



NEMS OPERATIONAL ACTIVITIES

MONTHLY REPORT: JULY 2021

Date	July 2021.
Districts	NEMS NATIONAL OPERATION.





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Brief description of the NEMS Operational Service

NEMS is an outfit set out to achieve operational or professional excellence providing a sustainable and well maintained Referral system of Ambulances /Hearses; Trained Para Medics and Drivers; Equipped depot and workshop; Management expertise and Administrative personnel; Triage and operation centre operatives; Information & communication Systems infrastructure, Monitoring, Evaluation and Data analysis geared towards evidence-based reporting.

This will be accomplished through NEMS core values:

Inspiration: Having a deep-rooted passion and internal drive for success to attain operational excellence

Integrity: Assumes complete accountability for actions, having strong moral principles and is honest in all dealings.

Innovation: Showing creativity by pursuing options that may be risky or novel thinking creatively for solutions while learning from setbacks and mistakes

Inclusiveness: Treating everyone fairly irrespective of race, religion, gender, nationality, ethnicity, age etc. Taking decisions to keep NEMS vision alive.

Innovation: Showing creativity by pursuing options that may be risky or novel thinking creatively for solutions while learning from setbacks and mistakes

Inclusiveness: Treating everyone fairly irrespective of race, religion, gender, nationality, ethnicity, age etc. Taking decisions to keep NEMS vision alive.

The data collected from the NEMS database and the Referral Coordinators' database from 15th of October 2018 up to the 30th June 2021, indicates that NEMS has accomplished over two (2) years of operations delivering the following:

Table 1: Cumulative Number of Supported Indicators

Indicators	Summed
CALLS	75280
MISSIONS	71939
INCOMING REFERRALS	61004

- **Distributions of the Ambulances**

NEMS currently has ninety- seven (97) ambulances in operation all over Sierra Leone and the distribution is as follows: WA Rural 8, WA Urban 7, Bombali 5, Pujehun 7, Kenema 6, Bo 7, Tonkolili 7, Bonthe 5, Kono 7, Kailahun 7 Moyamba 5, Koinadugu 5, Kambia 5, Falaba 5, and Karene 5.

For the COVID-19 response, NEMS continues to dedicate a vehicle in each district, with the exception of two vehicles for Western Area Urban, for the management of COVID-19 cases. All the ambulances are temporarily to the district headquarter town except for Western Area, Port Loko and Kenema districts. In June 2021, the District Ambulance Supervisors DASs were used for the transporting of COVID-19 ambulance related issues, while all other ambulances have been set for the transportation of any kind of complaints received.

- **Km Travelled**

Since the start of the activities in October 2018, the ninety-seven (97) ambulances dispatched across the country have travelled a total number of **5,497,700 km**. In June 2021, Western Area Rural appeared as the district with the highest KM travelled.

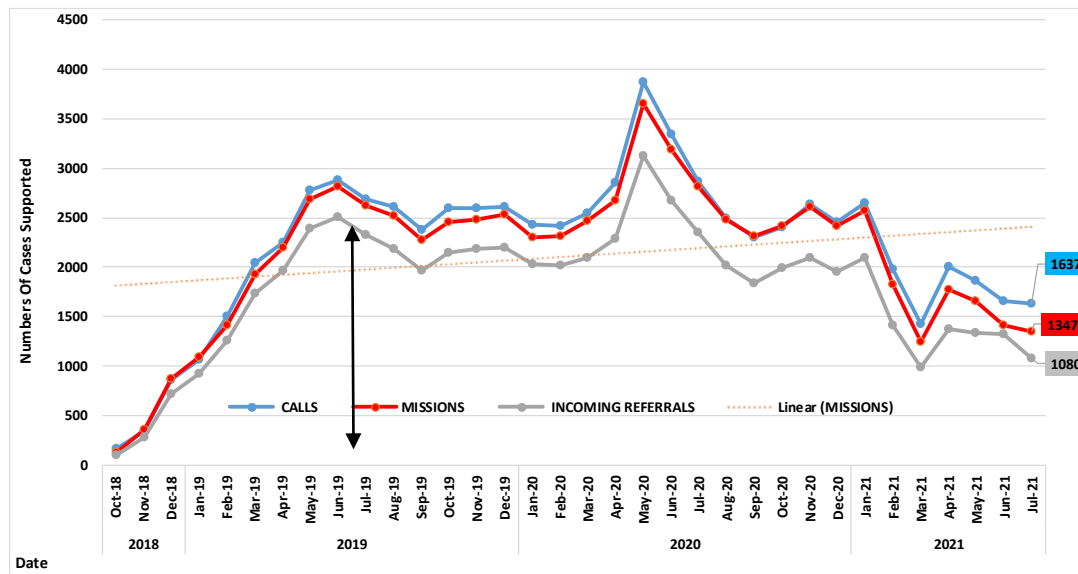


- **COVID-19 Response**

The total number of **COVID-19** confirmed cases **referred by NEMS** in May 2021 is 197, while there was no reported suspected case. The cumulative figures since the COVID-19 outbreak in the country are 1,604 **confirmed**, 169 **suspected**. In May 2021 NEMS ambulances transported 16 samples for testing at the listed laboratories in figure 25.

1. Overview of the Calls, Missions and Referrals

1. Figure 1 Trend of Calls, Missions and Referrals (Oct 2018 – June 2021)



The graph **Figure 1** exhibits the trend at which **Calls, Missions and Incoming Referrals** are supported by NEMS since the commencement of activities in **October 2018**. The black arrow is point to the date when NEMS ambulance operations started at all districts in Sierra Leone, which was on **June 2019**. The data showed that, the number of **Calls** constantly surpassed the numbers of **Missions** and **Incoming Referrals** (Not all calls end up to be missions, so not all mission turnout to be referrals).

The graph further demonstrates that NEMS recorded the highest numbers of **calls, missions, and incoming referrals services** in **May 2020**. However, it is also critical to mention that, this was the period of time the nation's instituted several restrictions to curb COVID19 cases, majority of the movement were supported by NEMS during lockdown.

From recording the lowest number of supported activities in October 2018, NEMS only recorded less than its usual number of calls, missions and referrals in March 2021. In April this year, we saw a slight increase on the various number of indicators supported by NEMS.

From the time NEMS recorded its apex in May 2020, the numbers have been gradually dropping from that period and had not yet reach that peak that was achieved in June 2020.

1.1 Number of Calls, Missions, and Incoming Referrals

In June 2021, we recorded a total of **1662, 1419 and 1327** for **calls, missions, and incoming referrals services** respectively.



1. Table 2: Cumulative and Percentage Trend of Calls, Missions, Referrals

YEARS	MONTH	CALLS	Trend	MISSIONS	Trend	INCOMING REFERRALS	Trend
2018	Oct-18	162	-	129	-	101	-
	Nov-18	351	37%	353	46%	277	47%
	Dec-18	858	42%	875	43%	716	44%
2019	Jan-19	1072	11%	1095	11%	919	12%
	Feb-19	1510	17%	1420	13%	1253	15%
	Mar-19	2043	15%	1923	15%	1730	16%
	Apr-19	2257	5%	2197	7%	1965	6%
	May-19	2782	10%	2683	10%	2392	10%
	Jun-19	2888	2%	2823	3%	2503	2%
	Jul-19	2685	-4%	2630	-4%	2332	-4%
	Aug-19	2614	-1%	2527	-2%	2189	-3%
	Sep-19	2383	-5%	2276	-5%	1973	-5%
	Oct-19	2597	4%	2454	4%	2146	4%
	Nov-19	2594	0%	2480	1%	2190	1%
	Dec-19	2615	0%	2528	1%	2200	0%
2020	Jan-20	2436	-4%	2308	-5%	2033	-4%
	Feb-20	2421	0%	2321	0%	2015	0%
	Mar-20	2546	3%	2471	3%	2102	2%
	Apr-20	2859	6%	2672	4%	2285	4%
	May-20	3873	15%	3654	16%	3129	16%
	Jun-20	3349	-7%	3189	-7%	2679	-8%
	Jul-20	2864	-8%	2822	-6%	2359	-6%
	Aug-20	2497	-7%	2484	-6%	2025	-8%
	Sep-20	2299	-4%	2317	-3%	1835	-5%
	Oct-20	2411	2%	2422	2%	1989	4%
2021	Nov-20	2635	4%	2609	4%	2098	3%
	Dec-20	2453	-4%	2423	-4%	1961	-3%
	Jan-21	2651	4%	2571	3%	2094	3%
	Feb-21	1979	-15%	1828	-17%	1420	-19%
	Mar-21	1425	-16%	1251	-19%	986	-18%
	Apr-21	2006	17%	1774	17%	1370	16%
	May-21	1866	-4%	1664	-3%	1331	-1%
2021	Jun-21	1662	-12%	1418	-17%	1327	0%
	Jul-21	1637	-2%	1347	-5%	1080	-23%
Total NEMS Project		75280		71938		61004	

The **Table 2** above provides a cumulative and percentage trend for the three (3) major indicators (**i.e., Calls, Missions, and Incoming Referrals**) by NEMS from inception to July 2021. It is obvious that there is an upward trend on the number of services offered from October 2018 to June 2019, as initially stated in **Figure 1**. The table further shows a negative trend from the third quarter of 2019. For Calls and Missions recorded in (November and December) 2019, there was no significant change that occurred, while there was slight difference on the referrals reported on the said period. The number of referrals supported this month significantly dropped, as the percentage trend reported a negative 23%.



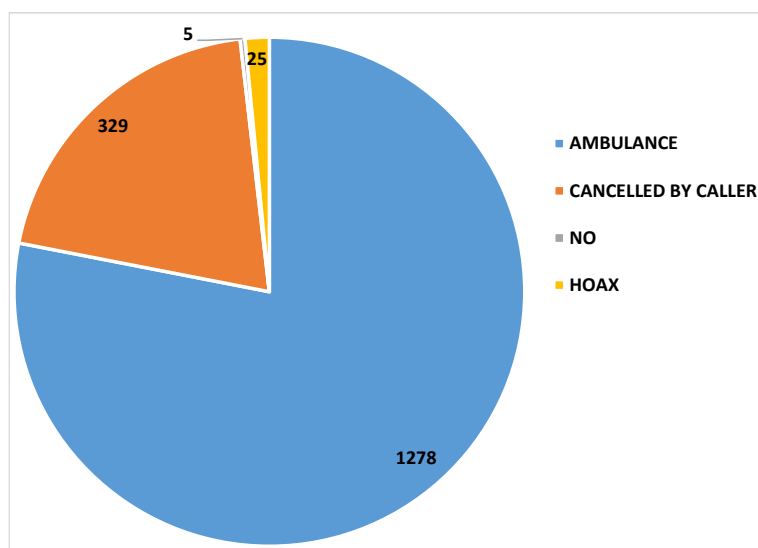
1.3 Table 3: NEMS Daily Activities Averages

Daily Operations	Calls	Missions	Incoming Referrals
Jul-21	53	43	35

The Figure **Table 3** demonstrates the mean daily calls, missions and incoming referrals supported in July 2021.

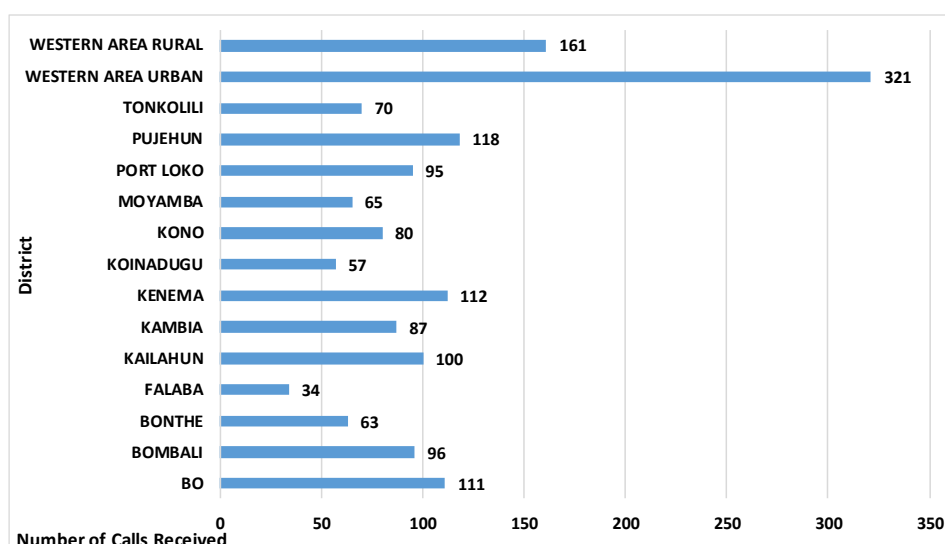
1.4 Calls Analysis

1.4.1 Figure 2: Classifications of Calls



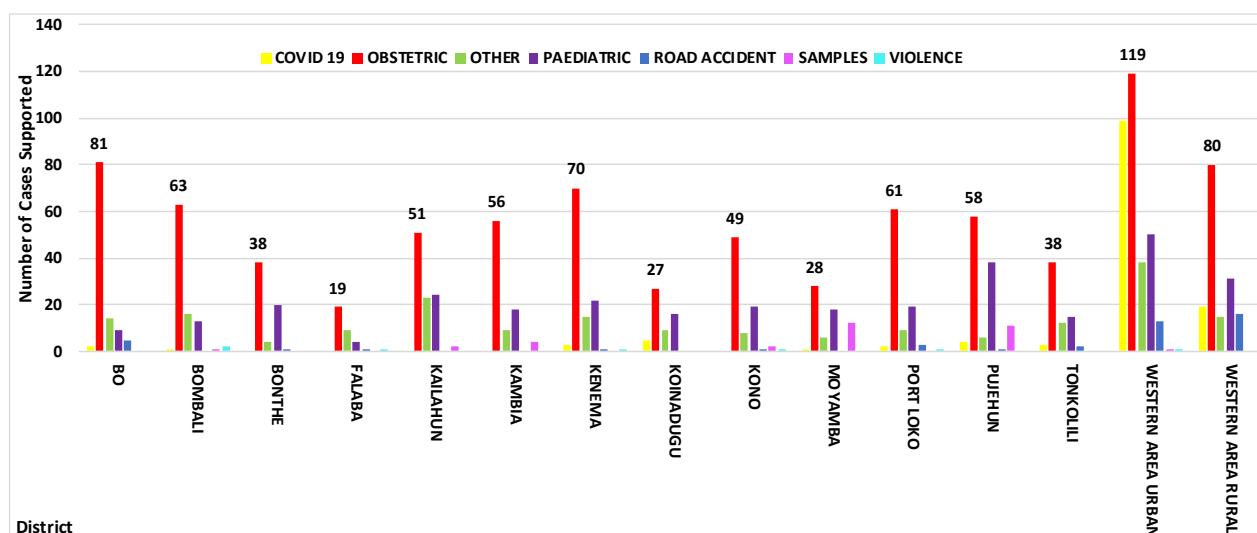
The **figure 2** outlines the classification of Calls as received at the NEMS call center (Operation Center). NEMS Call center operators received approximately 1,278 Calls that required NEMS to dispatch an ambulance, while 359 of the total number of calls were considered as either cancelled by the caller, as hoax calls or not completed (an ambulance is not dispatch whenever these types of calls are received).

1.4.2 Figure 3: Breakdown of Calls by District



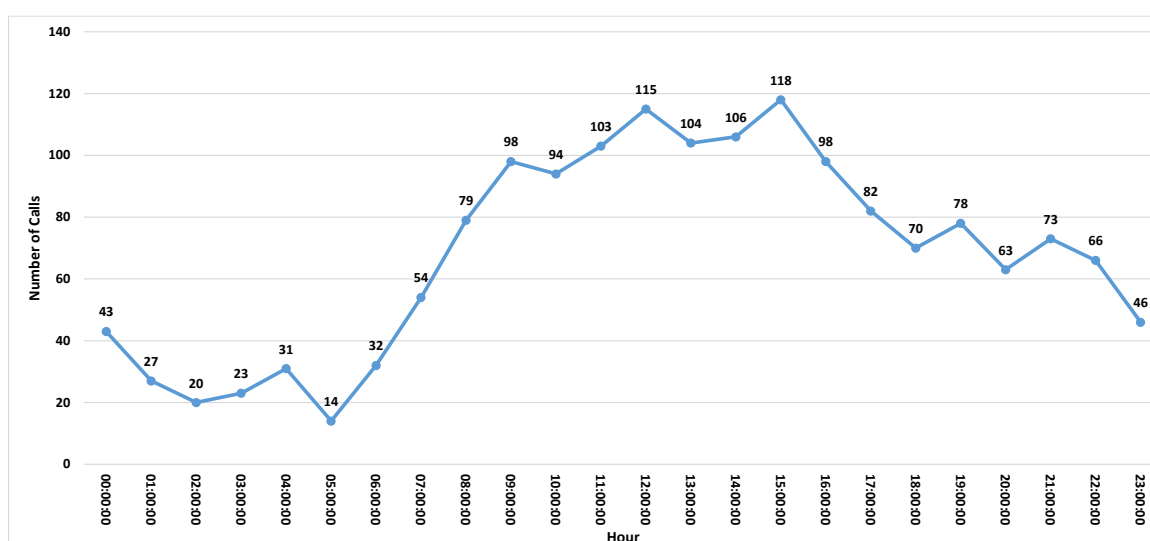
The figure 3 provides a further breakdown of the number of Calls received by district in the month under review. Western Area Urban continued to record a significant portion of the total number of Calls, while the Western Area Rural environs of Freetown are next to the list. Falaba reported the lowest number of Calls, with Pujehun topping the provincial district with the majority for the month of July. While Kenema and Bo registered over 100 Calls as regional headquarter district, Bombali and Port Loko did report less than 100 at the same period.

1.4.3 Figure 4: Breakdown of Calls Complaint by District



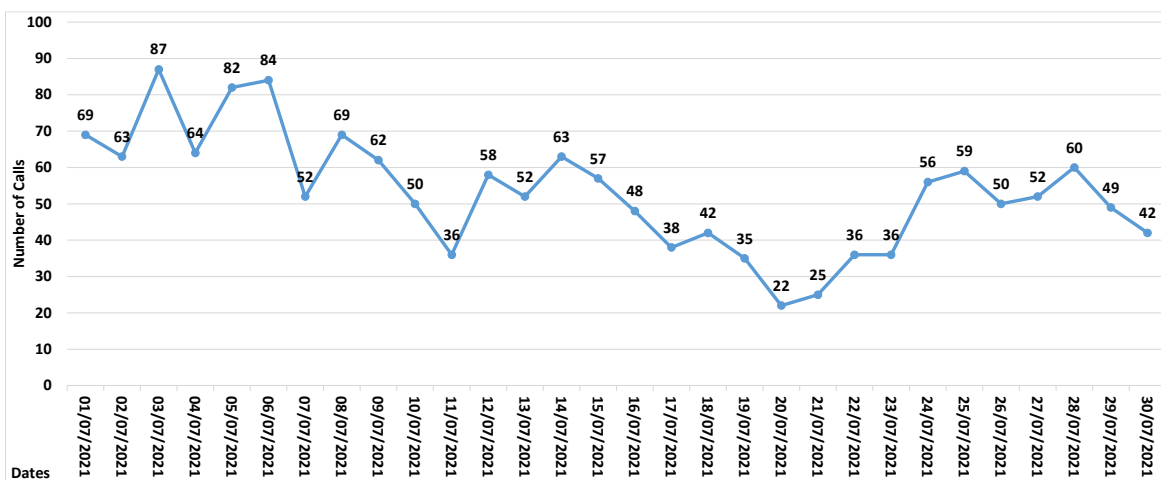
The bar chart above gives a comprehensive indulgent of the various complaints received by call center. It is obvious that, obstetric and Paediatric complaints were the most common received in the month of July 2021, with a significant drop on the number of reported COVID19, road accident and violence cases. While Western Area Rural and Urban are with the majority of COVID19 cases, Kailahun, Kambia, Kono, Moyamba and Pujehun placed calls for the transportation of Samples for testing.

1.4.4 Figure 5: Number of Calls per Hour



The oscillating line chart above, label figure 5 describes the trend at which calls are received per each hour of the day. Evidently, an enormous portion of the calls are received during the day (from 8 am to 5pm). From the graph, you could realize that at 5 am in the morning, there is a sharp drop on the number of calls as compared with others hours. The highest number of calls were made at 3 pm.

1.4.5 Figure 6: Number of Calls per Day



The vacillating line graph is demonstrating the flow of calls on a daily basis. On the 3rd, call centre recorded the highest number of calls, while the lowest were reported on the 20th of July 2021. Irrespective of the fluctuation, the line chart did not rise to record more than its usual reported number of calls.

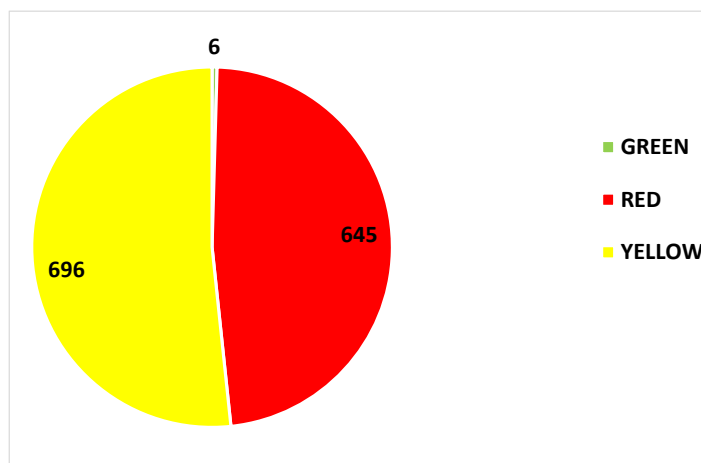
1.4.6 Figure 7: Calls, Missions, Referrals by District

DISTRICT	Number of Calls	Number of Missions	Incoming Referrals
BO	107	94	66
BOMBALI	119	89	56
BONTHE	59	62	34
FALABA	13	6	-
KAILAHUN	80	62	107
KAMBIA	73	72	60
KENEMA	130	100	125
KOINADUGU	57	43	58
KONO	69	55	27
MOYAMBA	65	55	29
PORT LOKO	72	62	69
PUJEHUN	106	81	59
TONKOLILI	58	49	23
WESTERN AREA RURAL	216	182	160
WESTERN AREA URBAN	366	168	211
Total	1590	1180	1084

The Table 4 above provides a breakdown of the number of Calls, Missions and Incoming Referrals support by the respective district in Sierra Leone. The highest number of calls were from Western Area Urban, while the lowest were from Falaba district. Western Area Rural recorded the majority of the Missions supported, while Falaba continues to have the lowest. On the Incoming Referral, Western Area Urban reported the most of the referrals received by the various facilities in the district, while those missions supported at Falaba were transported to Koinadugu. It is essential to state here that Lungi Government Hospital and Magburaka Government Hospital, were not fully included here, which is due to shortfall of data.

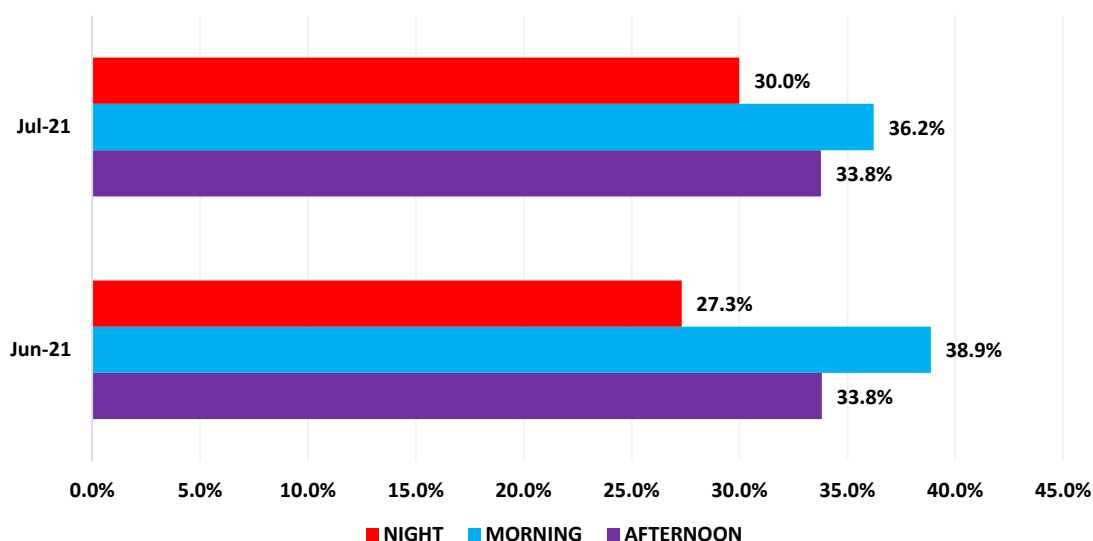
2. Missions

2.1 Figure 8: Categories of NEMS Missions



When a Call is received by the Operator at Call Centre, he/she categorized the call into either of the following colors (Green, Yellow, Red), after triage. Yellow and Red indicates that an ambulance is required and the Operator dispatch the nearest and available one to pick the patients. If it Green, the operator most time will provide clinical support through the phone and the ambulance would no longer be needed.

2.2 Figure 9: Time of the day of the Missions



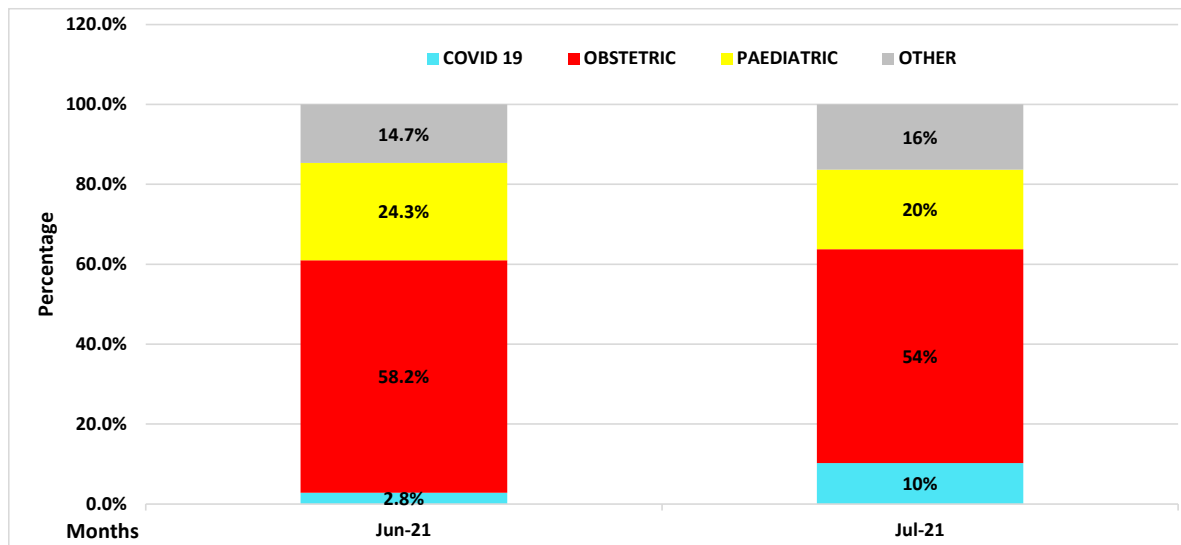
The Figure 9 above gives a clear understanding at what time of the day a call is received by the Operators at call center. It is evidently visible that a significant proportion of the calls are made during the morning hours, while seconded by the afternoon indicator.

The diagram labelled **Figure 9** shows the percentage of missions undertaken in the morning (i.e. from 8 am to 2 pm); afternoon (from 2 pm to 8 pm) and night (from 8 pm to 8 am) comparing the data for May with June 2021 as displays below:

June and July comparison, the number of calls received at night increase to 30%, from the previous 27.3% and the increment that occurred is approximately 2.7%. While the calls received during the morning hours dropped to 36.2%, with 2.7 differences. It is obvious that the calls received during the day does not change as to other time of the day.

2.3 Complaints that lead to Missions

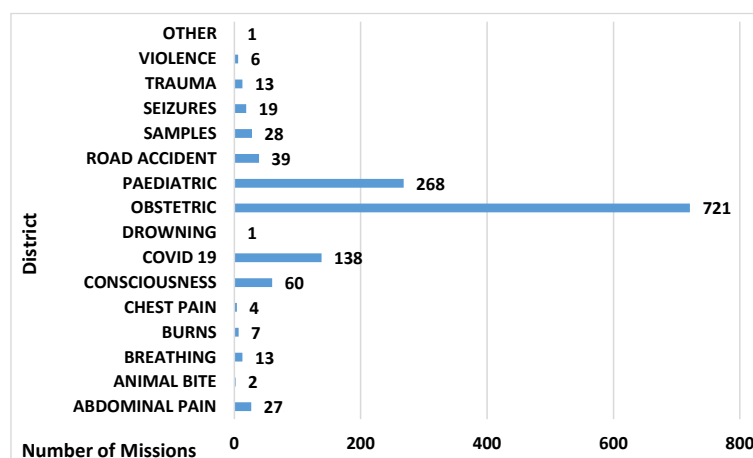
2.3.1 Figure 10: Comparative Analysis of NEMS Mission's complaints for the Previous month (May) to Current Month



The graph (Figure 10) represents the major category of complaints of the NEMS missions comparing June 2021 to July 2021 data. The data of COVID-19 missions include only confirmed.

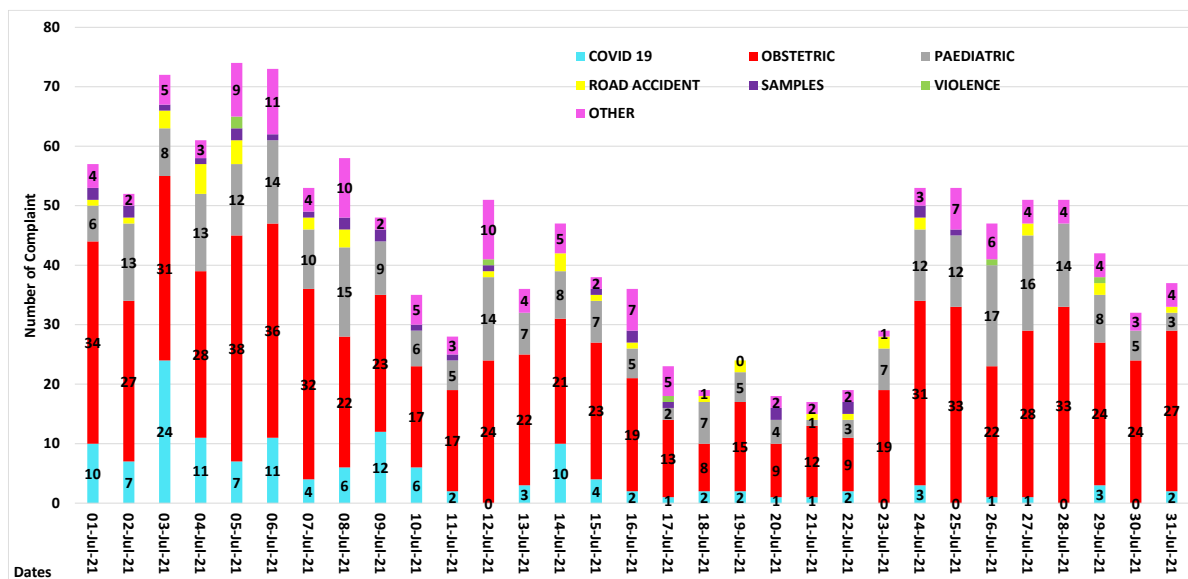
The July 2021 data presented in this diagram shows that approximately 54% of NEMS missions are associated with **obstetric** complaints compared to June 2021 with 58.2%, with 4.2% decrease in obstetric complaints in July 2021. When we compared the represented data, **paediatric complaints** accounted for about **20% in July 2021 compared to June with nearly 24.3%**. The percentage of missions for complaints associated with **COVID19** illustrated a significant dropped of **7.2%** to that of the previous month. It is seen that, roughly 16% of the complaints are grouped and classified as '**Others**', this includes (violence, trauma, seizures, samples, road accident, drowning, consciousness, chest pain, burns, breathing, animal bite, abdominal pain and other).

2.3.2 Figure 11: Typology of complaints that lead to Missions



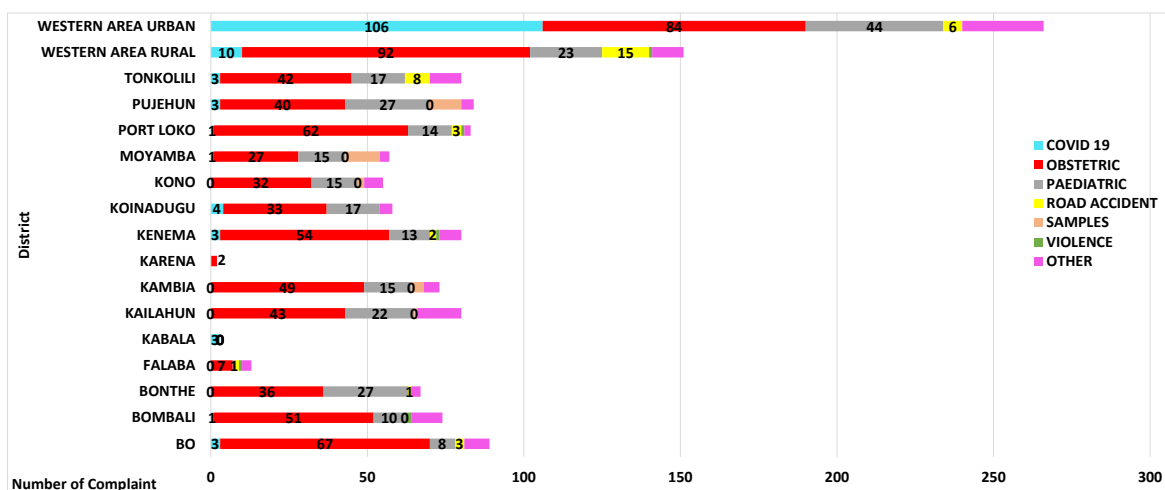
The chart **figure 11** above provides a detailed breakdown of the number of complaints received and considered as missions. It is evidently clear that obstetric complaint was the most occurring indicator, seconded by Paediatric, while drowning is the least complaint received for the month under review.

2.3.2 Figure 12: Showing Trend of Missions complaints by day



The data displayed in the stacked column chart labelled **figure 12** above gives a further breakdown on the number of complaints per day and the trend at which mission's complaints are reported for the month of July 2021. The chart showed a fluctuating flow on the number of obstetric cases on each day. As displayed on the diagram above, COVID 19, Obstetric and Paediatric cases were the most registered complaints in the month of July 2021. The number of COVID 19 complaint in July is alarming, cases were recorded on most occasion with the exception of fewer days; 12th, 23rd, 25th and the 30th, while the highest number of cases were reported on the 3rd. Road Accident almost occurred throughout the month July, the highest number of cases were recorded on the 4th. A few numbers of violence complaints were received for the month.

2.3.3 Figure 13: Missions Complaints by District



To have a supplementary analysis on complaints, the Figure 13 describe the various categories of complaints **by district for the month of July 2021**. This figure does not only justified figure 3, but also that of figure 10. As western Area Urban reported the highest number of missions, so it records a massive number of obstetric complaints, which alone crossed over most of the other district indicators.

Figure 14: Number of Calls, Missions and Referrals Supported per Day

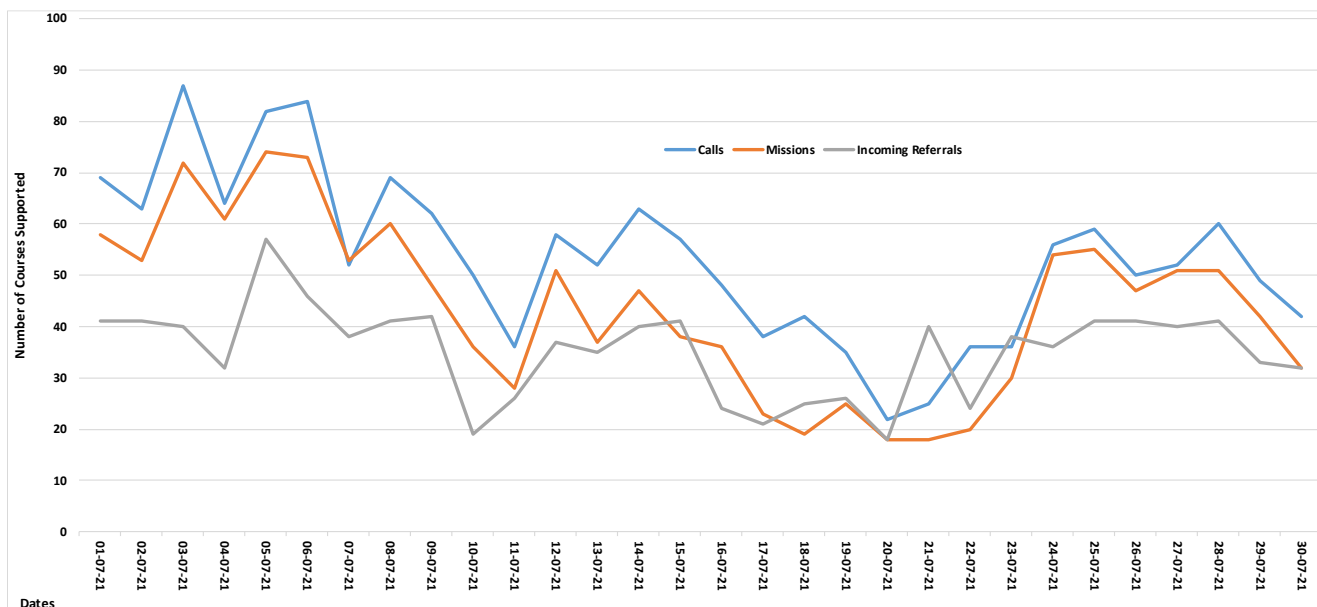


Figure 14: shows the number of Calls received, missions carried out, and referrals managed per day by NEMS for July 2021. Throughout July 2021, the indicators fluctuated. The average call was 53, Missions is 43 and referrals 35 for the month under review.

2.4 Figure 15: Outcome of the Missions

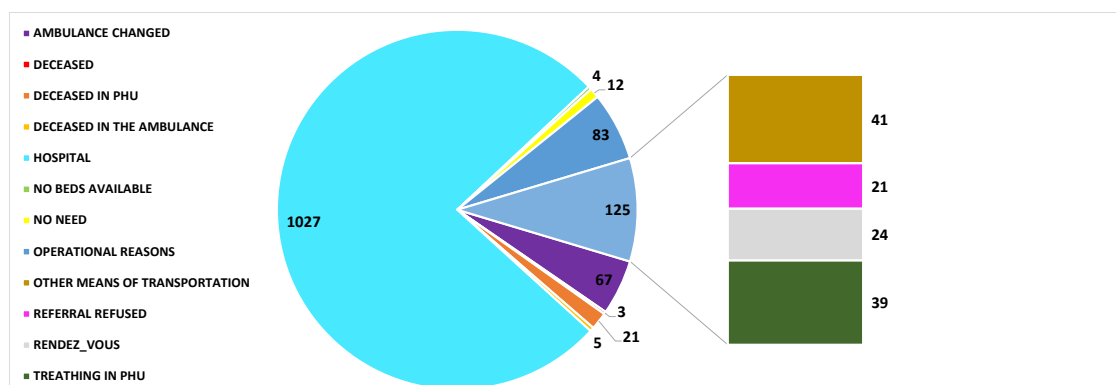


Figure 15 shows the outcome of missions carried out by NEMS in July 2021.

'Hospital' refers to missions leading to referral to a pre-identified health facility (Hospital). Referencing the July 2021 data displayed in the pie chart above demonstrated that (1,027) 76% of the missions led to referral to a pre-identified specialist healthcare facility compared to the June 2021 figure that showed that 84% of the missions referred to a pre-identified specialist health facility. This indicates a significant decrease in the number of referrals for July 2021 compared to June 2021. This is further simplified by table labelled **Table 4**.

2.4.1 Table 4: Displays Missions Outcome and the Reasons to Abort



INDICATORS	ABORTED	DECEASED	HOSPITAL	NO NEED	RENDEZ_VOUS	TOTAL/REASON
AMBULANCE CHANGED	65	0	1	1	0	67
DECEASED	0	3	0	0	0	3
DECEASED IN PHU	0	21	0	0	0	21
DECEASED IN THE AMBULANCE	0	5	0	0	0	5
HOSPITAL	1	0	1026	0	0	1027
NO BEDS AVAILABLE	4	0	0	0	0	4
NO NEED	11	0	1	0	0	12
OPERATIONAL REASONS	83	0	0	0	0	83
OTHER MEANS OF TRANSPORTATION	41	0	0	0	0	41
REFERRAL REFUSED	21	0	0	0	0	21
RENDEZ_VOUS	0	0	0	0	24	24
TREATING IN PHU	38	0	1	0	0	39
TOTAL	264	29	1029	1	24	1347

3. National Hospital Bed capacity

Table 4 above serves as an additional analysis to the pie chart above showing the outcomes of missions for the month under review.

'Aborted', The July 2021 data showed that out of the **1,347** missions undertaken, **264 (20%)** of those missions were cancelled before or after the arrival of the NEMS ambulance team at the Peripheral Health Unit (PHU). For a mission to be cancelled, there a diverse reason and these could be any of the following;

- **'Ambulance Changed'** - the data for July 2021 revealed that out of 264 missions aborted, 65 (25%) of the aborted missions in July 2021 were due to 'ambulance changed'.
- **'Deceased'** – this mission outcome refers to death before the arrival of the NEMS ambulance team. July 2021 data showed that (29) of the missions were cancelled because the patient died. Out of the 29 missions cancelled, 21 of those aborted mission occurred because the patients passed away in the PHU, while 5 of the missions were aborted because the patients passed away in the ambulances and 3 died while the ambulance was heading to the PHU.
- **'Operational reasons'** - this type of mission outcome has a strongly correlation with the ambulance technical problems. The table above shows that 83 (31%) of the aborted missions occurred because of technical problems with the ambulances in the month of July 2021 compared with June with 21% of aborted missions relating to 'operational reasons'.
- **'Other Means of transportation'** – refers to a situation where the patients or families decided to employ other medium of transportation after requesting for an ambulance. The July 2021 data showed that 41 (16%) of the aborted missions occurred because the patients used other means of transportation.
- **'Treated at the PHUs'** refers to a situation where either the PHU personnel or the ambulance team managed the emergency at the PHU level, with 38 (14%).
- **'Referral refused'** the table above shows that out of 264 missions aborted, 21 (9%) was due to the patients or family members refusal to use the ambulance dispatched by NEMS,
- **'Other reasons'** includes 'no-need' of the ambulance (11), 'no beds available at the referral hospitals' (4).

'Rendezvous' has been used to describe situations that may require more than one ambulance to complete a mission. The NEMS data for July 2021 shows that **'Rendezvous'** was use to accomplish 24



(1.8%) mission out of 1,347 mission outcomes compared to June 2021 that was (1.4%).

3.1 Table 5: Bed Capacity and Average Percentage Bed Occupancy by Facility

Facility	Adult Bed Capacity	% Average Bed Occupancy per Month	Maternity Bed Capacity	% Average Bed Occupancy per Month	Paediatric Bed Capacity	% Average Bed Occupancy per Month
Bo Government Hospital	139	47	54	65	95	53
Makeni Government Hospital	94	65	27	53	62	37
Mattru UBC Hospital	36	36	12	91	17	81
Connaught Government Hospital	167	82	0		24	56
Kailahun Government Hospital	38	52	37	61	42	72
Kambia Government Hospital	44	20	21	65	31	53
Kenema Government Hospital	118	48	41	66	96	49
Kabala Government Hospital	49	33	37	51	55	41
Koidu Government Hospital	75	77	40	71	56	146
Lungi Government Hospital	40	30	20	47	20	42
Moyamba Government Hospital	48	33	24	85	39	65
Ola During Children Hospital	0		0		174	88
Princess Christian Maternity Hospital	0		115	91	18	
Port Loko Government Hospital	65	27	35	47	20	95
Pujehun Government Hospital	41	38	34	80	36	72
Tonkolilli Government Hospital	97	8	28	67	89	45
34M Military Hospital	82	49	22	47	40	61
King Harman Road Government Hospital	4	83	17	47	30	44
Rokupa Government Hospital	6	49	21	49	39	61
Lumley Government Hospital	12	82	10	65	4	145
Macauley Government Hospital	13	26	10	28	4	49
Emergency Memorial Hospital	47	85	0	0	20	65
Total National Bed Capacity	1215		605		1011	

The tabular representation labelled **table 5** above provides further breakdown on the bed capacity and the percentage average for the different facilities.

From the tabular presentation, Connaught Hospital does not directly provide care to pregnant women with maternity related complaints and there is no specific department to handle maternity related complaints at the facility. Ola During Hospital (ODH), is a specialized children hospital provide care to only under-5 cases, while Princess Christian Maternity Hospital (PCMH), located adjacent ODCH with the purpose to support and address maternity related issues. The SCBU beds available at PCMH are not counted in determining the bed capacity of the facility, as they serve a different purpose from the others.

Macauley street hospital is currently under rehabilitation, because of that, patients are not admitted now. However, there is a provision for consultation available only for emergency cases that can be further referred if that is required.

Emergency Memorial Hospital provides specialist care to patients requiring surgical care and cannot do so for maternity related illness.

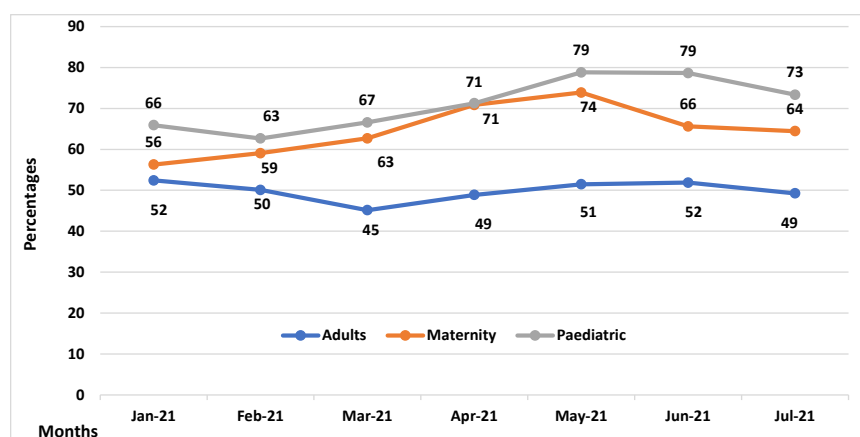
All other facility listed on the table above provide care and has space for the various department listed on the table. A further breakdown on the average percentage bed occupancy at the various facilities:

Adult Occupancy: for the adult bed capacity, no facility reported overcrowding, while Connaught Hospital, King Harman Road Government Hospital and Lumley Government Hospital recorded over 80% average occupancy for the month of July.

Maternity Occupancy: Mattru UBC Hospital and Princess Christian Maternity Hospital reported 90% as average bed occupancy for the month of July. All other facilities reported less than 90%.

Paediatric Occupancy: Koidu and Lumley Government Hospitals reported overcrowding for the month of July, as the averages for the month are 146% and 145% respectively. Port Loko Government Hospital showed a potential overcrowding, with 95%. While all other facility has a relatively stable capacity.

Figure 15: National Percentage Bed Occupancy by Department



The figure 15 above provides an average percentage bed occupancy by month. Health facilities have various subsectors that are merged to form the major listed departments on the line chart. Since the commencements 2021, the average bed occupancy has been below 80% for the different departments and months as well.

4.NEMS National Referrals

4.1 Table 7: Number of Incoming and Outgoing Referred patients

Facility	Total Referrals	Incoming	Outgoing	Incoming-repeat	Outgoing-repeat	NEMS
National	1172	1084	88	0	0	735
34M	39	37	2	0	0	27
Bo	69	67	2	0	0	69
Bombali	57	53	4	0	0	45
Bonthe	33	32	1	0	0	25
Connaught	87	86	1	0	0	47
Emergency	51	18	33	0	0	28
Kailahun	108	102	6	0	0	45
Kambia	59	58	1	0	0	59
Kenema	129	125	4	0	0	55
King Harman Road	15	12	3	0	0	7
Koinadugu	61	54	7	0	0	56
Kono	25	24	1	0	0	24
Lumley	22	14	8	0	0	0
Lungi	1	1	0	0	0	1
Macauley Street	15	8	7	0	0	5
Moyamba	23	23	0	0	0	21
ODCH	95	92	3	0	0	27
PCMH	117	117	0	0	0	84
Port Loko	72	70	2	0	0	45
Pujehun	61	60	1	0	0	37
Rokupa	17	17	0	0	0	17
Tonkolili	16	14	2	0	0	11
Total	1172	1084	88	0	0	735

From the diagram labelled **table 7** above, a total of **1,172** referrals were incoming, while **88** reported to be outgoing. NEMS has directly supported a total of 735 patients from peripheral hospitals to secondary and tertiary hospital. In July 2021, Kailahun, Kenema and PCMH are the only facilities to have supported over 100 incoming referred patients. It is vital to highlight here that Lungi and Magburaka Government Hospitals reported less referrals due to computer issues, but we hope to include their numbers in the next report.



4.3 Table 8: The Outcome of the Number of Incoming Referred Patients' by Districts

Facility	Admission ongoing	Death	Death on arrival	Discharge against medical advice	Discharge	Onward referral	Patient did not arrive	Rejected referral	Unable to admit	Death in Ambulance	Total
National	263	52	2	10	741	4	6	0	5	1	1084
34M	37	0	0	0	0	0	0	0	0	0	37
Bo	0	1	0	1	65	0	0	0	0	0	67
Bombali	2	3	0	0	41	1	4	0	1	1	53
Bonthe	9	0	0	0	22	0	1	0	0	0	32
Connaught	31	7	0	0	48	0	0	0	0	0	86
Emergency	14	0	0	0	3	0	0	0	1	0	18
Kailahun	3	7	0	3	88	1	0	0	0	0	102
Kambia	0	1	1	1	53	0	1	0	1	0	58
Kenema	5	8	1	2	109	0	0	0	0	0	125
King Harman Road	0	5	0	0	7	0	0	0	0	0	12
Koinadugu	9	5	0	0	40	0	0	0	0	0	54
Kono	7	0	0	0	17	0	0	0	0	0	24
Lumley	3	0	0	1	8	0	0	0	2	0	14
Lungi	1	0	0	0	0	0	0	0	0	0	1
Macauley Street	2	1	0	0	4	1	0	0	0	0	8
Moyamba	0	1	0	0	22	0	0	0	0	0	23
ODCH	36	3	0	0	53	0	0	0	0	0	92
PCMH	57	0	0	0	60	0	0	0	0	0	117
Port Loko	2	6	0	2	60	0	0	0	0	0	70
Pujehun	33	3	0	0	24	0	0	0	0	0	60
Rokupa	1	1	0	0	15	0	0	0	0	0	17
Tonkolili	11	0	0	0	2	1	0	0	0	0	14
Grand Total	263	52	2	10	741	4	6	0	5	1	1084

The outcome of incoming referrals to the various health facilities nationwide presented in the tabular diagram for the month under review. A significant portion of the referred patients were discharged, while out of the **1,084 patients, 52 of those were reported dead. 263** of the total patients were reported to still be in the various facilities receiving care. It is essential to report that **741** of the total number of incoming referred patients were **discharged**.

Table 9: Number of Referrals supported by FHC

Facility	Total Referrals	Lactating	Non-FHCI	Pregnant	Under 5	EVD Survivor	Yes - other
National	1084	40	208	517	312	0	7
34M	37	0	37	0	0	0	0
Bo	67	0	8	51	8	0	0
Bombali	53	0	8	29	13	0	3
Bonthe	32	0	4	17	11	0	0
Connaught	86	7	62	1	15	0	1
Emergency	18	0	13	0	5	0	0
Kailahun	102	5	22	40	35	0	0
Kambia	58	2	6	41	9	0	0
Kenema	125	6	14	81	24	0	0
King Harman Road	12	0	0	0	12	0	0
Koinadugu	54	1	7	30	16	0	0
Kono	24	1	5	12	6	0	0
Lumley	14	3	1	10	0	0	0
Lungi	1	0	0	0	1	0	0
Macauley Street	8	0	1	3	2	0	2
Moyamba	23	0	1	14	8	0	0
ODCH	92	0	11	0	81	0	0
PCMH	117	7	0	110	0	0	0
Port Loko	70	5	4	32	29	0	0
Pujehun	60	3	1	30	26	0	0
Rokupa	17	0	0	12	4	0	1
Tonkolili	14	0	3	4	7	0	0
Total	1084	40	208	517	312	0	7



Table 9 above explains the categories of incoming referred patients at the various health facilities nationwide for the month of July 2021. NEMS support a total of 208, 517 and 312 for Non-FHCI, Pregnant women and Under 5 children respectively. Every facility reported cases related to maternity or paediatric cases, with the exception of 34 Military. In the month of July 2021, there were no records of EVD survivor.

Table 10: Referral by Health Facilities (Hospitals)

REFERRAL HOSPITAL	Jun-21	Jul-21
Tertiary Facility Total	18.6%	34.6%
Connaught Hospital	5.5%	8.6%
Ola During Children's Hospital	1.6%	7.2%
Princess Christian Maternity Hospital	11.6%	18.8%
Regional and District Hospital Total	54.8%	42.8%
Bo Government Hospital	7.0%	4.6%
Bonthe Government Hospital	0.8%	0.7%
Kabala Government Hospital	3.2%	4.0%
Kailahun Government Hospital	2.7%	3.4%
Kambia Government Hospital	4.4%	4.2%
Kenema Government Hospital	9.4%	5.0%
Koidu Government Hospital	4.4%	2.6%
Lungi Government Hospital	0.6%	0.8%
Magburaka Government Hospital	2.8%	2.7%
Makeni Government Hospital	5.0%	3.7%
Moyamba Government Hospital	2.6%	1.7%
Port Loko Government Hospital	3.2%	4.1%
Pujehun Government Hospital	7.6%	4.4%
Segbwema Government Hospital	1.2%	1.0%
Other Government Facility	1.2%	10.0%
Kingharman Road Government Hospital	0.1%	0.9%
Other Government facilities (i.e.Macauley, Lumley)	-	0.4%
Rokupa Government Hospital	1.1%	4.9%
34 MILITARY HOSPITAL	-	3.6%
JUI HOSPITAL	-	0.1%
Private/NGO facility Total	26.0%	12.3%
Emergency	1.0%	0.4%
Kamakwie	1.5%	1.0%
Masanga	1.2%	0.1%
Mattru UBC Hospital	2.2%	1.8%
MSF Hospital – Kenema	-	0.4%
Another Private facility (i.e. Lion Heart)	-	-
St. John Of God Catholic Hospital Lunsar	1.1%	-
ABERDEEN WOMEN'S CENTER	2.1%	0.4%
SERABU	0.3%	0.1%
LIFE CARE HOSPITAL	0.6%	0.1%
MARCY SHIP	2.1%	2.1%
YELE	0.6%	0.6%
ASPEN	-	0.1%
REGENT HOSPITAL	-	0.1%
COVID-19 CTC/CCC/ISOLATION	13.4%	5.1%

Table 10 shows the percentages of NEMS general monthly referrals to the main hospitals for the month of July 2021. The tabular diagram compares the data between July and June 2021.

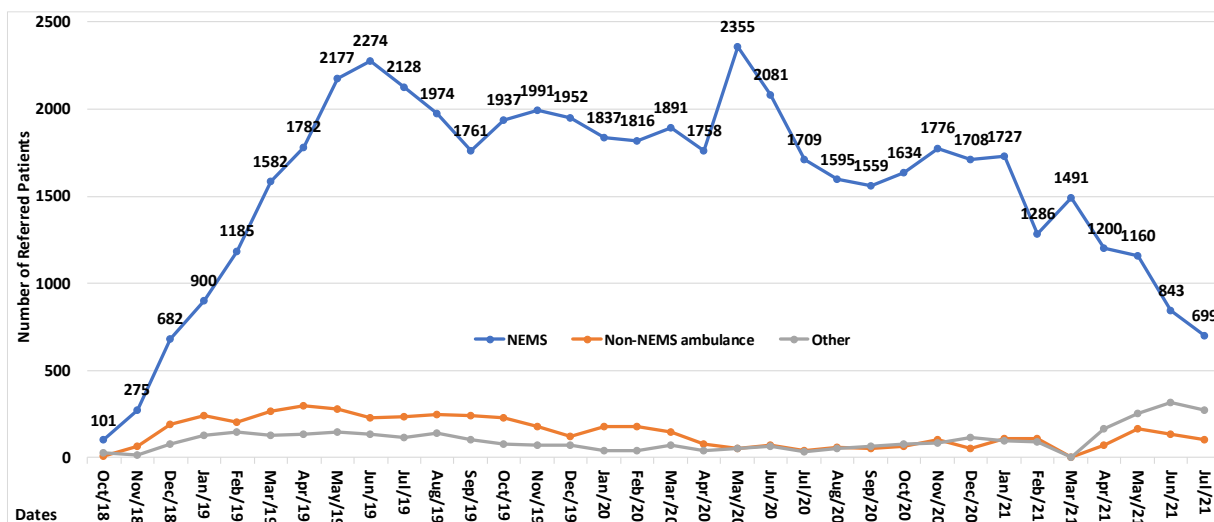
You can see that for the month under review, the tertiary facilities account for as the least recipient of referrals (34.6%) as follows: **Connaught (8.6%), Princess Christian Maternity hospital (PCMH) (7.2%), and Ola During Children's Hospital (ODCH) (18.8%)** compared to June 2021 with a total receipt of 18.6% for tertiary institutions. This indicated 16% more referrals than July 2021.

For July, the **Regional and District Hospitals** received 42.8% of all referrals compared to June 2021 with 54.8% of the referrals. This indicates a significant drop by 12% in the percentage of patients referred to the **Regional and District Hospitals**.

Furthermore, the table above displays the percentage of patients referred to **COVID-19 Treatment centers and Isolation Units**, with a fall on the percentage of confirmed cases in July 2021 (5.1%), in-contrast to the previous months of 13.4% in June.

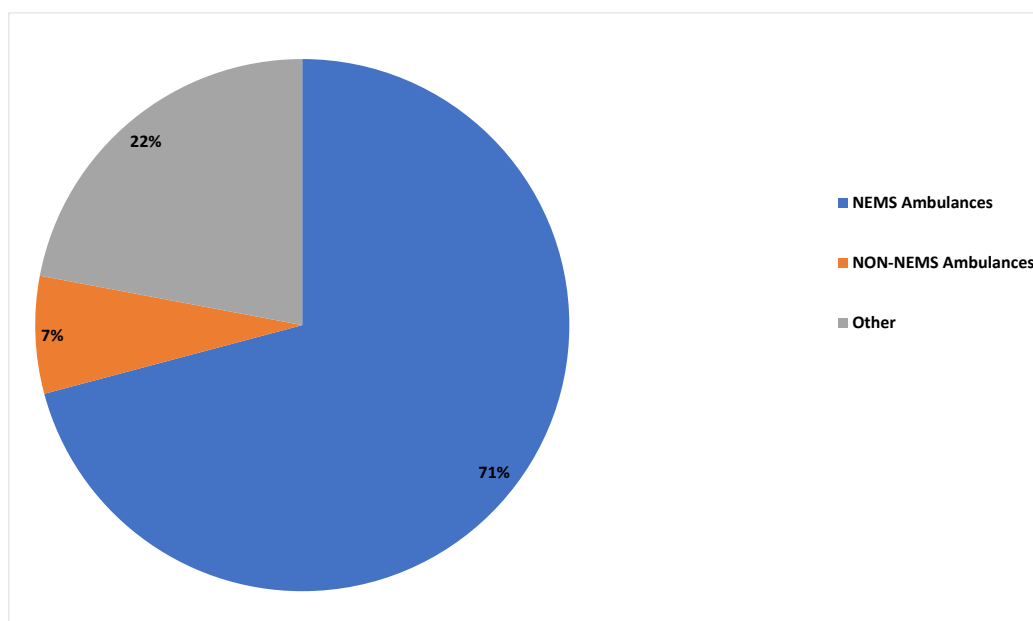
7. Arrival Methods

Figure 17: Number of Referred Patients by Arrival Methods



The oscillating line graph labelled **figure 17** gives a detailed analysis on patients means of arrival at the various healthcare facilities with attached referral coordinators. The data for July 2021 demonstrates that an enormous proportion of the referred patients use NEMS ambulance. It is visibly clear that the both non-NEMS ambulance and Other are gradually increasing while that of NEMS is steadily dropping.

Figure 18: Arrival Methods at the Hospital of the Referrals



The pie chart labelled **figure 18** above, demonstrates the methods of arrival at the various health facilities nationwide for the month of July 2021. 71% of the total number of referred cases received by the respective hospitals was transported by NEMS ambulance, while a collective total of 29% of the total number of referred cases used other means of transportation as displayed on the pie chart above.

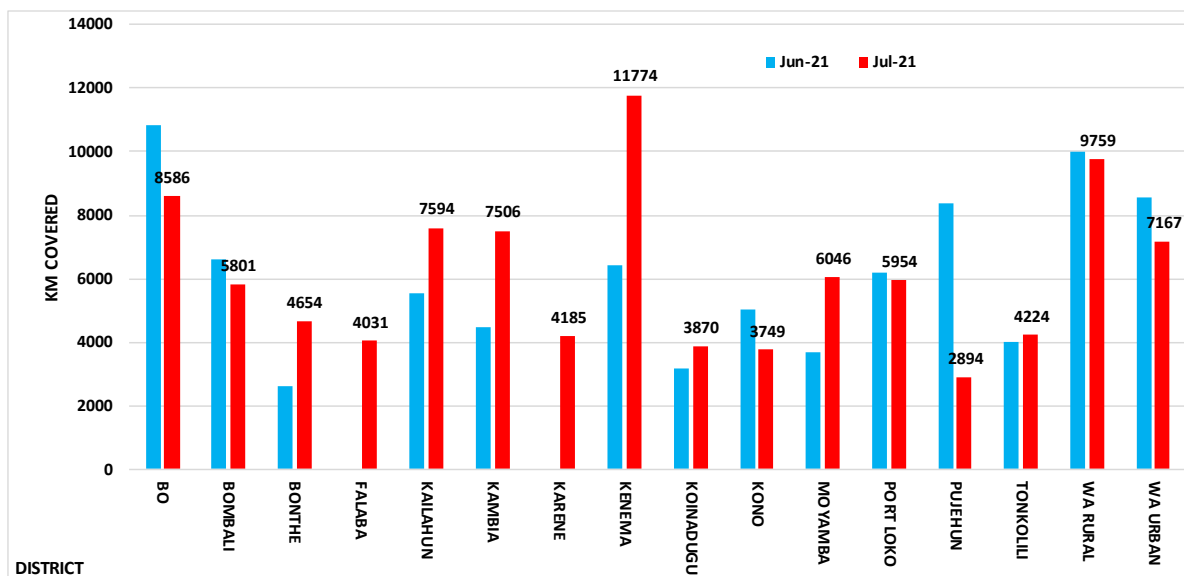
Table 12: Arrival Methods of the Referrals by Hospital

REFERRAL FACILITIES	NEMS Ambulances	NON-NEMS Ambulances	Other
Tertiary Facility	55%	17%	29%
34 Military Hospital	70%	27%	3%
Connaught Hospital	55%	45%	0%
Kingharman Road Govt. Hospital	58%	42%	0%
Lumley Govt. Hospital	0%	0%	100%
Ola Daring Children's Hospital	29%	0%	71%
Princess Christian Maternity Hospital	72%	2%	26%
Rokupa Govt. Hospital	100%	0%	0%
Private/NGO facility Total	77%	0%	23%
Matru UBC Hospital	77%	0%	23%
Regional/District Hospital	80%	5%	15%
Kabala Govt. Hospital	98%	0%	2%
Bo Govt. Hospital	100%	0%	0%
Kailahun Govt. Hospital	44%	9%	47%
Kambia Govt. Hospital	100%	0%	0%
Kenema Govt. Hospital	44%	14%	42%
Koidu Govt. Hospital	100%	0%	0%
Lungi Govt. Hospital	100%	0%	0%
Magburaka Govt. Hospital	79%	21%	0%
Makeni Govt. Hospital	83%	6%	11%
Moyamba Govt. Hospital	91%	9%	0%
Port Loko Govt. Hospital	63%	0%	37%
Pujehun Govt. Hospital	60%	0%	40%
Grand Total	71%	7%	22%

The tabular representation labelled **table 12** gives a further breakdown on patients' arrival method at both secondary and tertiary health facilities nationwide. For tertiary hospital, there has been a significant drop on the percentage of NEMS arrival method, with Rokupa Government Hospital seems to be the only tertiary hospital in Western Area Urban to register 100% NEMS arrival method, while most others recorded less than 80%. It is intriguing to see that Lumley did not record any NEMS referral method, but rather with 'Other' means of arriving at their facility. At the Matru UBC Hospital, 77% of the referred patients used NEMS ambulance, while 23% find 'Other' means. At district or regional level, 80% of the total number of the referred patients utilised NEMS ambulance, with 5% that used non-NEMS ambulance, while 15% used 'Other' means. It is essential to highlight that Bo, Kambia, Koidu and Lungi reported 100% utilisation NEMS for the transportations of critical cases, while Kabala registered 98%.

8. Missions by Ambulances

Figure 19: Km Travelled by District

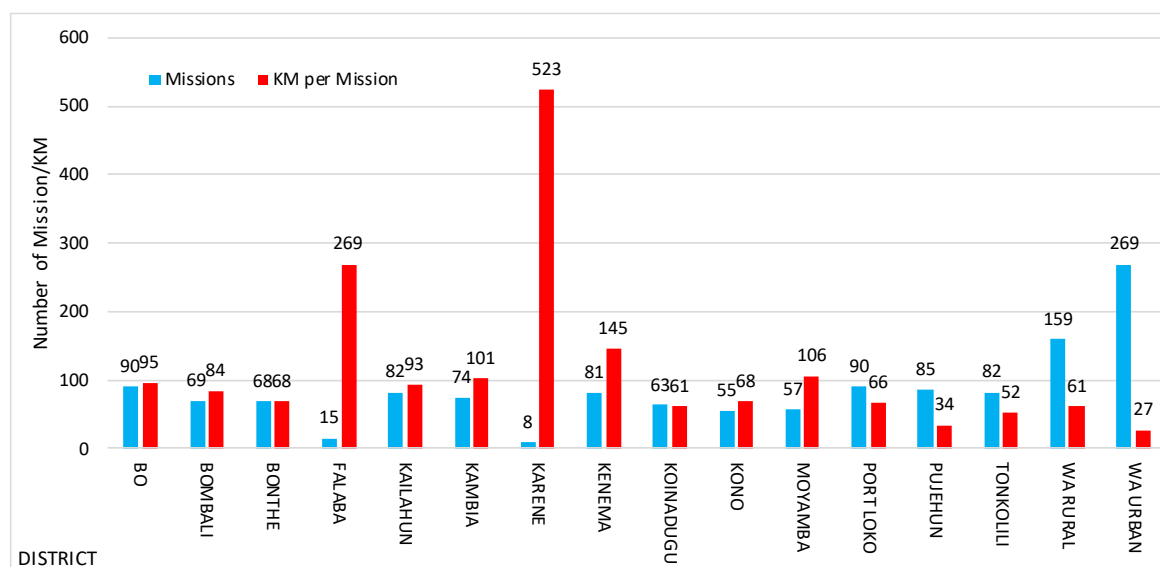


The District Ambulance Supervisors (DAS) Monthly Kilometre Reports showed that, In July 2021 data, a cumulative **97,794 km** was travelled Compared to June 2021, with **85,440 Km** indicating a significant increase by **12,354 km** in the kilometres travelled by NEMS ambulances for the month under review.

The two graphs (**Figure 19 and Figure 20**) demonstrated the number of km travelled by NEMS ambulances per district and the average km/mission covered per district, with calculated for all the missions undertaken by NEMS as recorded in the NEMS database. A Comparison was the inter-district figures for July 2021 with June 2021. Calculated the average km/mission is for all the missions handled by NEMS as per our database (and not only the one ending with a referral to the hospital). A mission is considered to be, when an ambulance is dispatched from its station calling facility.

In assessing figure 19 above, there was a major increase at some facilities (Bonthe, Kailahun, Kambia, Karene, Kenema and Moyamba) for the July 2021, while there is a significant drop for Bo, Bombali, Kono, Pujehun, and Western Area Urban and Rural in the month of June to that of July. Kenema district appears to be the only district that reported to have covered over eleven thousand kilometres just for the month of July. Both Falaba and Karene district ambulances have commenced operations providing adequate support in transporting referred patients.

Figure 20: Average Km/Mission





The Bar chart labelled **figure 20** compares the **average km covered for a mission by district** for July 2021. For the month under review, the district with the highest average km per mission is Karene with 8 missions, the ambulances covered a significant 523 Kilometers per mission (km/mission). Western Area Urban reported more missions than every other facility, but also have the least KM covered per mission. Falaba and Karene registered 15 and 8 missions respectively, which appears to be the least missions, but with the highest KM covered per mission.

5. NEMS National COVID-19 Response

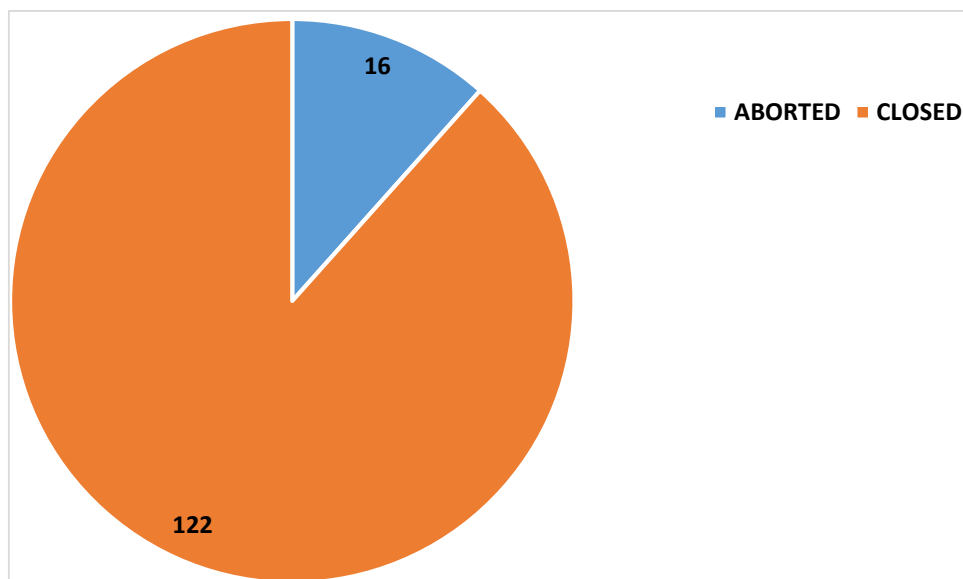
5.1 COVID-19 Missions

Aborted Mission – this only occurred when the caller called again to cancel the mission, challenges with beds availability or in situations that has to do with operational reasons.

Closed Mission – when a patient is transported to the nearest health facility with the required services needed, that is when the mission is considered to be completed.

From the pie chart below, 122 confirmed cases were are taken to their respective care center, while 16 of the total number of confirmed cases were aborted.

5.2 Figure 21: Outcome of COVID-19 Missions



The pie chart, **figure 20** describes the transportation outcome of COVID-19 activated missions. Overall, the data showed that out of 138 cases required NEMS ambulances for, 122 (88%) of the cases were transported to their various care centers. However, 16 (12%) aborted.

5.3 COVID-19 Missions and Samples transported

Typology of Complain	Jul-21	Jun-21	May-21	Apr-21	Mar-21	Feb-21	Jan-21	TOTAL for June - Dec 2020
Covid19 Confirmed Case	138	197	14	9	12	24	113	1251
Covid19 Suspected Case	3	-	3	-	-	6	8	232
Covid19 Confirmed/Suspected Case	-	-	-	-	-	-	7	59
SAMPLES	28	16	17	34	19	40	66	1314
TOTAL	169	213	34	43	31	70	194	2856

Table 13 for this report reinforces you with adequate information on the general COVID -19 operations for the month of July 2021. Irrespective of the new wave of Covid19 in early June 2021, the measures

implemented by the Government of Sierra Leone has cushioned its increment, which contributed to a significant drop in the number of confirmed cases.

5.4 Figure 22: Trend of COVID-19 missions (confirmed and suspected cases)

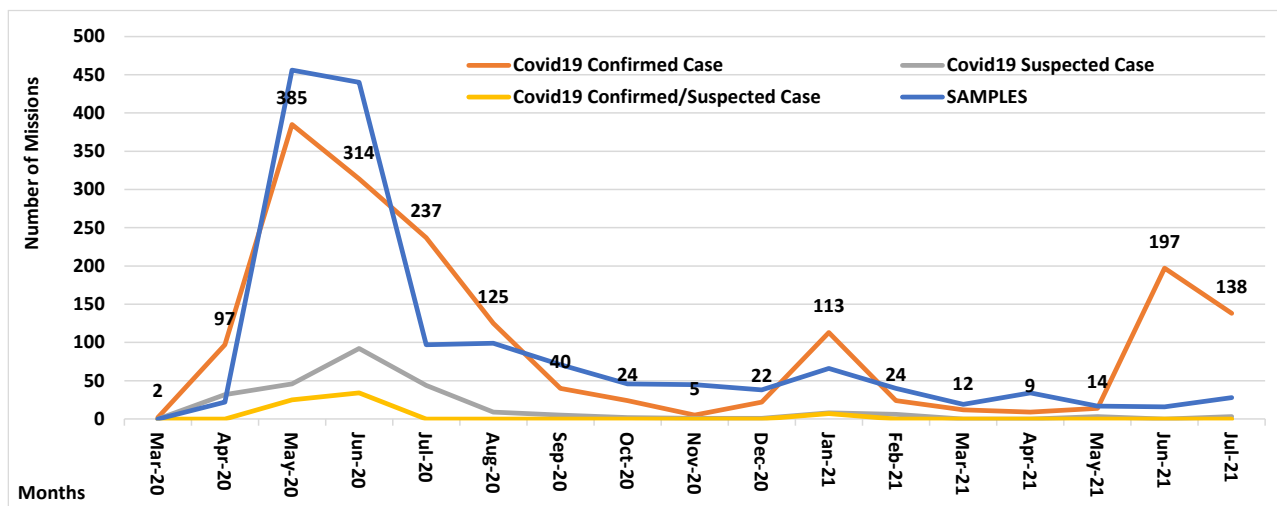


Figure 22 is a line graph that illustrates the trend at which COVID-19 cases are reported to NEMS and transported by NEMS. A critical analysis from the chart above demonstrated that there has been a constant drop in the number of confirmed cases since the nation recorded its highest number of confirmed COVID-19 cases in January 2021 and commenced a steady drop until May 2021. While in July 2021, the figure 21 registered a skyrocketing number of new cases, that sent the total number for the month of June to 197, with a significant drop from that to 138 in the month under review. The number of samples transported rose to 28, when put in contrast to June 2021. In Western Area, samples are hardly transported, while this is common for the provincial districts.

5.5 COVID-19 Confirmed Cases

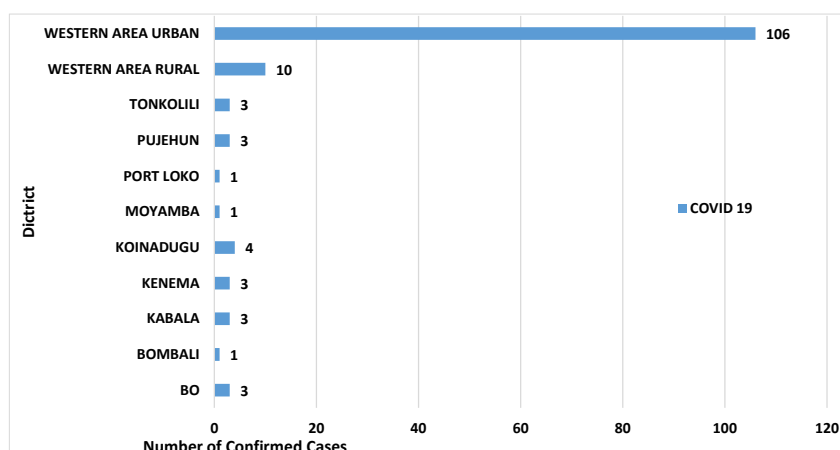
An in-depth analysis of the number of coronavirus (COVID-19) cases is done here. 138 cases were recorded in the month of July 2021 and these were all transported by NEMS to the respective treatment centres and holding homes.

The cumulative number of confirmed COVID-19 cases are surging since the first cases of the third wave were registered in mid-June. The current total number of confirmed COVID-19 cases is at 1758 since March 2020.

5.6 District of Origin of the Patients

The bar chart **figure 22** depicts a bar chart, which showed the origin of all transported COVID-19 cases. It is evidently clear that Western Area Urban and Rural continues to record the majority of the confirmed COVID-19 cases transported, which is a total of 106 and 10 respectively. The other confirmed cases were from Koinadugu recorded 4, while Tonkolili, Pujehun, Kenema, Kabala and Bo reported 3 each. The other remaining facilities on the chart below registered 1 each.

5.6.1 Figure 23: Origin district of the COVID-19 patient (frequencies)



5.7 Table 14: COVID-19 Missions by Ambulance Station (confirmed cases)

DISTRICT	STATION	CODE	% OF MISSIONS
Bombali	DAS Bombali Makeni - COVID-19	B M 99	0.7%
Bo	Bo Government Hospital	B O 01	0.7%
Bo	Telu	B O 02	1.4%
Kenema	Tongo	K E 02	1.4%
Kenema	Blama Town	K E 05	0.7%
Kailahun	DAS Kailahun - COVID-19	K I 99	4.3%
Moyamba	Moyamba Town	M O 01	0.7%
Port Loko	Masiaka	P L 04	0.7%
Port Loko	Petifu Junction	P L 05	0.7%
Pujehun	DAS Pujehun - COVID-22	P U 99	2.2%
Tonkolili	Magburaka Government Hospital	T O 01	2.2%
WESTERN AREA RURAL	Hasting - COVID-19	W R 06	12.3%
WESTERN AREA URBAN	King Harman Road	W U 03	3.6%
WESTERN AREA URBAN	34 MH - COVID19	W U 04	42.0%
WESTERN AREA URBAN	Murray Town	W U 07	0.7%
WESTERN AREA URBAN	St. Joseph - COVID19	W U 08	25.4%

5.7.1 Ambulance Station

The Table 14 above provides an in-depth breakdown on the transportations of Covid19 confirmed cases to the respected treatment centres, with the ambulances coded stations IDs. As initially reported that Western Area Urban recorded the majority of the confirmed cases, it is obvious that the transportations were mainly done by ambulances in the district (WU 04 and WU 08).

The District Ambulance Supervisors' vehicles were also used to transport Covid19 cases at Bombali, Kailahun and Pujehun for the month of July 2021. In the month of July, a number of ambulances set to travelled non-COVID19 cases were asked to move suspected cases with proper infection prevention and control protocol.

5.8 COVID-19 Treatment Centres Destination

The Table 15 on this report delineate the COVID19 confirmed cases transported to their respective treatment centres in Sierra Leone. PMTC and 34 Military Hospital (35% and 32% respectively) are the two major treatment facilities for COVID19 patients (CTC 1&2) as displayed on the graph below. They are the designated places for the caring of COVID19 patients and continues to provides vitae care to all individuals with Covid19. Adra, Makeni and Indian CCC and CTC are also providing relevant support in the management of Covid19 cases.



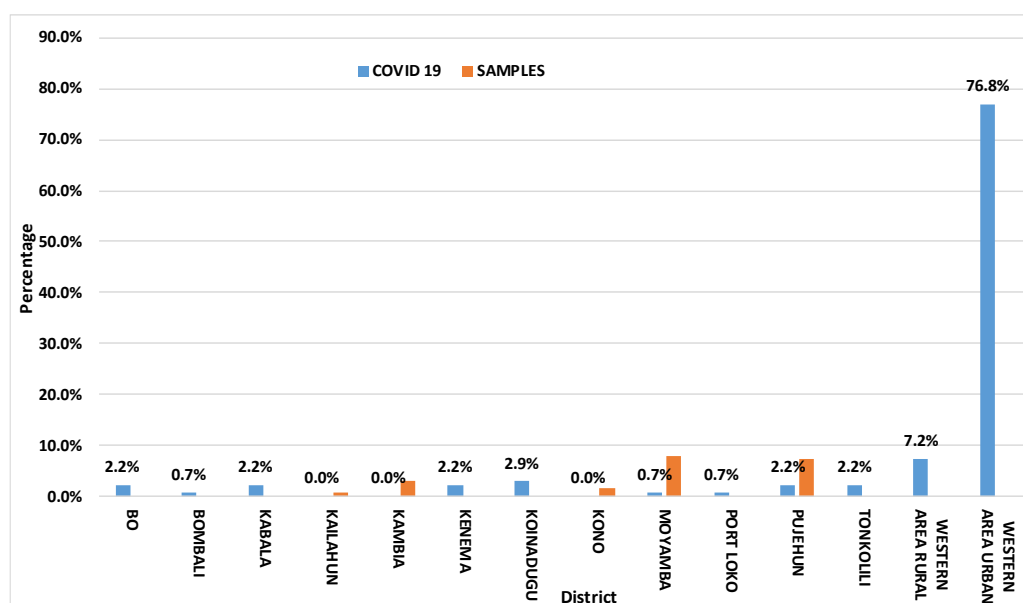
5.8.1 Table 15: Missions for Confirmed COVID-19 Cases by Treatment Centre

District	Treatment Centre	%
WA. Urban	34 MH CTC 1&2	32%
WA. Urban	ADRA CTC	18%
WA. Urban	BROOK FLIED LODGE.	1%
WA. Urban	CONNAUGHT ISOLATION	1%
WA. Rural	HASTINGS PMTC	1%
WA. Urban	INDIA CCC	4%
Port Loko	LUNGI CTC	1%
Makeni	MAKENI CTC	6%
WA. Urban	PCMH ISOLATION	1%
WA. Rural	PMTC CCC	35%
Pujehun	PUJEHUN CTC	1%

5.9 Samples' Referrals

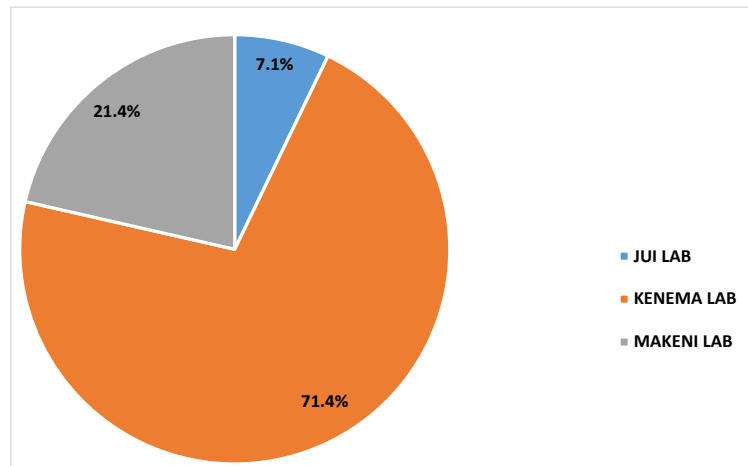
The National Emergency Medical Service continues to provide adequate support in transporting both confirmed cases and samples from the various districts listed below. There were a total of 138 confirmed COVID-19 cases and 28 samples.

5.9.1 Figure 24: Transportation of Specimen by District: Missions and Samples



In the month of July 2021, the majority of the missions relating to Covid19 were from Western Area Urban, while Pujehun reported the highest number of Samples, with approximately 2.2%.

6.0 Figure 25: Percentage of Samples transported by destination laboratories



The pie chart above describes the percentages of COVID19 Samples transported to the various laboratory facilities around the country in the month of July 2021. Kenema Lab continued to report an enormous portion of the total samples transported to labs for testing, the Kenema Lab received 71.4% of the total summed. The other two Labs reported a total of 28.5% (Jui and Makeni).