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EVALUATION OF THE HIV SURVEILLANCE SYSTEM WITHIN THE PREVENTION OF MOTHER-TO-CHILD TRANSMISSION PROGRAM, WESTERN AREA URBAN DISTRICT, SIERRA LEONE, 2022

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ABSTRACT

In 2015, the HIV surveillance system was established within the Prevention of Mother-to-Child Transmission (PMTCT) Program to monitor HIV epidemiological trends. To date, no studies have evaluated its performance in the Western Area Urban District. This study describes the operation of the HIV surveillance system; assess its performance on key system attributes and usefulness within the PMTCT program in the district. A descriptive cross-sectional study was conducted from October to December 2022.

Eighteen healthcare workers were purposively selected and interviewed using a semi-structured questionnaire to describe the system operations and evaluate qualitative attributes. Health facility registers and the District Health Information System (DHIS2) data were reviewed to assess quantitative attributes. The performance status of each attribute was interpreted using the following scoring system: <40% (poor), 40%-70% (average), and >70% (good).

The HIV surveillance system within the PMTCT program operates as a passive surveillance system. Data reporting is done monthly, and feedback and supervision are conducted quarterly. Simplicity was rated as good; with 73.23% (13/18) of respondents stating that they understood the HIV Testing Algorithm and can perform the test for pregnant women with ease. Acceptability was good, with 96% overall rank indicating willingness of staff to participate.

Stability was rated average, with 65.5% stating the system did not experience breakdowns. Representativeness was poor, with limited participation from private health facilities. Sensitivity was ranked good being that the test kits used to confirm cases are over 95% sensitive. Overall usefulness was average with score of 65.7%. The HIV surveillance system is useful in meeting its objectives. However, the lack of participation from private health facilities suggests that the system may miss cases. It is recommended that private health facilities receive tools and capacity-building training to enhance their participation in the HIV surveillance system.

Keywords: HIV/AIDS, PMTCT, Surveillance, Sierra Leone.

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INTRODUCTION

Human Immunodeficiency Virus (HIV) is a chronic viral infection that can quickly spread through body fluids and can be transmitted through contact with infected blood, semen or vaginal fluids. The virus attacks the human immune system, specifically the CD4 cells, also known as T-cells, making it extremely difficult for the body to fight off any infections or diseases that may invade the body. In the absence of appropriate medical intervention, it rapidly progresses to the development of Acquired Immune Deficiency Syndrome (AIDS) and eventually death (Writer, 2018).

Factors that put people at greater risk of contracting HIV include but not limited to unprotected oral or vaginal sex, preexistence of other sexually transmitted infections such as syphilis, herpes, chlamydia, gonorrhoea and bacterial vaginosis; sharing contaminated needles and other sharp objects; and accidental needle stick injuries, including among health workers. In the first few weeks following HIV infection, people may not experience symptoms but are capable of spreading the disease to other people. Others may present with influenza-like illness including fever, headache, rash, and sore throat. As the infection progresses, it weakens the immune system, causing other signs and symptoms such as swollen lymph nodes, weight loss, diarrhea, and cough.

Globally, HIV remains a major public health issue, having claimed 40.4 million [32.9–51.3 million] lives so far since its discovery in the early 1980s (WHO, 2023). Transmission is ongoing in all countries across the globe; with some countries with previous decline reporting increasing trends in new infections. At the end of 2022, there were an estimated 39.0 million [33.1–45.7 million] people living with HIV, two thirds of them (25.6 million) living in the WHO African Region (UNAIDS, 2024; WHO, 2023). There were an estimated 1.3 million [1 million–1.7 million] new HIV infected people worldwide in 2022, 46% were among women and girls, of which 77% were in sub-Saharan Africa (UNAIDS, 2024).

Each year, an estimated 1.3 million women and girls living with HIV become pregnant, and in the absence of interventions, they transmit the infection to the child during pregnancy, labour, delivery, or breastfeeding- mother-to-child transmission (MTCT) of HIV. The rate of MTCT of HIV ranges from 15% to 45% in the absence of interventions (WHO, 2019). As such, linkage to lifelong treatment and care, including support to enhance adherence and viral load suppression, and an offer of partner services should immediately follow the identification of HIV infection.

In 2019, 85% of women and girls globally had access to antiretroviral therapy (ART) to prevent mother-to-child transmission (MTCT). However, high ART coverage levels do not reflect the continued transmission that occurs after women are initially counted as receiving treatment (WHO, 2019). The prevention of mother-to-child transmission (PMTCT) of HIV remains a critical public health concern, particularly in Sub-Saharan Africa, including Sierra Leone (WHO, 2022). Sierra Leone experiences alarmingly high MTCT rates, increasing from 21.3% in 2015 to 23.1% in 2020 (UNAIDS, 2022). This high rate is

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reported in urban areas, where the prevalence is estimated at 2.3%, compared to 1.2% in rural areas (SLDHS, 2019). Additionally, there is limited access to HIV testing for pregnant women in antenatal care services. This highlights the critical need for improved access to HIV care and a functional HIV surveillance system.

Elimination of MTCT of HIV is strongly supported by global commitments and the promotion of integration of prevention of MTCT interventions into maternal, newborn, child and adolescent health services, as well as strengthened health systems. The integration of interventions has led to the Triple Elimination Initiative, which not only promotes person-centered care, but also reduces incidence, morbidity and mortality. The initiative also strengthens disease monitoring through the use of strategic information for response planning. WHO continues to work in this area, supporting countries to improve and better monitor interventions towards ending the AIDS epidemic as a public health threat by 2030 (WHO, 2019). Thus, there is a need for a functional, efficient, and effective HIV surveillance system.

In 2002, the HIV surveillance system was established within the Mother-to-Child Transmission Program to monitor the epidemiological trend and pattern of HIV in Sierra Leone. It is recommended that every surveillance system is periodically assessed to understand its performance towards achieving set objectives and inform decision-making. However, evidence of a comprehensive evaluation of the HIV surveillance system within the PMTCT program in the Western Area Urban District is lacking. Therefore, this study aimed to evaluate the HIV surveillance system and assess its performance by focusing on its operations, the resources required for its operation, and key attributes of the surveillance system. These attributes include simplicity, flexibility, acceptability, stability, representativeness, data quality, sensitivity, and positive predictive value, all within the context of the Prevention of Mother-to-Child Transmission (PMTCT) program in the Western Area Urban District of Sierra Leone. The goal is to determine whether the system meets its intended objectives.

METHODS

Study Design

We conducted a descriptive cross-sectional study using updated United States Center for Disease Control and Prevention guidelines for evaluating public health surveillance systems to evaluate the HIV Surveillance system within the PMTCT program in Western Area Urban from October to December 2022.

Study Area

The study was conducted among health care providers and other stakeholders in the Western Area Urban District in Sierra Leone. The district is the most densely populated district with a projected population of 609,174 (Final_Preliminary_Report_2021_MTPHC.Pdf_September,2021)

The district houses the administrative headquarters of all ministries including the Ministry of Health. The district has 2 main tertiary referrals and teaching hospitals; 10 secondary hospitals; 8 private hospitals; 27 community health centers (CHC); 24

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community health posts (CHP); 18 maternal child health posts (MCHP); and 19 clinics. A total of 538 medical staff and non-medical staff work in health facilities in Western Urban. (DPPI, Ministry of Health and Sanitation (mohs.gov.sl),2023)

Sampling

We employed a purposive sampling technique. This involved recruiting one respondent from the National AIDS Control Program (National Level) and another from the District Health Management Team (DHMT). To gain insights from healthcare facilities, we purposively selected 14 PMTCT sites within the district that offer Comprehensive Emergency Obstetric Care (CEMOC), Basic Emergency Obstetric Care (BEMOC), and PMTCT services. One respondent was purposively selected in each of these facilities based on their involvement in PMTCT activities. This recruitment approach yielded a final sample size of 18 respondents.

Data Collection

We used a semi-structured interviewer-administered questionnaire to collect the demographic characteristics of participants in the study and information on the availability of resources, system operations, and reasons for identified gaps.

Evaluation of HIV Surveillance System Attributes

Simplicity

Simplicity refers to the ease with which the system is operated and structured. We assessed the simplicity of the HIV surveillance system using the proportion of participants who found ease in the completion of paper-based and electronic forms with limited time consumed and staff training needs.

Flexibility

A flexible surveillance system is adaptable to changes in information need or operating conditions with little or no additional resources without disrupting the system's operation. We assessed the flexibility of the HIV surveillance system by observing how the system responded to integration into the Health Management Information System (HMIS).

Acceptability

Acceptability reflects the willingness of stakeholders operating the HIV surveillance system to participate in the system functions and deliver on targets. We assessed acceptability through interviews with healthcare workers. We calculate the proportion of healthcare workers willing to continue participating in the system and rely on data from it. We objectively assessed the acceptability of the HIV surveillance system using data completeness, quality, timeliness, and feedback reports.

Stability

Stability is the reliability and availability of the system when needed. The stability of the HIV surveillance system was assessed by ascertaining the uninterrupted availability of the finance, tools, and dedicated staff required to carry out HIV surveillance activities within the PMTCT program.

Representativeness

Representativeness attribute measures the degree to which the system captures cases and events and how representative the cases

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captured by the surveillance system of all cases in the population served. We assessed representativeness by examining the proportion of healthcare facilities in the Western Area Urban District (private or public) that submit case reports to the national system.

Data quality

Data quality is the degree to which data meets the system's expectations in terms of accuracy, consistency, completeness, and validity. Completeness describes the proportion of case reports that capture data on all expected variables. We assessed the completeness of the HIV surveillance system by calculating the proportion of reporting forms with all variables complete. We also assessed data quality by the level of consistency between the reporting forms and sources of the data.

Sensitivity

Sensitivity refers to the ability of the surveillance system to detect the health problem that it is intended to detect. We assessed sensitivity in relation to the ability of the HIV rapid diagnostic test kits to detect HIV cases. The sensitivity level of the test kits was used as a proxy to determine how sensitive the system is in detecting HIV cases.

Predictive Positive Value (PPV)

Predictive positive value reflects the proportion of suspected HIV cases that truly turn out to be positive for HIV. We calculated PPV by dividing the number of confirmed HIV cases by the total number of those tested.

Usefulness

We assessed the usefulness of the HIV surveillance system within the PMTCT program by asking participants if they analyze the data they collect, and display analysis (graphs or tables) generated from the data. Participants were also asked about the public health actions taken based on the findings from data collected by the surveillance system. We also assessed the availability of evidence of any actions taken in cases detected by the system to validate its usefulness**.**

Inclusion criteria

Only facilities that have provided complete PMTCT services for at least 2 years, including the year under review, and facility staff that have directly worked in the PMTCT Program for the past 2 years were included in the evaluation.

Ethical Consideration

Permission to conduct this study was obtained from the District Medical Officer (DMO), PMTCT program/National AIDS Control Program. Written informed consent was obtained from the healthcare workers who agreed to participate in the study. Participation was voluntary, and the participants understood that there was no financial reward. We also made them understand that they could withdraw at any point during the interview. No personally identifiable information was disclosed publicly to maintain participants' confidentiality.

The surveillance system evaluation involved the collection and analysis of routine data and information hence, no ethical review was sought. To ensure confidentiality, we encrypted the Excel file where the responses were saved and used only codes during data analysis.

Data Quality Assurance

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The data obtained from health facility reports were cross-checked with the documented data in the DHIS-2 for consistency and accuracy. All required data fields in facility reporting tools and DHIS2 were meticulously reviewed to ensure completeness of registers, accurately reflecting the actual monthly reports. Before data collection, we discussed with stakeholders to align the evaluation with relevant questions and attributes. This collaborative approach fostered stakeholder acceptance of the findings.

Data Analysis

The data obtained were processed and analyzed using Epi Info software version 7.2.1. For quantifiable data, we calculated proportions for each question per attribute and then calculated the average scores. The mean percentage score was calculated for each attribute, where a higher score indicates a higher level of performance The performance status for each attribute was rated using the following scoring system adapted from previous evaluation criteria score used in a study conducted in Sierra Leone and Yemen to assess system attributes (Umaru Sesay, 2023; Al kalali, 2021). We used a Likert scale to rank ten attributes as listed in the CDC updated guideline (CDC, 2001): <40%, poor; 40%-70%, average; and >70%, good. Results were organized into tables

RESULTS

Participants' Socio-demographic Characteristics

A total of 16 health facilities (two hospitals and 14 community health centers) and the DHMT were visited with a total of 18 participants interviewed. Of the participants, 88.9% (16/18) were females, and 72.2% (13/18) had attained at least a certificate level of education. Reproductive Health (RH/HIV Nurse counselors) accounted for more than half, 55.5% (10/18) of the participants. Most (61.1%; 11/18) of the participants had worked in the health care setting for 1- 6 years. Only 5.6% (1/18) were pin-coded staff working at the HIV/AIDs unit, while 77.8% (14/ 18) were on short-term contracts (Table 1).

Operations and Functions of the HIV Surveillance System

The HIV surveillance system is passive and operates at three levels: Community/Primary health care level (MCHP, CHP, and CHC), District (Secondary/referral hospitals), and National level (Referral/specialist hospitals). National AIDS Control Program (NACP) coordinates the PMTCT surveillance system. Most of the reported data are collected manually and transferred from one form to another in the same manner, which increases the probability of errors and biases. Data collected manually at health facilities are entered into the monthly PMTCT summary reports and submitted monthly on or before the fifth of every month.

There was a lack of guidelines for supervising staff to review the data before forwarding reports to the next level. There is limited capacity in the storage of reporting tools and data. Each client and patient receives a unique code for registration purposes. NACP has a well-structured Health Management Information System at the national and district levels (DHIS-2 platform). The DHMT shares the

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HIV-related data for each type of health facility with the NACP at the end of each month for further utilization. There is a well-staffed surveillance unit within NACP with clearly assigned roles, functions, and terms of reference. There are also designated data officers employed by NGOs, who are seconded to the Ministry of Health. Collecting and analyzing aggregated monthly reports and feedback on service delivery is a key responsibility of the DHMT HIV focal person, NACP coordinator, and M&E officers.

There is no designated staff to perform functions of data collection, data cleaning, and verification in thirteen out of the sixteen (13/16) service delivery sites. However, data collection is performed by the service providers (CHOs, nurses/midwives, counselors, lab technicians, pharmacists, etc.) whose primary functions and capacities are lying outside of the area of data gathering. Staff who perform data entering and reporting functions usually lack the relevant training, often do not have written instructions, and are overwhelmed with their primary functions where data reporting is not their priority. The flow of information from the facility level to the national level happens through DHMT with some exceptions where data goes directly from the facility to NACP (from Anti Retro Viral Treatment-ART sites prisons centers). There are national guidelines and manuals on maintaining patients' confidentiality.

Resources needed to operate the HIV Surveillance system

The government of Sierra Leone, the Global Fund, and the World Bank are the principal funders of the HIV/AIDS program for which PMTCT surveillance system is part of the key programmatic indicators. The major resources that are needed to operate the system include the surveillance staff incentives/salary, stationery, travel-related costs for supervision, airtime and mobile data, and purchase of test kits and medications. Partners and NACP cover the surveillance staff salary and some travel-related costs of the supervision.

Assessment of the HIV Surveillance system attributes

Simplicity

The system's simplicity was rated as good, with 73.23% (13 /18) of respondents admitting that they understood the HIV Testing Algorithm for Pregnant Women (Reviewed Feb.2019) and performing HIV counseling and testing with ease. Also, 77.7% (14 /18) of respondents said reporting forms were available, and 50% (9/ 18) said reporting forms and registers were easy to complete (Table 2).

Flexibility

The HIV surveillance system has been part of the integrated disease surveillance and response (IDSR) system. Similarly, 94.4% (17 /18) of the respondents stated that the existing surveillance reporting system is well adapted to reporting all HIV surveillance in this district, and the system can easily accommodate any changes in reporting methods and other surveillance system operations. The system adapts well to the Consolidated Guidelines on HIV Prevention, Diagnosis, Treatment and Care, and standard operation procedures for HIV surveillance, monitoring, and evaluation as it accommodates new variables (Table 3)

Acceptability

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The overall acceptability was 95.5%, rated as good. All 18 respondents strongly indicated willingness to continue being part of the HIV/AIDS program and that the system should remain in place. The respondents believe the system recognizes their efforts in doing their job well and that their suggestions for improving the system were considered by stakeholders and partners (Table 4).

Stability

The overall stability of the system was scored at 65%, representing an average level of stability. We found 55.5% (10 /18) of respondents saying there was stock out of test kits and ARV drugs in their facilities, and 50% (9/18) of the facilities had HIV registers and reporting tools. For staffing, only 5.6% (1/ 18) pin pin-coded staff were working at the HIV/AIDs units, 27.8% (5/18) were volunteers, while 77.8% (14/ 18) were on short contracts (Table 5) with allowances paid by NGO partners (Table 5).

Representativeness

The overall representativeness score was ranked poor (36.0%), with only 5.5% (1 of 18) of private, NGO, and Faith-based clinics providing HIV counseling and testing for pregnant women with data captured and reported to the DHMT/National level (Table 6). Again, the system relied on passive surveillance, which limits its capacity to detect and accurately monitor HIV cases among pregnant cases in the district.

Timeliness

Out of 35593 patients tested for HIV/AIDS, 32619 were informed about the results of HIV counseling and testing the same day after testing was done. However, monthly report submissions to the district and national offices were behind schedule by 3 to 5 days, respectively, due to late reports from facilities.

Data quality

Data quality validation is done quarterly by the National AIDS Control Program within the Ministry of Health. Our evaluation process also showed a 98% completion rate of submitted reporting forms. Ninety percent (90%) of the primary data collectors at the health facility and district levels were trained in data management in less than a year to this evaluation.

Sensitivity

The HIV surveillance system defines a case as any person testing positive for HIV using a rapid diagnostic test (RDT) kit for HIV. The choice of RDTs used is based on criteria recommended by the National Guidelines on HIV Counselling and Testing. All the RDTs recommended (SD Bioline, Determine, and Uni- gold) have over 95% sensitivities. Thus, the sensitivity of the surveillance system is good using the sensitivity of the test kits as a proxy.

Positive Predictive Value

The system's PPV was 3.3%.

Usefulness: The overall score for usefulness was 65.7%, indicating an average rank. The majority (15 / 18) of the health care workers stated that the system was useful as it was capable of detecting cases of HIV in the district during antenatal care screening and providing data on the number of new cases of HIV in pregnant women and in newborns to inform programmatic decisions and actions. The system meets its reporting requirements as

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monthly summary reports are submitted to the district health management team (DHMT) and national level. Data analysis is only done at district and national levels. Facility staff indicated that they receive feedback from the higher level on the data they submit (Table 7).

DISCUSSIONS

In this study, we evaluated the HIV surveillance system within the Prevention of Mother-to-Child Transmission Program in Western Area Urban District, Sierra Leone, 2022, to assess its performance, usefulness, and attributes.

Generally, the HIV surveillance system was useful as it was able to detect HIV cases among pregnant women and new-borns, and also provided data on PMTCT, a major HIV program objective. Actions, including early initiation of antiretroviral therapy (ART) for pregnant women and new-borns, were taken based on data collected by the system. This suggests that the surveillance system is fulfilling its primary objectives and contributing to the monitoring and evaluation of PMTCT services. Our finding is similar to findings by Auria R. Banze et al. 2016 on evaluation of prevention of mother-to-child transmission national health information system for HIV/AIDS, in southern region of Mozambique. They also found the system capable of detecting cases of HIV in the provinces.

Our evaluation showed that the HIV surveillance system was flexible. This was evidenced by its integration into the routine District Health Information system 2 (DHIS-2) and the IDSR reporting tools. Our results are consistent with the results found by Kudzai Patience et al.,2021 on the evaluation of the HIV Case-Based Surveillance System in Zimbabwe. They found that their system was flexible, as health workers mentioned that the HIV CBS system could be integrated with other health information systems (Naqibullah & A, 2020).

Our finding that the overall stability of the surveillance system was average, with the majority of the HIV staff or focal persons being Volunteer staff, makes the staff employment status unreliable, suggesting job insecurity for the staff and possible attrition. Additionally, the stockout of test kits/ARV drugs in the facility, which could be a result of the HIV program's dependency on donors due to limited and delayed government support, threatens the stability of the system.

The ease of operation of the system, which could be due to the availability of sufficient reporting tools, SOPs, staff training, and supportive supervision, enhanced the simplicity of the system. The staff's ability to conduct HIV counselling and testing within 5 minutes and filling in the registers in less than ten minutes helps reduce patients' waiting time, thus, improving service uptake. These findings are contrary to findings by Chinyere C. Ezeudu et al, 2014 in their study conducted in Enugu State, Nigeria. They found the System not simple because the data elements were numerous, and some of the stakeholders complained of incomplete filling of forms (Ezeudu et al., 2016). However, it is similar to the studies from Kenya, where 55% of respondents perceived the surveillance system to be simple (Ng'etich et al., 2021).

The HIV surveillance system acceptability by most of the stakeholders operating the system

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indicates a sense of ownership and can greatly contribute to improved system performance. This aligns with findings from Zimbabwe's HIV surveillance system evaluation, where staff acceptance remained high despite a demanding workload (Nsubuga et al., 2020).

The finding that the system's representativeness was poor, as majority of private health facilities do not participate in HIV surveillance activities, is a cause for concern. Most middle and high -class individuals seek healthcare services from the private health facilities. The lack of integration of the private facilities in the HIV surveillance system within the district could undermine the validity of the data reported for the district. Similar findings on HIV surveillance systems were reported from studies conducted in Rivers State, Nigeria (Ezeudu et al., 2016) and Northern Ghana (Adokiya et al., 2015). Efforts aimed at including private health facilities and improving their participation in the HIV surveillance system would further improve the system and ensure more representativeness in the data generated. It will also ensure strong policy decisions to address any observed challenges not just in the government-owned facilities but the whole district.

The high sensitivity of the system in detecting positive cases in this evaluation study is commendable and implies that the system is useful. This is similar to study finding from the HIV surveillance system in Mozambique which was considered sensitive enough to detect positive cases during antenatal care (ANC) visits and during labor (Banze et al., 2021, pp. 2017–2018)

Concerning timeliness, despite some challenges inherent in the system, including limited transport and financial resources, reports were sent in good time, usually within the first five days of the reporting month. This is important because timely data reporting enhances early analysis and information for decision-making.

LIMITATIONS

The evaluation was carried out in Western Area Urban district and targeted only health facilities providing PMTCT services (purposive sampling) due to time and funds constraints. . Our findings in this study would guide district planning and decisions relating to PMTCT.

CONCLUSION

The HIV surveillance system within the PMTCT program in Western Area Urban District, Sierra Leone, is effective in meeting its primary objectives, particularly in detecting new HIV cases among pregnant women and newborns. Despite meeting its objectives, it was not representative. To enhance its representativeness and stability, policies should focus on integrating private health facilities into the surveillance system and securing sustainable funding to support dedicated staff and timely procurement of essential supplies.

What is known about this topic

• HIV is a global public health issue

• There is no permanent cure yet for HIV but treatment adherence can result to viral suppression to an unnoticeable level.

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What this study adds

• This study found that data generated by the HIV surveillance system within the PMTCT program is not representative, as almost all private health facilities are not participating in HIV surveillance activities.

• This study also found some level of instability in the HIV surveillance system.

COMPETING INTERESTS

All the authors involved in writing the content of this manuscript and disclosed no conflicts of interest whatsoever.

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Table 1: Participants' Socio-demographic characteristics

Gender	**Frequency**	**Percent**
Female	16	88.89%
Male	2	11.1%
Age		
18years-30years	2	11.1%
31years-40years	10	55.6%
41years – 50years	5	27.8%
>50 years	1	5.5%
Designation/cadre		
Reproductive health(RH/HIV counsellor)	10	55.5%
SECHN/HIV Counsellor	7	38.9%
OTHER CADRES(CHO,CHA,MCH AIDE,NURSING AIDE)	0	5.5%
Length of service		
>5years	11	61.11%
3years	3	16.67%
4years	2	11.11%
5years	2	11.11%
Type of health facility		
Community Health Centre	13	72.22%
District Health Management Team/HIV Program	1	5.56%
Secondary hospital	3	16.67%
Tertiary hospital	1	5.56%
Highest level of education		
Certificate	13	72.22%
Diploma	5	27.8%
Degree	0	0%
Masters/Phd	0	100%
Pin-coded staff?		
Yes	1	5.56%
No	17	94.44%

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Table 2

Simplicity				
Indicators	**Score**	**maximum score**	**Score percent**	**Rank**
Instructions and guidelines for completing the HIV Surveillance system and reporting forms are easy to understand	5	60	8.3	Good
The system has standard case definitions and algorithms for HIV/AIDS	5	60	8.3	Good
The case definition/algorithm for HIV is easy to use and understanding the functionality of the HIV Surveillance system is easy	4	60	6.7	Good
Report forms are available. And surveillance data is easily managed	4	60	6.7	Good
Forms for reporting HIV surveillance data are easy to complete.	3	60	5.0	Average
The system has partners/organizations supporting the facility, district, and National	3	60	5.0	Good
Data collection is not time-consuming and only takes one hour to do so	3	60	5.0	Average
Transmitting data to the central level is easy	3	60	5.0	Good
Follow-up of cases is easy	3	60	5.0	
ARV drugs and HIV/AIDS test kits are available in a health facility to confirm diagnosis	3	60	5.0	Poor
Staff received training and training courses are performed frequently	4	60	6.7	Average
The system is responsive to suggestions.	4	60	6.7	Good
Implementation status (Overall Score)	44	60	73.3	73.3%(Good)

Table 3

Flexibility

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Indicators	Score	maximum score	Score percent	Rank
The system is flexible and is part of the Integrated disease surveillance system (IDSR)	5	25	20	Good
The system can accommodate changes in case definition	3	25	12	Good
The existing surveillance reporting system is well adapted to reporting all HIV surveillance in this region. The system can accommodate any changes in reporting method	2	25	8	Good
The system can integrate the surveillance of other disease/HIV surveillance and response within the existing Surveillance system easily adapts to changes in technology (e.g. paper-based to electronic-based reporting)	5	25	20	Good
The system can accommodate data changes with minimum cost and efforts	5	25	20	Good
Implementation status (Overall Score)	20	25	80	80%(Good)

Table 4

Acceptability				
Indicators	**Score**	**Maximum score**	**Score percent**	**Rank**
Fellow health personnel in this facility show interest in HIV surveillance activities / Willing to continue to participate in the HIV/AIDS surveillance system	5	25	20	Good

The system appreciates effort of staff for doing the job effectively. My contributions and inputs to the existing HIV Surveillance system are considered valuable.	4	25	16	Good
I am satisfied with my involvement in the HIV surveillance activities in this facility	5	25	20	Good
The existing HIV surveillance system protects users' privacy and confidentiality / The system acceptable to users	5	25	20	Good
All actions regarding HIV surveillance are adequately supported by the health facility management and Suggestions/comments about improving the system are considered by the program	5	25	20	Good
Implementation status (Overall Score)	24	25	96	96%(Good)

Table 5

Stability				
Indicators	**Score**	**Maximum score**	**Score percent**	**Rank**
The system is stable after sponsors withdraw their support	2	40	5	Poor
The system does require time to manage the data	3	40	7.5	Good
The system was not interrupted during the COVID-19 pandemic	3	40	7.5	Good
The system has dedicated staff for data collection,, Analysis and Reporting	4	40	10	Poor

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The system data is manually collected and submitted to a higher level/The existing HIV Surveillance system has always been reliable when reporting HIV surveillance data.	5	40	12.5	Good
The system protects patient privacy/ data confidentiality	4	40	10	Good
The system receives feedback from a higher level after reports are submitted	3	40	7.5	Good
Resources provided for HIV surveillance and response activities in this region/facility are sufficient/ There was no stockout of test kits/ARV drugs in the facility/	2	40	5	Average
Implementation status(Overall Score)	26	40	65	65%(Average)

Table 6

Representativeness				
Indicators	**Score**	**Maximum Score**	**Score percent**	**Rank**
The system capture all pregnant women attending the facility	3	30	10	Good
Surveillance/DHIS data covers public facilities including government and NGOs providing HIV services	3	30	10	
Private, NGO and Faith based NGO do not report HIV surveillance data to DHMT/National AIDS control program	2	30	6.7	

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The system is collecting sufficient information regarding pregnant women seeking HIV care this include age and sex of cases along with their residential areas at private, NGO and Faith based clinics	3	30	10	Poor
Implementation status (Overall Score)	11	30	36.7	36.0% (Poor)

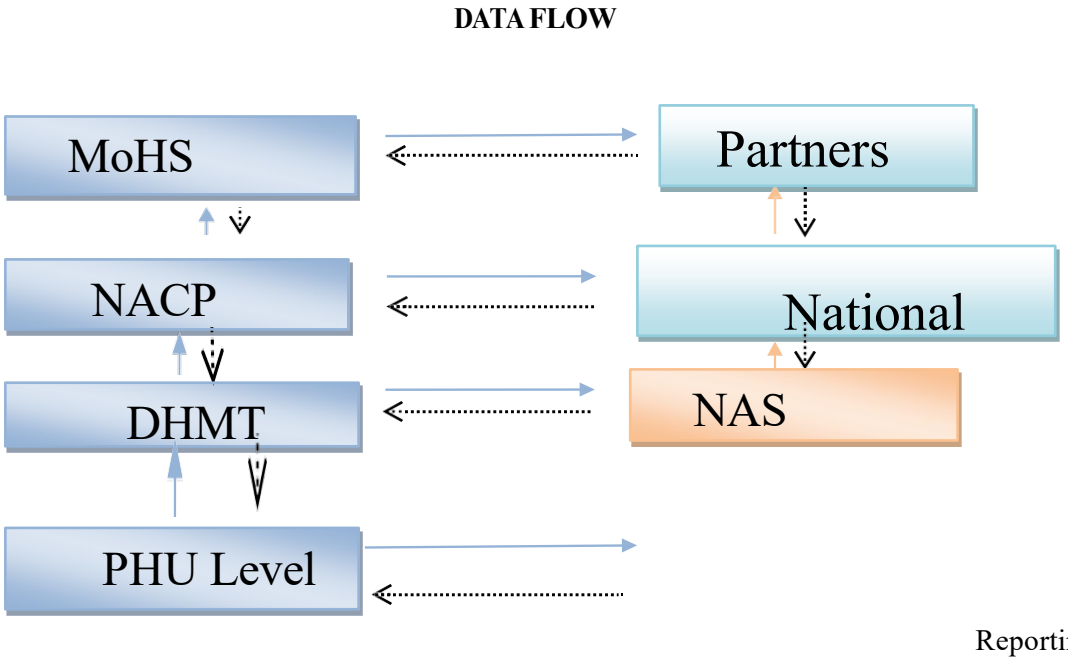
Table 7

Usefulness				
Indicators	**Score**	**maximum score**	**Score percent**	**Rank**
HIV surveillance and response within the Surveillance system has enabled achievement of the surveillance objectives in the past one year in this district(Provide estimates of the HIV magnitude, incidence, prevalence, and mortality)	4	35	11.4	Good
Transmitting information to the next level had access to reporting tools motor vehicles, motorcycles, and cellphones	2	35	5.7	Good
HIV surveillance data has informed program implementation for prevention and control of the disease in the past one year in this district & Action taken by authorities to improve the performance of the HIV surveillance system	4	35	11.4	Good
Data Analysis done and feedback given to the responsible people	2	35	5.7	Good
Data collection and reporting done weekly and monthly by health facility staff	3	35	8.6	Good
Data generated on HIV testing, supply of HIV test kits and drug supply is used for resource planning, care and control by partners for informed decision making	4	35	11.4	Good

The system is useful and data are used to assess the impact of interventions	4	35	11.4	Good
Implementation status/Overall Score)	23	35	65.7	65.7%(Average)

Figure 1: Trend of HIV cases among pregnant women seeking ANC/PMTCT services in Western area Urban, 2022

11.1 HIV SURVEILLANCE SYSTEM DATA FLOW



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Feedback

Adapted from the Consolidated Guidelines on HIV Prevention, Diagnosis, Treatment and Care in Sierra Leone