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FACTORS ASSOCIATED WITH WEEKLY REPORTING FOR DISEASE SURVEILLANCE DATA AMONG HEALTH FACILITIES OF KIGALI CITY, RWANDA

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Abstract

Delayed reporting of epidemics as well as other alarming environmental events has been associated with poor execution of the Integrated Disease Surveillance and Response (IDSR) system. It is essential to boost the performance of health workforce responsible for the implementation of IDSR. The aim of this study is to determine weekly report of integrated diseases surveillance data and factors associated with weekly reporting for disease surveillance data among health facilities of Kigali City, Rwanda. The researcher employed cross-sectional analysis using both qualitative and quantitative approaches. The current research was done in health facilities of Kigali city. A purposive sampling technique was used to select participants from healthcare workers who were working in 129 health facilities of Kigali City. Survey questions were built taking into account the criteria of each research objectives. The chi-square test and odds ratio of Pearson with the associated 95 per cent normal distribution was used to evaluate the relation between the predictor variables and independent variables. For qualitative data, interview was done using interview guide and data were organized in line with thematic analysis. The overall prevalence of adequate IDSR reporting among health facilities of Kigali City was 62.1%. After adjustment from other variables, attending DSR training ($P<0.05$), having responsibilities other than reporting ($P<0.05$), cooperation between other staff ($P<0.05$), stock outs of weekly reporting forms in last 3 months ($P<0.05$) were factors associated with adequate weekly reporting for disease surveillance data. In this study various challenges were reported including inadequate training, lack of access to internet, having huge work load in terms of having responsibilities other that reporting of weekly surveillance data. It is concluded that the prevalence of adequate reporting weekly disease surveillance data was lower than WHO target. Adequate reporting weekly disease surveillance was found to be significantly associated with attending IDSR training, having responsibilities other than reporting, cooperation between other staff, stock outs of weekly reporting forms last 3 months. Based on findings of the study, the following recommendations were suggested: Training on reporting weekly disease surveillance data should be provided for all health care workers. There should be cooperation between other staff when the staff in charge of reporting is absent.

Key words: Disease, Reporting, Surveillance

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1. Introduction

Weak disease surveillance was already described among the main factors contributing to rising infectious disease death rates (1). A successful monitoring program has also been correlated with time-to-peak elimination of outbreaks and decreases in overall combined morbidity and prevalence and prevented incidents (2,3).

Delayed notification, incorrect reports or insufficient collected information reports, however, can results in outbreaks that are unreported or identified late leading to high mortality (4). Latest Ebola disease vectors outbreak has shown the critical role played by national surveillance and feedback mechanism (5).

In Rwanda, IDSR attempts to discover patient information for the control and prevention of prioritized prevention of non - communicable diseases by trying to link populations, medical clinics, districts, provinces, country level and National level (6)

According to the epidemiological analysis conducted annually in the past consecutive three years, the statistics showed that there were huge fluctuations of timeliness of reporting of weekly diseases data which were ranging between 54% and 72% of timeliness of reporting countrywide while the national target is 80% of timeliness for every district hospital in Rwanda (7).

It is very important to establish a detailed understanding the whole process of reporting weekly disease data from lower level to the national level by assessing the factors influencing adequate reporting of weekly disease data from DH to the RBC/IHDPC. Therefore, this study will assess weekly report of integrated disease surveillance data and influencing factors in Kigali health facilities, the only city with lot of health facilities (47%) in Rwanda compared to all other cities of the country.

2. Material and Methods

Kigali City, this study was conducted in health facilities of Kigali City. The City of Kigali is the capital of Rwanda and it is located at Rwanda's geographical heart. The City of Kigali has rapidly grown in a modern city in the last decade and it has not only become Rwanda's most important business center but also the main port of entry, The study population was healthcare workers who were working in health facilities of Kigali city during the study period, were in charge of reporting who were on duty, working for at least six months in the health facility selected from Kigali City during the study period and those who consented to participate.

The study adopted and used the cross-sectional sample sizes determination formula. Overall, the study targeted 129 respondents but achieved to interview 124, representing a response rate of 96.1%. Purposive sampling method was used to select health workers in charge weekly reporting of integrated diseases surveillance data. Then the questionnaire was administered to each selected individual. A standardised, validated questionnaire constructed in consideration of the requirement of each objective. The questionnaire was pre-tested in

Bugesera district as it is among the bordering districts of Kigali City. For reliability, the questionnaires administrated to the same individual at two different points in time, two weeks apart. This was done in the pilot study described above. The Cochrane's coefficient was calculated to measure the percentage agreement between the responses from the two tests. A coefficient of 0.7 and above was considered adequate for field testing of the tool. After data collection, data entered in EPI data and transported into Statistical Package for Social Sciences (SPSS) version 22 for analysis. The research protocol was presented to the Internal Review Board of Mount Kenya University for ethical review and approval. During fieldwork and indeed after, ethical principles were observed.

3. Results and Discussion

Table 1: Social Demographic Characteristics of Respondents

Characteristics	Category	Frequency	Percent
Facility type			
	Private	53	42.7
	Public	71	57.3
Service Delivery			
	Outpatient only	8	6.5
	Outpatient and inpatient	116	93.5
Title			
	IDSR Focal Person	47	37.9
	EHO	6	4.8
	Nurse	59	47.6
	Lab technician	12	9.7
Age category			
	≤30 years	39	31.5
	31-40	36	29.0
	≥41 years	49	39.5
Gender			
	Male	86	69.4
	Female	38	30.6
Level of education			
	Secondary	54	43.5
	University/college	68	54.8
	Postgraduate	2	1.6
Attended IDSR training			
	Yes	93	75.0
	No	31	25.0
When did you attend the IDSR training (n=93)			
	Within one year	30	24.2
	One - Two years ago	40	32.3
	Three - four years ago	15	12.1
	Five - six years ago	7	5.6
	Seven - some years ago	1	.8
Other responsibilities other than IDSR activities			
	Yes	56	45.2
	No	68	54.8

Source: (Primary data, 2021)

Table 1 illustrated that a more than a half of participants (57.3%) were from public health facilities. A majority of participants (93.5%) were from institution that deliver both outpatient and inpatient services. When it comes to job tittle, most of participants (47.6%) were nurses.

Most of participants (69.4%) were male. Regarding educational level, more than a half of participants (54.8%) attained university or college. A majority of participants (75.0%) attended IDSR training. More than a half of participants (54.8%) have no other responsibilities other than IDSR activities

3.2 Prevalence of adequate weekly reporting of disease surveillance data among health facilities of Kigali City

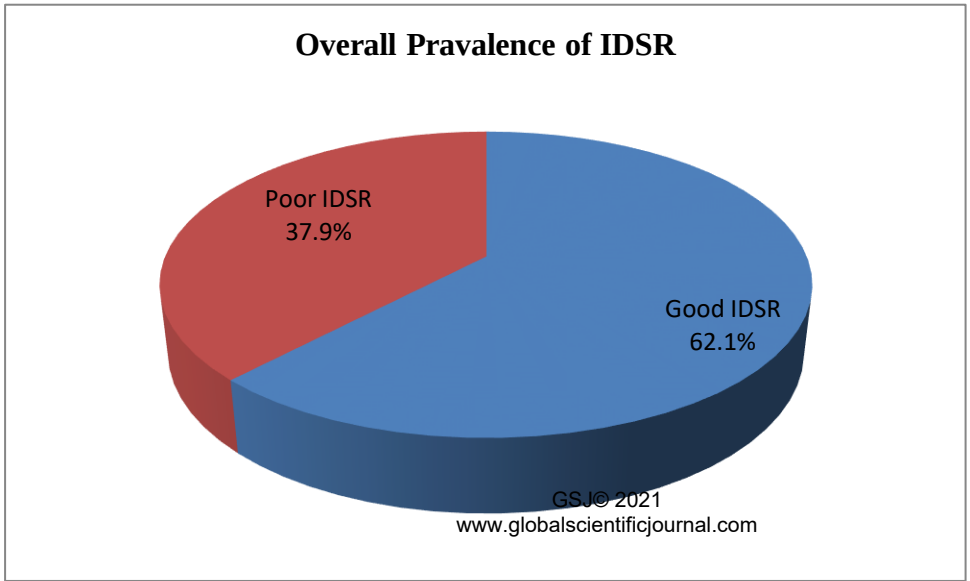
This section presents findings on the Prevalence of adequate weekly reporting of disease surveillance data among health facilities of Kigali City

Table 2: Prevalence of adequate weekly reporting of disease surveillance data

Category	Frequency	Percent
Do you report weekly disease data?		
Yes	97	78.2
No	27	21.8
When do you report weekly disease data? (n=97)		
Monday	42	33.9
Tuesday	7	5.6
Wednesday	3	2.4
Thursday	2	1.6
Friday	29	23.4
Saturday	6	4.8
Sunday	8	6.5
How many report did you make in the last 12 weeks		
10 and above	77	62.1
Less than 10	47	37.9
Cooperation between other staff and yourself on reporting weekly disease data when you are absent from your office		
Yes	78	62.9
No	46	37.1

Source: (Primary data, 2021)

Table 2 illustrates the study findings on the prevalence and indicates that most participants (78.2%) do report weekly disease data. Most of those who report weekly disease data (33.9%) use to do it on Monday. Most participants of the study did 10 reports and above in the last 12 weeks. A majority of participants (62.9%) claimed cooperation between other staff and themself on reporting weekly disease data when they are absent from their offices.



3.3 Factors associated with adequate weekly reporting for disease surveillance data among health facilities of Kigali City

This section presents the findings regarding the factors associated with adequate weekly reporting for diseases surveillance data.

Table 3: Bivariate analysis of factor associated with adequate weekly report with IDSR reporting

		Status of weekly reporting			
Variables	**Indicators**	**Good n(%)**	**Poor n(%)**	**Chi-square**	**P-Value**
Facility type	Private	27(50.9)	26(49.1)	4.892	**<0.05**
	Public	50(70.4)	21(29.6)		
Service Delivery	Outpatient only	3(37.5)	5(62.5)	2.198	0.138
	Outpatient and inpatient	74(63.8)	42(36.2)		
Title	IDSR Focal Person	31(65.9)	16(34.1)	1.126	0.771
	EHO	4(66.7)	2(33.3)		
	Nurse	36(61.1)	23(38.9)		
	Lab technician	6(50.0)	6(50.0)		
Age category	≤30 years	29(74.4)	10(25.6)	4.206	0.112
	31-40	22(61.1)	14(38.8)		
	≥41 years	26(53.1)	23(46.9)		
Gender	Male	52(60.5)	34(39.5)	0.317	0.573
	Female	25(65.8)	13(34.2)		
Level of education	Secondary	25(46.3)	29(53.7)	10.662	**<0.05**
	University/college	51(75.0)	17(25.0)		
	Post graduate	1(50.0)	1(50.0)		
Attended IDSR training	Yes	64(68.8)	29(31.2)	7.138	**<0.05**
	No	13(41.9)	18(58.1)		
Other responsibilities	Yes	25(44.6)	31(55.4)	13.217	**<0.001**
	No	52(76.5)	16(23.5)		
Cooperation between other staff	Yes	57(73.1)	21(26.9)	10.770	**<0.001**
	No	20(43.5)	26(56.5)		
Stock outs of weekly reporting forms in last 3 months	Yes	28(51.9)	26(48.1)	4.266	**<0.05**
	No	49(70.0)	21(30.0)		
Participation in Surveillance review meetings in last 3 months	Yes	17(56.7)	13(43.3)	0.496	0.481
	No	60(63.8)	34(36.2)		
IDSR Technical Guidelines Available	Yes	47(65.3)	25(34.7)	0.738	0.0390
	No	30(57.3)	22(42.3)		
Facility supervised in last 3 months	Yes	50(69.4)	22(30.6)	3.398	**<0.05**
	No	27(51.9)	25(48.1)		
Facility has	Yes	74(61.7)	46(38.3)	0.292	0.589

access to Internet	No	3(75.0)	1(25.0)

Table 3 indicates that adequate weekly reporting for disease surveillance data was associated with level of education, IDSR training, cooperation between other staff when the staff in charge of reporting is absent, having other responsibilities other than reporting, stock outs of weekly reporting forms in last 3 months, supervision in last 3 months.

It was noted that 27(50.9%) of those participants from private health facilities, and 50(70.4%) of participants from public health facilities have adequate weekly reporting for disease surveillance data. The relationship between types of facility and adequate reporting is statistically significant at 5% level since the p value is less than 0.05.

With regards to educational level, 25(46.3%) of participants with secondary level, 51(75.0%) of those who attained university/college, and 1(50.0%) of those with postgraduate degree have adequate weekly reporting for disease surveillance data. The relationship between educational and adequate reporting is statistically significant at 5% level since the p value is less than 0.05.

It was revealed that 64(68.8%) of participants who attended IDSR training have adequate weekly reporting for disease surveillance data. The relationship between training and adequate reporting is statistically significant at 5% level since the p value is less than 0.05.

It was noted that 25(44.6%) of participants who have other responsibilities other than reporting of the disease have adequate weekly reporting for disease surveillance data. The relationship between having other responsibilities and adequate reporting is statistically significant at 0.1% level since the p value is less than 0.001.

When it comes to the cooperation with other staff, 57(73.1%) of participant who stated that cooperation with other staff have adequate weekly reporting for disease surveillance data. The relationship between having other responsibilities and adequate reporting is statistically significant at 0.1% level since the p value is less than 0.001.

It was found that 50(69.4%) of participants whose institutions were supervised in last 3 months have adequate weekly reporting for disease surveillance data. The relationship between supervision and adequate reporting is statistically significant at 0.1% level since the p value is less than 0.001.

Table 4: Multivariate analysis of factors associated with adequate weekly reporting for disease surveillance data

Variables	Indicators	AOR (95%CI)	P-Value
Facility type	Private	0.812(0.330-1.997)	0.650
	Public	Ref	
Level of education	Secondary	0.495(0.016-15.647)	0.690
	University/college	0.193(0.006-6.074)	0.350
	Postgraduate	Ref	
Attended IDSR training	Yes	2.831(1.031-7.776)	**<0.05**
	No	Ref	

Other responsibilities	Yes	0.123 (0.027-0.565)	**<0.05**
	No	Ref	
Cooperation between other staff	Yes	3.736(1.511-9.238)	**<0.05**
	No	Ref	
Stock outs of weekly reporting forms in last 3 months	Yes	0.364(0.146-0.906)	**<0.05**
	No	Ref	
Facility supervised in last 3 months	Yes	0.361(0.080-1.619)	0.183
	No	Ref	

AOR: Adjusted odd ratio, 95%CI: 95% confidence interval

Table 4 illustrates that after adjustment from other variables, attending DSR training (P<0.05), having responsibilities other than reporting (P<0.05), cooperation between other staff (P<0.05), stock outs of weekly reporting forms in last 3 months (P<0.05) were factors associated with adequate weekly reporting for disease surveillance data

4. Challenges regarding adequate weekly reporting of disease surveillance data

Qualitative data results

The qualitative component aimed to triangulate (support) the quantitative data and to receive the opinions of opposite side in order to strengthen the weaknesses of each design employed in this study. It includes the profile of the participants or key informants in the qualitative component of the study together with a detailed presentation of category, themes and sub-themes which emerged from the interviewed health care providers.

Profile of the key informants, category, themes and subtheme emerged from interview

The researcher interviewed four purposively selected participants who were all health care providers had more than 5 years of experience in administration. The participants were each asked to talk about her without mentioning their respective names.

Table 4: Profile of the participants

Cases	Sex	Age	Education Level	Working Experience	Position
Case1	Male	29 years	A1	>5years	Head of health center
Case2	Female	37years	A0	>5years	Head of health center
Case3	Female	40 years	A1	>5years	Assistant Head of health center
Case4	Male	31years	A0	>5yeras	Head of health center

Table 4.5 shows the profile of the participants in the qualitative component of this study. Half of participants were found to be female and another half was male having working experience exceeding five years and aged above 29 years.

Themes and Sub-themes from key informants' interview

There were 4 themes, and the answers were given as follows;

Theme 1: In your opinion, explain about the prevalence of weekly report with IDSR reporting in your health facility? Probe: Adequate or poor weekly report with IDSR reporting? Explain about such prevalence.

> "*Indeed the reporting of weekly disease surveillance data is not as good as we wish. It is at 92% I think*" **(KII 1)**
>
> *"In our health facility the reporting of weekly disease surveillance data is somehow good at the rate of 90%"*
>
> *"Due to some barriers, our habit reporting weekly disease surveillance data is as low as 85%, and yet we should have done more than this"* **(KII 4**)

Theme 2: What do you think are the main causes of poor weekly report with IDSR reporting? Explain about the causes.

> *"We, nurses use to have a huge work overload which may interfere with reporting weekly disease surveillance data. In addition to that most of us have low level of knowledge on reporting the diseases."* **(KII 3)**
>
> *"In this particular health center, we usually have a problem with internet. This the main cause of inadequacy of weekly reporting of disease surveillance data."* **(KII 1)**
>
> *"Most of the times inadequate reporting of weekly disease surveillance data is due to forgetfulness."*
>
> *"On holidays the data are not well recorded and when the focal person is not around"* **(KII 3)**
>
> *"Some of us do not fill very well data in provided register. Once the person in charge wants to report them in the system, he/she may miss some data."* **(KII 2)**

Theme 3: What do you think are the challenges faced by health care providers on weekly report with IDSR reporting among health facilities of Kigali city? What are the ways to address these challenges?

> *"As I see it, the main challenge we faced is inadequate training"* **(KII 3)**
>
> *"We are facing obstacles related to the reporting system whose network is poor"* **(KII 4)**
>
> *"The main challenge is heavy work load in term of having responsibilities other than reporting of weekly disease surveillance data"* **(KII 1)**

Theme 4: In your opinion, what are recommendations can you give to improve weekly reporting with IDSR reporting among health facilities of Kigali city?

> *"In my opinion, the Ministry of Health should provide adequate training on each and every case definition"* (**KII 3)**

"Our reporting system should be updated for it to adapt to network and it will worthwhile is we have adequate computers" **(KII 4)**

"Feedback on every report should be given so that the mistake should not be repeated" **(KII 1)**

5. Discussion

Despite the importance of reporting of diseases surveillance data it's argued that routine health care data generated by health care providers play a major role in facilitating integration between individual health and public health interventions after analysis (2,8).

A majority of participants in this study (47.6%) were nurses. This shows a disparity with the study that was done in Ethiopia which showed that the majority of people involved in IDSR were Environmental Health Officers and Community Health Extension Officers (9).

The current study revealed that the overall prevalence of adequate IDSR reporting among health facilities of Kigali City was 62.1%. This is comparatively low and below the target of 80% given in the WHO IDSR guidelines (10). These finding are slightly lower than those found in the study on assessment of factors affecting the implementation of the integrated disease surveillance and response in Public Health Care Facilities - The Case of Rufunsa District, Zambia which revealed that 72.7% adequately did their weekly reporting for disease surveillance data (11).

In this study, only 75.0% of participants have ever attended training on weekly reporting for disease surveillance data. Similarly, consistent lower levels of training were also observed in a similar study done by Nnebue and his collegues who reported that only 32% of the health care workers had been trained in Anambra state, Nigeria (12). Similarly, a study done by Awunor, Omuemu and Adam, in Enugu State, Nigeria reported a worse situation, where only 8% of the health care providers employed by the Local Government were trained in IDSR (13).

6. Conclusion and recommendations

It is concluded that the prevalence of adequate reporting weekly disease surveillance data was lower than WHO target. Adequate reporting weekly disease surveillance was found to be significantly associated with attending IDSR training, having responsibilities other than reporting, cooperation between other staff, stock outs of weekly reporting forms last 3 months. The challenges faced during reporting were inadequate training, lack of access to internet, having huge work load in terms of having other responsibilities.

Based on findings of the study, the following recommendations were suggested: Training on reporting weekly disease surveillance data should be provided for all health care workers. Every health facility should have focal person in charge of data management and with no other responsibilities. There should be cooperation between other staff when the staffs in charge of reporting are absent.

References

1. Tambo E, Adetunde OT, Olalubi OA. Re-emerging Lassa fever outbreaks in Nigeria: Re-enforcing "One Health" community surveillance and emergency response practice. Infect Dis Poverty [Internet]. 2018;7(1):37. Available from: https://doi.org/10.1186/s40249-018-0421-8

2. Mwatondo AJ, Ng'ang'a Z, Maina C, Makayotto L, Mwangi M, Njeru I, et al. Factors associated with adequate weekly reporting for disease surveillance data among health facilities in Nairobi County, Kenya, 2013. Pan Afr Med J. 2016;23:165.

3. Sims N, Kasprzyk-Hordern B. Future perspectives of wastewater-based epidemiology: Monitoring infectious disease spread and resistance to the community level. Environ Int [Internet]. 2020;139:105689. Available from: https://www.sciencedirect.com/science/article/pii/S0160412020304542

4. Sakib MN, Butt ZA, Morita PP, Oremus M, Fong GT, Hall PA. Considerations for an Individual-Level Population Notification System for Pandemic Response: A Review and Prototype. J Med Internet Res [Internet]. 2020;22(6):e19930. Available from: http://www.jmir.org/2020/6/e19930/

5. Olu OO, Lako R, Bunga S, Berta K, Kol M, Ramadan PO, et al. Analyses of the performance of the Ebola virus disease alert management system in South Sudan: August 2018 to November 2019. PLoS Negl Trop Dis [Internet]. 2020 Nov 30;14(11):e0008872. Available from: https://doi.org/10.1371/journal.pntd.0008872

6. RBC. COVID19 Weekly Epidemiological Bulletin. 2018;(April):1–3.

7. MoH Rwanda. Tuberculosis National Strategic Plan Extension 2018-2020. 2018;(February 2017):1–77.

8. Masiira B, Nakiire L, Kihembo C, Katushabe E, Natseri N, Nabukenya I, et al. Evaluation of integrated disease surveillance and response (IDSR) core and support functions after the revitalisation of IDSR in Uganda from 2012 to 2016. BMC Public Health. 2019 Jan;19(1):46.

9. Begashaw B, Tesfaye T. Assessment of Integrated Disease Surveillance and Response Implementation in Special Health Facilities of Dawuro Zone. 2016;4(3):11–5.

10. McCollum R, Theobald S, Otiso L, Martineau T, Karuga R, Barasa E, et al. Priority setting for health in the context of devolution in Kenya: implications for health equity and community-based primary care. Health Policy Plan. 2018 Jul;33(6):729–42.

11. Haakonde T, Lingenda G, Munsanje F, Chishimba K. Assessment of Factors Affecting the Implementation of the Integrated Disease Surveillance and Response in Public Health Care Facilities - The Case of Rufunsa District , Zambia. 2018;15:15–22.

12. Nnebue CC, Onwasigwe CN, Adogu POU, Onyeonoro UU. Awareness and knowledge of disease surveillance and notification by health-care workers and availability of

facility records in Anambra state, Nigeria. Niger Med J [Internet]. 2012 Oct;53(4):220–5. Available from: https://pubmed.ncbi.nlm.nih.gov/23661882

13. Awunor NS, Omuemu VO, Adam VY. Knowledge and Practice of Disease Surveillance and Notification among Resident Doctors in a Tertiary Health Institution in Benin City: Implications for Health Systems Strenghthening. 2014;26(1):107–15.