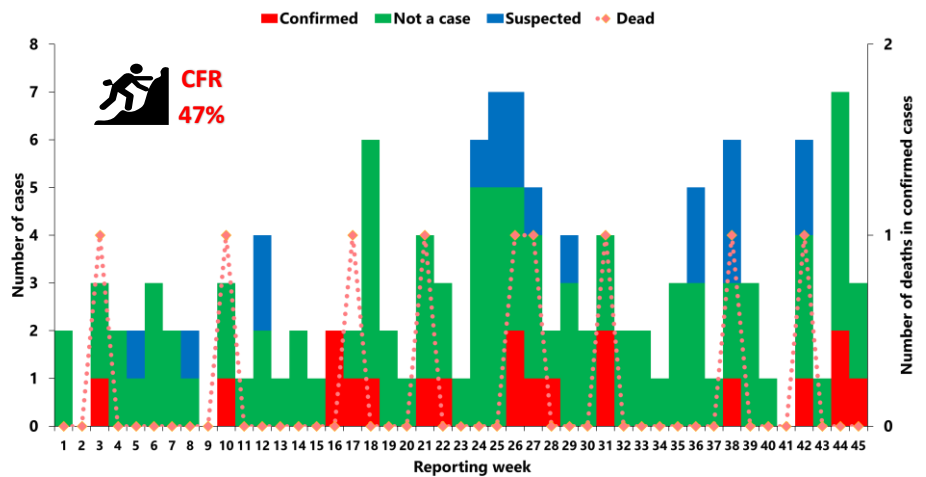
Viral Hemorrhagic Diseases

Lassa fever

- ☞ Three (3) suspected cases were reported from Nimba (2; including 1 death) and Bong (1) Counties.
 - Specimens were collected and tested: 1 positive, 2 negative
- ☞ Cumulatively, since Epi week one, one hundred twenty-seven (127) suspected cases have been reported including twenty-three (23) deaths
 - 19 positive and 90 negative
 - Proportion of suspected cases with sample collected 96% (122/127)
 - Proportion of suspected cases with sample tested 89% (109/122)

Note: Six suspected cases have been delisted due to lack of specimen collection: Bong (5) and Grand Bassa (1) Counties

Figure 4: Epi-classification of Lassa fever cases and confirmed deaths by reporting weeks, Liberia, Epi-week 1 - 45, 2021



Outbreak

Montserrado: Central Monrovia

A 9-year-old female resident of Kakata city, Margibi County, visited her mother on September 16, 2021, at 20th street, Monrovia. Her date of symptom onset was October 7, 2021. She was admitted at J.F.K hospital on October 9, 2021, where she was diagnosed and treated for malaria. She presented with the following signs and symptoms; vomiting, headache, diarrhea, fatigue, abdominal pain, muscles & joint pains, difficulty swallowing and generalized body weakness. On October 10, 2021, she was transfused with one unit of blood and the next day, she started bleeding from mouth and nose. The hospital then suspected of Lassa fever and contacted the district health team. On the same 11th of October, she died swab was collected and sent to NRL. Safe and dignified burial was conducted on October 11, 2021. A positive laboratory result was sent on October 13, 2021. A total of 15 contacts were line listed (14 HCWs and 1 family member). This is the second outbreak for Montserrado County since 2021 (CFR: 100%)

Bong: Jorquelleh & Suakoko Districts

A 4-year-old male resident of Rubbery factory, Jorquelleh District, with date of symptom onset October 25, 2021. His specimen was collected October 27, 2021 and got tested and confirmed October 29, 2021.

A 16-year-old female resident of Phebe airstrip Suakoko District, with date of symptom onset October 26, 2021. Her specimen was collected October 28, 2021 and got tested and confirmed October 29, 2021.

Grand Bassa: District #3A

A 18-year-old female resident of G. Robert Estate, District #3A, with date of symptom onset October 31, 2021. The case was admitted at the LAC Hospital and diagnosed and treated for malaria. On November 3, 2021, specimen was collected and sent to the National Reference Laboratory and tested positive on November 5, 2021, with four contacts (Healthcare Workers) line listed.

Public Health Actions

- ☞ Case management ongoing for the confirmed case in isolation
- ☞ Continue to air LF prevention and control message in affected and surrounding districts

Yellow fever

- ☞ One (1) suspected case reported from Grand Kru County
 - Specimen was collected and pending laboratory testing
- ☞ Cumulatively, since Epi week one, ninety-six (96) suspected cases have been reported with 74 negative, 16 pending testing, 1 positive and 5 specimens were not collected
 - Proportion of suspected cases with sample collected 95% (91/96) and with sample tested 83% (75/90)

Monkey pox

- ☞ Zero suspected cases were reported
- ☞ Cumulatively since Epi week one, six (6) suspected cases reported

Ebola/Marburg Virus Disease

- 📁 One (1) alert was reported from Grand Cape Mount County
 - Specimen collected and tested negative
- 📁 Cumulatively since Epi week one, eighty-two (82) alerts including 12 deaths have been reported

Diarrheal Diseases

Acute Bloody Diarrhea (Suspected Shigellosis)

- 📁 Fourteen (14) cases were reported from Sinoe (4), Grand Gedeh (3), Nimba (2), Gbarpolu (1), Grand Kru (1), Rivercess (1), Margibi (1), and River Gee Counties
 - Six specimens were collected and pending laboratory testing
- 📁 Cumulatively, since Epi week one, three hundred ninety-nine (399) suspected shigellosis cases have been reported with 187 specimens collected: 73 tested negative and 326 suspected

Severe Acute Watery Diarrhea (Suspected Cholera)

- 📁 Eight (8) suspected cases were reported from Nimba (5), Grand Kru (1), Bong (1), and Margibi (1) Counties
 - No specimens were collected
- 📁 Cumulatively, since Epi week one, two hundred fifty-eight (258) suspected cholera cases have been reported

Other Reportable Diseases

Human Exposure to Rabies (Suspected Human Rabies)

- 📁 Forty-three (43) animal bite cases were reported from Montserrado (8), Nimba (8), Grand Bassa (4), Bong (4), Maryland (4), Margibi (3), Rivercess (3), Gbarpolu (2), Sinoe (2), River Gee (2), Grand Kru (1), Grand Cape Mount (1), and Lofa (1) Counties
- 📁 Cumulatively, since Epi week one, one thousand four hundred-ninety-eight (1,498) animal bite cases have been reported

Public Health Actions

- 📁 Prophylaxis was administered to nine persons

Meningitis

- 📁 Two (2) suspected cases were reported from Nimba County
 - One (1) specimen was collected and pending laboratory testing
- 📁 Cumulatively, since Epi week one, thirty-one (31) suspected cases have been reported

Events of Public Health Importance

Maternal Mortality

- 📁 Five (5) deaths were reported from Bong (2), Grand Kru (1), Montserrado (1), and Nimba (1) Counties
- 📁 Causes of death: postpartum hemorrhage, anemia, ruptured uterus, pre-eclampsia, and hypertension
- 📁 All deaths occurred at the health facility
- 📁 Cumulatively, since Epi week one, two hundred four (204) deaths have been reported with the Maternal Mortality Ratio of 119 deaths by 100,000 livebirths (see Table 3)

Table 3: Cumulative Maternal Deaths Reported and Annualized Maternal Mortality Ratio by Counties, Liberia, Epi week 1 - 45, 2021

Reporting Counties	Current Week	Cumulative Maternal Death	% of Cumulative Maternal Death	Annualized Maternal Mortality Ratio
Bomi	0	5	2	122
Bong	2	17	8	100
Gbarpolu	0	4	2	98
Grand Bassa	0	10	5	93
Grand Cape Mount	0	1	0	16
Grand Gedeh	0	3	1	49
Grand Kru	1	5	2	177
Lofa	0	13	6	97
Margibi	0	9	4	88
Maryland	0	6	3	91
Montserrado	1	80	40	144
Nimba	1	38	19	173
Rivercess	0	2	1	57
River Gee	0	1	0	31
Sinoe	0	8	4	160
Liberia	5	204	100	119

Note: The estimated maternal mortality ratio for 2019-20 LDHS is 742 maternal deaths per 100,000 live births. 4.3% of the overall population

Neonatal Mortality

- 👉 Fifteen (15) deaths were reported from Montserrado (8), Nimba (4), Gbarpolu (1), Rivercess (1), and Lofa (1) Counties
- 👉 Causes of deaths: birth asphyxia (10), preterm (2) sepsis (2), and one pending investigation
- 👉 Thirteen deaths occurred at the health facility and two in the community
- 👉 Cumulatively, since Epi week one, six hundred and forty-nine (664) deaths have been reported

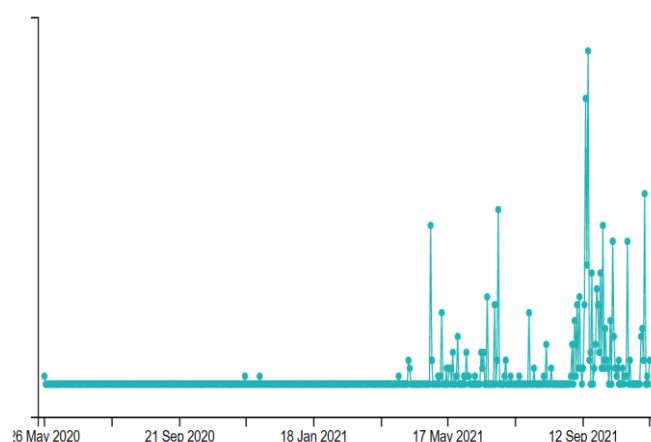
Unexplained Death

- 👉 Zero (0) deaths were reported
- 👉 Cumulatively, since Epi week one, one (1) death has been reported

Adverse Events Following Immunization (AEFI)/Adverse Drug Reaction (ADR)

- 👉 Thirty-nine (39) cases were reported from Sinoe (16), Montserrado (6), Bomi (6), Grand Kru (5), Lofa (4), and Grand Cape Mount (2) Counties
- 👉 Cumulatively, since Epi week one, five hundred eighty-seven (587) events have been reported with Montserrado County accounting for 32%
 - 8% (45) of the events related to nOPV2
 - 3% (15) of the events related to TCV
 - 85% (501) of the events related to COVID-19
 - 2% (12) of the events related to ADR
 - 2% (14) of the events related to others (BCG, PENTA, Measles, Hepatitis B)

Figure 5: Trend of AEFI/ADR Events Reporting, Liberia, May 2020 – November 2021



Public Health Actions

- 👉 All events were investigated, categorized as *non-serious AEFI and symptomatically treated*
- 👉 Active case search and community engagement ongoing
- 👉 Two Causality Assessment Expert Committee sittings have been conducted

Cross Border Surveillance Update

- 👉 A total of 9,182 travelers recorded for the week with incoming travelers accounting for 55% and outgoing travelers 45%
- 👉 Zero traveler was reactive for COVID-19

Table 4: Cross border activity at the PoE for Incoming and Outgoing Travelers, Liberia, Epi week 45, 2021

Type of Ports	Point of Entry	Weekly total	Arrival	Departure	Yellow Book Issued	Yellow Book Damage	Card Replaced	Travelers Vaccinated	Alerts Verified	COVID-19 Reactive
Airport	James S. Paynes	76	53	23	0	0	0	0	0	0
	Robert Int'l Airport	2375	1246	1129	32	20	0	12	0	0
Seaport	Freeport of Monrovia	250	125	125	0	0	0	0	0	0
	Harper	0	0	0	0	0	0	0	0	0
	Buchanan Port	46	23	23	0	0	0	0	0	0
	Bo Water Side	808	514	294	24	24	0	0	0	0
	Ganta	275	126	149	2	2	0	0	0	0
	Yekepa	98	55	43	4	4	0	0	0	0
	Loguatu	60	32	28	5	5	0	0	0	0
	Yeala	1300	675	625	0	0	0	0	0	0
	Kpasagizia	308	101	207	0	0	0	0	0	0
	Land Crossing	Safedu	624	399	225	0	0	0	0	0
Konadu		729	419	310	0	0	0	0	0	0
Bolinquidu		699	369	330	0	0	0	0	0	0
Lawalazu		389	230	159	0	0	0	0	0	0
Foya Tengia		183	128	55	0	0	0	0	0	0
Sorlumba		288	178	110	0	0	0	0	0	0
Mendicoma		368	200	168	0	0	0	0	0	0
Worsonga		306	214	92	0	0	0	0	0	0
Total travelers		9,182	5,087	4,095	67	55	0	12	0	0

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



Public Health Measures

National level

- ✎ Providing technical, logistical and financial support to counties
- ✎ Heighten surveillance in affected and surrounding communities
- ✎ Publishing situational reports to inform stakeholders

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

Appendix

Summary of Immediately Reportable Diseases, Conditions, and Events by County

Counties			Bomi	Bong	Gbarpolu	Grand Bassa	Grand Cape Mount	Grand Gedeh	Grand Kru	Lofa	Margibi	Maryland	Montserrado	Nimba	Rivercess	River Gee	Since	Total Weekly	Cumulative Reported	Cumulative Lab-confirmed	
No. of Expected Health District			4	9	5	8	5	6	5	6	4	6	7	6	6	6	10	93			
No. of Health District Reported			4	7	5	8	5	6	5	6	4	6	7	6	6	6	10	91			
Vaccine Preventable Diseases	Acute Flaccid Paralysis (Suspected Polio)	A	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	2	132	0	
		D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Measles	A	2	0	0	0	0	5	0	0	0	0	0	2	0	1	0	0	10	432	56
		D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Neonatal Tetanus	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28	0
		D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	0
	Yellow fever	A	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	96	1
		D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Viral Hemorrhagic Fever	Dengue fever	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Ebola Virus Disease	A	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	82	0
		D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	0
	Lassa fever	A	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2	104	10
		D	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	23	9
Influenza-Like Illnesses	COVID-19	A	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	3771	3771	
		D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diarrheal Diseases	Acute Bloody Diarrhoea (Shigellosis)	A	0	0	1	0	0	3	1	0	1	0	0	2	1	1	4	14	399	0	
		D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Severe Acute Watery Diarrhoea (Cholera)	A	0	1	0	0	0	0	1	0	1	0	0	5	0	0	0	8	258	0	
		D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Events of Public Health Importance	Maternal Mortality	D	0	2	0	0	0	1	0	0	0	0	1	1	0	0	0	5	204		
	Neonatal Mortality	D	0	0	1	0	0	0	1	0	0	0	8	4	1	0	0	15	664		
	Adverse Events Following Immunization (AEFI)	A	6	0	0	0	2	0	5	4	0	0	6	0	0	0	16	39	587	0	
		D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Unexplained Cluster of Health Events/Disease	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Reportable Diseases	Monkeypox	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0
		D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Tuberculosis	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Human Exposure to Rabies (Suspected Human Rabies)	A	0	4	2	4	1	0	1	1	3	4	8	8	3	2	2	43	1498	0	
		D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Meningitis	A	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	31	0	
		D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Unexplained Cluster of deaths	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Neglected Tropical Diseases	Buruli Ulcer	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Yaws	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL			8	9	4	4	4	8	10	6	5	4	23	28	5	5	22	145	8339	3847	

D = Dead A = Alive

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

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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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Data sources

Data and information is provided by the fifteen County Surveillance Officers and National Public Health Reference Laboratory via regular weekly reports, telephone calls and email exchanges. Situations are evolving and dynamic therefore numbers stated are subject to change.