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ENHANCING INTEGRATED DISEASE SURVEILLANCE AND RESPONSE SYSTEM THROUGH DATA QUALITY ASSESSMENT: LESSONS FROM SIERRA LEONE, NOVEMBER 2022

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ABSTRACT

The Sierra Leone Ministry of Health in collaboration with the US Centers for Disease Control and Prevention, the African Field Epidemiology Network, and the World Health Organization assessed the quality of data generated by the Integrated Disease Surveillance and Response (IDSR) system. The assessment aim to determine the quality of the IDSR data in Sierra Leone through evaluating the accuracy of data compilation, data entry and transmission, and the overall precision of surveillance data at health facility and district levels.

The assessment included 160 randomly selected health facilities in the 16 districts. Surveillance data stored electronically in the eIDSR platform were extracted and compared across the facility registers and IDSR summary forms. Data was collected from March 6 to March 18, 2023using an electronic checklist on the Open Data Kit (ODK) platform. The data reviewed covered the period from October 23 to November 26, 2022. Specific disease conditions/events targeted included Acute Flaccid Paralysis, Acute Viral Haemorrhagic Fever, suspected COVID-19, Dysentery, Tested Malaria, Positive Malaria, Maternal Death, and Measles.

The assessment showed that 79% (127/160) of the facilities had IDSR case definition tools, with a decreased accuracy reporting from 90% in May 2022 to 86% in November 2022 assessment. However, the assessment revealed strengths: notably the availability of registers at all levels. Majority, 74% (118/160) of the assessed facilities conduct data analysis and display results using tables and graphs. The proportion of assessed facilities with weekly reporting forms decreased to 94.4% from 98.1% in the May 2022 assessment, while case-based reporting forms increased to 95.6% from 88.1%. Five diseases conditions/events (AFP, suspected COVID-19, Malaria tested

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& positive, Maternal death and Measles) exhibited data disparities between the number of cases identified during register review and those reported in eIDSR.

The assessment uncovered both strengths and challenges in facility reporting practices. Therefore, we recommend the Ministry of Health implement targeted interventions such as prioritising the conduct of routine DQA and supportive supervision, to strengthen weaker areas of the assessment and maintain progress in areas that shows improvement. It is critical to strengthen the skills of the healthcare workers on data accuracy reporting, as well as to enhance data quality feedback sharing from national to facility level to address data discrepancies for better surveillance and response outcomes. Furthermore, replacing the faulty/lost tablets at facility level would improve the overall quality and dependability of surveillance data.

Keywords: Data Quality Assessment, Sierra Leone, Integrated Disease Surveillance and Response.

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INTRODUCTION

The Integrated Disease Surveillance and Response (IDSR) system makes public health surveillance and laboratory data more usable, aimed at detecting, monitoring, and responding to disease outbreaks promptly at the community, health facility, district, and national levels (Fall et al., 2019). The IDSR involves the collection, analysis, and interpretation of health data to inform public health actions (Lukwago et al., 2013). However, the effectiveness of the IDSR system heavily relies on the quality of the data collected (Njuguna et al., 2019).

Improving data quality within the IDSR system is essential for several reasons. Firstly, it enables accurate disease surveillance, allowing for early detection and prompt response to outbreaks. Secondly, it facilitates evidence-based decision-making, ensuring that public health interventions are targeted and effective. Thirdly, it enhances data sharing and collaboration between different stakeholders, promoting a coordinated and integrated approach to disease surveillance and response (Gonete, 2021). Accurate and reliable data is essential for effective disease surveillance and response. Poor data quality can lead to delayed detection and response to outbreaks, resulting in increased morbidity and mortality rates (Ehsani-Moghaddam, Martin and Queenan, 2021).

In Sierra Leone, a country prone to various infectious diseases, ensuring data quality within the IDSR system is crucial to prevent and control outbreaks effectively (Njuguna et al., 2019). Additionally, it is crucial to regularly and consistently assess data quality to identify any gaps that may hinder the improvement of data quality over time. Therefore, it is necessary to conduct a data quality study to identify any shortcomings in the surveillance system, with the aim of enhancing data quality and data-driven decision making.

This assessment aims to determine the quality of the IDSR data in Sierra Leone through evaluating the accuracy of data compilation, data entry and transmission, and the overall precision of surveillance data at health facility and district levels. Conducting this assessment will help to identify gaps and weaknesses in the system.

The findings of this assessment will provide valuable insight that will help policymakers make informed public health decisions through recommendations to strengthen the IDSR system in Sierra Leone, leading to improved public health outcomes and better preparedness for future disease outbreaks.

METHODS

Study design

Sierra Leone is a country located in West Africa, bordered by Guinea to the north and east, Liberia to the southeast, and the Atlantic Ocean to the west and southwest. The population of Sierra Leone is estimated to be around 7.9 million people, with the capital city of Freetown being the largest city and home to over 1 million people (Kanu, 2020). Sierra Leone is divided into 16 districts, each with its own local government and administrative center, as well as District Health Medical Team (DHMT).

As of 2023, Sierra Leone has more than 1,500 health facilities, including hospitals, clinics, Community Health Centers (CHCs),

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Community Health Posts (CHPs), and Maternal & Child Health Posts (MCHPs) (Njuguna et al., 2022). However, 34.5% of these facilities are situated in urban areas, leaving rural areas with 64.6% (UNFPA Sierra Leone, 2020).

Study setting

A cross-sectional assessment on data quality was conducted in selected health facilities in all sixteen districts in Sierra Leone from 6th – 18th, March 2023. Data collected by health facilities from 23rd October to 26th November 2022 (Epi-week 44 – 47 2022) were assessed.

Data collection

A standard checklist was developed and administered at district/DHMT and health facility levels. Simple random sampling method was used to select 160 health facilities across the 16 districts countrywide. As such, 10 Health facilities (1 Hospital/Clinic, 3 CHC, 3 MCHP & 3 CHP) in each district, including the DHMT, were assessed. The study covered four weekly reports submitted by each of the selected health facilities using the electronic Integrated Disease Surveillance and Response (eIDSR) for the month of November 2022 (Epi-weeks 44 - 47), which made a total of 640 weekly health facility reports. The study focused on 8 diseases/conditions including Acute Flaccid Paralysis (AFP), Acute Viral Hemorrhagic Fever (AVHF), Suspected COVID-19, Dysentery (bloody Diarrhea), Tested Malaria, Positive Malaria, Maternal Death, and Measles. This generated a total of 5,120 "health facility weekly Disease Specific Reports" that were assessed.

Interviews and data validation

An electronic standard DQA tool was developed and uploaded onto the Open Data Kit (ODK) platform. A pre-test of the tool was done at the national level to verify the validity of the tool at a day orientation workshop. As such, the Surveillance data unit at the Directorate of Health Security and Emergencies sent an invite of the DQA exercise to the DHMTs at the district level. This was to allow the team to prepare a list of health facilities and avail two DHMT officials to join the national team. On the first day of the study, the national team met members of the DHMTs, to give an overview of the DQA process and interview key informants at the DHMTs. The team recorded the number of cases of diseases/conditions for each of the selected health facilities, as recorded in the district database (eIDSR and the electronic Case Based Diseases Surveillance – eCBDS).

Variables

The checklist was structured into three main sections. The initial section pertained to general information about the health facilities, encompassing details such as the Date of the DQA visit, Region, District, Chiefdom/Zone, Name of health facility, type of facility, facility ownership, and coordinates. The second section evaluated the processes and tools enabling reporting on the IDSR and CBDS. This involved assessing the availability of reporting registers, IDSR weekly reports, IDSR technical guidelines, standard case definition posters, and included inquiries regarding the compilation of IDSR and CBDS reports. The third section concentrated on data analysis and interpretation, data validation, and identification of reasons for discrepancies in data.

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Data Analysis

The data collected using ODK was imported into Microsoft Excel 2023 to facilitate data cleaning, and analysis. Therefore, findings were presented in form of tables and bar graphs.

Calculation of data accuracy

The data accuracy of IDSR and CBDS was determined by calculating a verification factor (VF) – that is, the proportion of recounted (verified) cases of diseases conditions/events reported in the register as against the eIDSR in a particular week. A verification factor >100% suggests over reporting, while <100% suggests underreporting. Conversely, a verification factor very close to 100% indicates a high level of accuracy. Data items (indicators) with a verification factor between 95% - 105% were considered "Accurate," while those with verification factor <95% or >105% were considered "Inaccurate"(Njuguna *et al.*, 2020). Age-aggregated data (total of both age groups) for each assessed disease in a weekly report were compared with the health facility register, weekly reporting form, and eIDSR.

As a result, the accuracy of IDSR and CBDS data was determined using the verification factor formula below;

Verification Factor = *Number of Cases of diseases recounted from health facility Register /*

*Number of Cases Recorded in DHIS2 * 100%.*

As such, the "health facility weekly disease specific report" was the primary unit of analysis categorised into three data accuracy attributes. They included:

Overall accuracy: To assess the overall accuracy, a comparison was made between the data recorded in the health facility registers and the data entered into the eIDSR system to identify whether any errors occurred as data was being entered into eIDSR (Tablet) or miscounted during data compilation at the health facility or when it was being communicated (mainly by phone calls) to the district for entry.

Data Transmission/entry accuracy: To ensure the accuracy of the data entered into the eIDSR, a comparison was made between the data in the weekly reporting forms and that in the eIDSR platform. This is to identify any errors that may have occurred during the data entry process. The errors can occur at the health facilities during data collection or when the data was being communicated to the district for entry into the eIDSR system. The study of the accuracy of data entry into the eIDSR is an important step in ensuring the reliability of the data in the system.

Compilation accuracy: In order to evaluate the accuracy of data compilation, a comparison was made between the data recorded at health facility registers and data summarized by the health facility staff into the weekly reporting form. By comparing the two sets of data, any inconsistencies or discrepancies could be identified. If there were significant discrepancies found between the data in the registers and weekly reporting form, it could indicate potential issues in the

compilation process, such as errors in data entry or improper summarization.

Furthermore, to investigate healthcare workers' understanding of "zero reporting" and the start and end of the epidemiological week, two specific areas were evaluated – the start and end day of the epidemiological week and the meaning of zero reporting. Epidemiological weeks (Epi-week) are used to track and analyze disease patterns over time. These weeks usually start on Monday and end on the following Sunday. Understanding this concept is important because it allows for consistent and standardized reporting of data across different districts and organizations. Zero reporting, on the other hand, refers to the practice of always reporting irrespective of whether a case or event of interest was found/detected during the reporting period – emphasizing the notion that, "zero (0) report" is also a valid.

RESULTS

Of the 160 health facilities assessed countrywide, MCHPs accounted for 51 (32%) followed by CHCs at 48 (30%) and CHPs at 46 (29%) while hospitals accounted for the least at 15 (9%).

Of the total health facilities assessed, MCHP and the hospital had stock outs of under-five registers at 2% and 13%, respectively, while the hospital had a 7% stock out of general registers. Additionally, stock outs of mother & neonate, and maternity & delivery registers in MCHP were 2.0% and 4.0%, respectively. Furthermore, all hospitals, 44% of CHCs, and 4% of CHPs had laboratory registers (Table 1).

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Table 1: Availability of Registers in different Health Facilities for Epi – Week 44–47, 2022.

Health Facility Type	Number of HFs Assessed	Proportion (%) of Health Facilities with the respective Register						
		Hospital Out-Patient	Hospital In-Patient	Under 5yrs Register	General clinic	Mother & Neonate	Maternity & Delivery	Laboratory Register
CHC	48	NA	NA	100.00%	100.00%	100.00%	100.00%	43.75%
CHP	46	NA	NA	100.00%	100.00%	100.00%	100.00%	4.35%
MCHP	51	NA	NA	98.00%	100.00%	98.00%	96.00%	NA
Hospital	15	100.00%	100.00%	86.67%	93.33%	100.00%	100.00%	100.00%

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Availability of Data Reporting Tools

Data reporting tools were available in majority of the health facilities assessed. The IDSR weekly reporting form was observed in 94% of the health facilities followed by the case-based reporting forms and line listing forms that were observed in 96% and 78% of the health facilities visited, respectively. The rumor /suspected outbreak logbook was observed in 64% of the health facilities.

Knowledge of Healthcare Workers on Data Reporting Principles

A total of 160 (99.8%) of the health workers (one per health facility) across the 16 districts comprehended the meaning of zero reporting in surveillance. Additionally, 99.4% of all respondents were familiar with the start and end day of the epidemiological week, with 14 districts indicating that all respondents were well versed in this concept.

Evidence of Routine Data Analysis

The findings indicate that data analysis and presentation in the form of bar charts or trend graphs were available in 73.8% of the health facilities visited across the 16 districts.

Additionally, six diseases/conditions (AFP, AVHF, suspected COVID-19, Dysentery, Maternal death and Measles) had the most accurate reports above 99%. The lowest accuracy was observed for Malaria-tested cases reports (48%) followed by Malaria Positive cases reports (47%) (Table 2).

Evidence of lost/faulty tablets

The findings revealed that 12 of the 16 districts had facilities that were not using eIDSR/eCBDS to submit reports due to lost/faulty tablets, particularly prominent in Kambia, Port Loko, and Western Area Urban districts respectively.

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Table 2: Accuracy of Disease Specific Reports by District for Epi – Week 44–47, 2022.

District	No. of Reports Per Disease	AFP	AVHF	Suspected COVID 19	Dysentery	Malaria Positive	Malaria Tested	Maternal Deaths	Measles
Bo	36	100.0%	97.5%	100.0%	100.0%	30.0%	25.0%	90.0%	100.0%
Bombali	40	100.0%	100.0%	100.0%	100.0%	45.0%	37.5%	100.0%	97.5%
Bonthe	40	100.0%	100.0%	100.0%	100.0%	72.5%	70.0%	100.0%	100.0%
Falaba	40	97.5%	97.5%	100.0%	100.0%	52.5%	45.0%	100.0%	100.0%
Kailahun	40	100.0%	100.0%	100.0%	97.5%	30.0%	32.5%	100.0%	100.0%
Kambia	40	100.0%	100.0%	100.0%	100.0%	52.5%	47.5%	100.0%	100.0%
Karene	40	100.0%	100.0%	100.0%	100.0%	47.5%	50.0%	97.5%	97.5%
Kenema	40	97.5%	97.5%	100.0%	100.0%	30.0%	37.5%	100.0%	100.0%
Koinadugu	40	97.5%	100.0%	100.0%	92.5%	55.0%	55.0%	100.0%	100.0%
Kono	40	100.0%	97.5%	100.0%	97.5%	20.0%	20.0%	100.0%	100.0%
Moyamba	40	100.0%	100.0%	100.0%	100.0%	77.5%	85.0%	97.5%	97.5%
Port Loko	40	97.5%	100.0%	100.0%	100.0%	50.0%	60.0%	100.0%	97.5%

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District	No. of Reports Per Disease	AFP	AVHF	Suspected COVID 19	Dysentery	Malaria Positive	Malaria Tested	Maternal Deaths	Measles
Pujehun	40	100.0%	100.0%	100.0%	100.0%	50.0%	57.5%	100.0%	100.0%
Tonkolili	40	100.0%	100.0%	100.0%	100.0%	32.5%	35.0%	100.0%	100.0%
Western Area Rural	40	100.0%	100.0%	100.0%	97.5%	35.0%	37.5%	100.0%	100.0%
Western Area Urban	40	100.0%	100.0%	95.0%	100.0%	67.5%	67.5%	100.0%	100.0%
Total	636	**99.4%**	**99.4%**	**99.7%**	**99.1%**	**46.7%**	**47.7%**	**99.1%**	**99.4%**

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For the aggregated disease specific data, over reporting was observed by 17%. This is not within the acceptable range of ± 5% for accurate reporting.

Despite the fewer accurate reports for Malaria Tested (48%) as shown in Table 2, the actual difference between the number of cases in the health facility registers and those in eIDSR was 22% (VF=78%) which is not within the acceptable accuracy range. The same situation was also observed for Malaria Positive (VF=92%) where cases found during health facility registers review were only 8.4 % different from that submitted to eIDSR.

Overall accuracy

Of 5,120 weekly disease-specific reports, 4,418 (86.3%) were within the acceptable range for data accuracy, with a verification factor ranging from 95% to 105%.%. Equal proportion of under and over reporting were observed at 7% respectively. Moyamba District had the highest accurate reports at 94.7% while Kono had the lowest accurate reports at 79% (Figure 1).

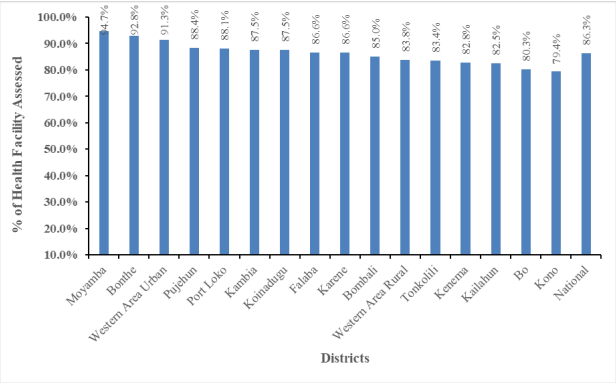

Figure 1: *Proportion of Accurate IDSR Weekly Disease Specific Reports submitted in the eIDSR platform by District for Epi – Week 44–47, 2022.*

Accuracy of Data Entry and Transmission

Of the 5,120 reports, 4,873 (95.2%) were accurately entered and transmitted. Karene District had the highest proportion (100%) of reports accurately entered and transmitted to eIDSR, while Port Loko District had the lowest proportion at 90% (Figure 2).

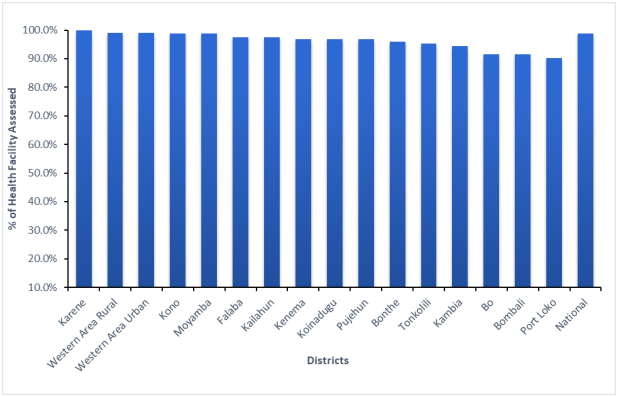

Figure 2: *Proportion of Reports Accurately Entered/Transmitted to DHIS2 by District for Week 44-47, 2022.*

Accuracy in data compilation

Of the 5,120-weekly disease-specific reports, 4,434 (87%) were within the acceptable accuracy range for data compilation. AFP, AVHF, Suspected COVID-19, Dysentery, Maternal Death, and Measles reports were accurately compiled with proportions above 99% each. Nevertheless, Moyamba district had the highest accuracy in data compilation with 95% while Kono (79%) had the lowest accuracy (Figure 3).

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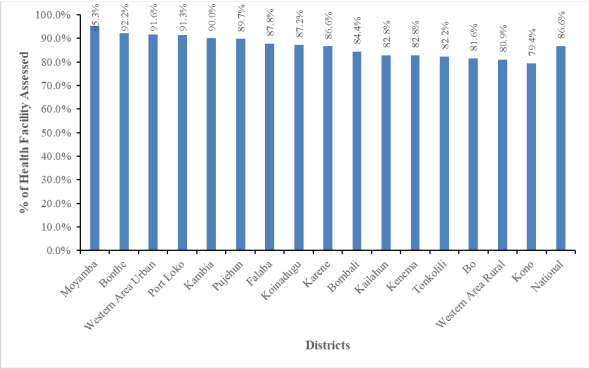

***Figure 3**: Proportion of Accurately Compiled IDSR Weekly Disease Specific Reports by District for Epi – Week 44 – 47, 20223.*

DISCUSSION

This assessment aimed to determine the quality of IDSR and CBDS data in Sierra Leone by evaluating data compilation accuracy, data entry and transmission accuracy, and the overall accuracy of the collected data. The assessment revealed a high percentage of health facilities with IDSR case definition posters, which can help in identifying and reporting potential disease outbreaks. A study conducted in Nigeria revealed that 68% of health facilities did not have case definitions for any of the priority diseases (Abubakar et al., 2013).

Nevertheless, the assessment discovered strengths: notably the availability of reporting registers, case based forms, weekly reporting forms, line listing forms, and rumor/suspected outbreak logbook at all levels of health facility (Nsubuga et al., 2002). The availability of reporting tools and registers at health facility level plays a vital role in strengthening healthcare systems, promoting public health surveillance, and ensuring the delivery of high quality and effective healthcare services to communities. However, the low percentage of laboratory registers is a concern, as this could hinder the accurate tracking and reporting of laboratory results. This could be attributed to the stock out and failure to provide these registries promptly.

In addition, the assessment revealed a high level of understanding of data reporting principles among health workers, which might contribute to the accuracy and completeness of surveillance data. This can ensure that the collected data is reliable and can be utilized for public health decision-making and interventions. Having good medical data processing system can contribute in reducing medical errors. Using electronic tools such as eIDSR and eCBDS, particularly at the health facility level can ensure efficient data management.

Furthermore, the availability of capacity to conduct data analysis and presentation in majority of health facilities visited is high. This suggests that health workers are effectively applying the knowledge acquired during trainings regarding surveillance data, with the potential to use the insights to enhance public health outcomes. This underscores the preparedness of healthcare workers to proactively utilize data analysis skills within their health facility settings. However, the variation in data analysis and presentation across districts identifies a need for targeted interventions to improve data management and analysis in certain areas. This implies that there may be disparities in capacity and resources available for data analysis and presentation in different districts. Building the culture of data use at all levels of the surveillance system is essential to ensure having an efficient and sustainable surveillance system.

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The assessment revealed that faulty/lost tablets are among the major reasons why some health facilities are not using eIDSR/eCBDS to submit reports but are instead sending them through WhatsApp or calling DMHTs for data entry and transmission. This could be the reason for the data errors affecting the quality of data reported across districts.

Meanwhile, specific diseases such as AFP, AVHF, Suspected COVID-19, Dysentery, Maternal Death, and Measles exhibited high levels of accuracy in their compiled reports, with proportions exceeding national. This result indicates that the surveillance system for these diseases is robust and capable of consistently providing reliable and accurate data for monitoring and response purposes. Another possible explanation for this finding could be because, with exception of Malaria, most health facilities record zero (0) cases of the other diseases and events investigated. It is easier to compile and transmit zero cases than many cases of Malaria Tested or Malaria Positive. As a result, the accuracy for Malaria tested cases and Malaria positive cases reports were low. This indicates a significant gap in accurate reporting for these specific categories. Stockout of Rapid Diagnostic Test (RDT) kits could have been the reason for this. As nurses were treating malaria suspected patients based on clinical symptoms rather than running an RDT test. Nurses therefore mislabeled the untested cases as malaria during reporting, leading to discrepancies in the data between cases reported in the eIDSR and those verified in the registers in compliance with malaria protocol.

The assessment highlighted notable percentage in the overall accuracy of IDSR data reported across districts. Thus, Moyamba district had the highest accuracy rate, suggesting a well-functioning surveillance system and effective data compilation processes at the time of the assessments. Nevertheless, Kono district exhibited the lowest accuracy rate, indicating possible underlying challenges in data collection, gap in trainings, resources, or adherence to data reporting protocols leading to less reliable and complete data being compiled.

Also, the assessment revealed high percentage of disease-specific reports accurately entered and transmitted to eIDSR. As such, Karene district demonstrated the highest proportion of data entry and transmission accuracy of reports due to regular and thorough data management training for health facility staff, access to reliable technology such as up-to-date tablets, and strong leadership in creating a culture that prioritizes attention to detail and precision in data entry and transmission while Port Loko district had the lowest proportion due to inadequate data management training for health facility staff, and reliable technology such as up-to-date tablets. In addition, there were inconsistencies in accuracy levels across different districts.

Moreover, there were high percentage of unacceptable range of compiled data accuracy on disease-specific reports. Yet, Moyamba district had the highest accuracy in data compilation accuracy while Kono had the lowest. This suggests that the data compilation process was generally reliable and accurate, providing a strong basis for disease surveillance and response activities.

LIMITATION

The assessment results provided valuable insights into the data quality within context,

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informing healthcare policymakers to enhance both IDSR and CBDS systems, but it is important to note that the study had some limitations. Firstly, we did not include hard-to-reach health facilities in the assessment, thus generalization of the findings should be done with caution. Secondly, we only sampled 160 out of a total of over 1500 health facilities. These 160 health facilities were not arrived at by any statistical formula. This also further necessitate the need to cautious in generalizing the findings of this study. Thirdly, in most health facilities, the IDSR Focal and/or Health Facility In-Charges responded to the questions. Most of these (IDSR Focals and In-Charges) had trainings on eIDSR and eCBDS, hence their understanding of the disease surveillance system might be totally different from the rest of the health facility staff.

CONCLUSION

This assessment revealed a high percentage of health facilities with displayed IDSR case definition posters, a good understanding of data reporting principles among health workers, low availability of laboratory registers, and inconsistencies in data accuracy reporting for some specific diseases. The assessment also showed that healthcare workers are proactively utilising the data analysis and presentation skills acquired during trainings with the potential to use the insights to enhance public health outcomes at facility level. Also, the assessment revealed disparities in data accuracy across districts. Therefore, we recommend the Ministry of Health implement targeted interventions such as prioritising the conduct of routine DQA and supportive supervision, to strengthen weaker areas of the assessment and maintain progress in areas that show improvement. It is critical to strengthen the skills of the healthcare workers on data accuracy reporting, as well as to enhance data quality feedback sharing from national to facility level to address data discrepancies for better surveillance and response outcomes. Additionally, efforts should be made to address stockouts and delays in providing registers and RDTs at facility level to ensure that healthcare providers have the necessary tools and resources to deliver high quality laboratory service effectively. Furthermore, replacing the faulty/lost tablets at facility level would improve the overall quality and dependability of surveillance data nationwide.

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DISCLAIMER

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The World Health Organization Sierra Leone Country Office provided technical and funding support for implementation of the systems.

AFRICAN FIELD EPIDEMIOLOGY NETWORK (AFENET):

AFENET, through its Cooperative Agreement with US CDC, has led the conceptualization and development of the manuscript as well as submission for publication.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

REFERENCES

- Abubakar, A., Idris, S., Nguku, P., Sabitu, K., & Sambo, M. (2013). Assessment of integrated disease surveillance and response strategy implementation in selected Local Government Areas of Kaduna state. Annals of Nigerian Medicine, 7(1), 14. https://doi.org/10.4103/0331-3131.119981
- Ehsani-Moghaddam, B., Martin, K. and Queenan, J.A. (2021) 'Data quality in healthcare: A report of practical experience with the Canadian Primary Care Sentinel Surveillance Network data', Health Information Management Journal, 50(1–2), pp. 88–92. Available at: https://doi.org/10.1177/1833358319887743.
- Fall, I.S. et al. (2019) 'Integrated Disease Surveillance and Response (IDSR) strategy: Current status, challenges and perspectives for the future in Africa', BMJ Global Health. BMJ Publishing Group. Available at: https://doi.org/10.1136/bmjgh-2019-001427.
- Gonete, T.Z. (2021) 'Improving data quality and information utilization at Metema Primary Hospital , Amhara national regional state , Northwest Ethiopia 2018 : Capstone project', Health Informatics Journal, pp. 1–11. Available at: https://doi.org/10.1177/14604582211043160.
- Kanu, A.F. (2020) 'Exploring the Factors Influencing the Performance of District Health Management Teams in Sierra Leone', Journal of Health, Medicine and Nursing, 76, pp. 21–29. Available at: https://doi.org/10.7176/JHMN/76-03.
- Lukwago, L. et al. (2013) 'The implementation of Integrated Disease Surveillance and Response in Uganda: a review of progress and challenges between 2001 and 2007', 28(June 2012), pp. 30–40. Available at: https://doi.org/10.1093/heapol/czs022.
- Muhoza,
- Njuguna, C. et al. (2019) 'Revitalization of integrated disease surveillance and response in Sierra Leone post Ebola virus disease outbreak', BMC Public Health, 19(1), pp. 1–11. Available at: https://doi.org/10.1186/s12889-019-6636-1.

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- Njuguna, C. et al. (2020) 'Institutionalized data quality assessments: A critical pathway to improving the accuracy of integrated disease surveillance data in Sierra Leone', BMC Health Services Research, 20(1). Available at: https://doi.org/10.1186/s12913-020-05591-x.
- Njuguna, C. et al. (2022) 'Innovative approach to monitor performance of integrated disease surveillance and response after the Ebola outbreak in Sierra Leone : lessons from the field', BMC Health Services Research, 6, pp. 1–10.
- Nsubuga, P., Eseko, N., & Wuhib, T. (2002). Structure and performance of IDSR in Tanzania. 80(01), 196–203.
- UNFPA Sierra Leone. (2020). National Health Facility Assessment. 1–154.
- Wangdi, K. et al. (2020) 'Evaluation of the malaria reporting system supported by the District.