



## Evaluation of Communicable Diseases Control Surveillance System Quality at Primary Health Care Centers in Kirkuk Governorate

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### Abstract

**Objective:** To evaluate the communicable diseases control surveillance system structure, process, and outcome and its quality throughout indicate level of usefulness of surveillance system characteristics of completeness, timeliness, usefulness, sensitivity, positive predictive value (PPV), specificity, representativeness, simplicity, flexibility, acceptability, and reliability. **Methodology:** descriptive evaluation study is conducted on primary health care centers in Kirkuk Governorate from October 14<sup>th</sup> 2017 to May 1<sup>st</sup> 2018. A probability sample of (30) unit which is selected from communicable disease of surveillance system units. Data were collected throughout the utilization of the adopted questionnaire and interview technique. Questionnaire has been selected for primary health care centers consists of (80) items. **Results:** The study results indicate that communicable disease surveillance system structure is adequate in primary health care centers and primary health care sectors. While, the system experienced inadequate surveillance system process in primary health care centers and primary health care sectors. **Recommendations:** The study recommends that further research studies can be conducted on large-scale sample size and local, as well as national levels studies can be steered. Sufficient and efficient staff can be appointed to take the accountability for employing the communicable disease surveillance system in order to achieve maximum benefits from the system.

**Keywords:** *Evaluation, Communicable Diseases Control Surveillance System, Primary Health Care Centers.*

### Introduction

Surveillance System is defined in many methods with a few differences, however, all definitions incorporate the main components of the surveillance system, and this components incorporate continuing collection of data, analysis to convert this data into statistics to be useful and dependent in public health action, interpretation of this analysis to create information and that information disseminated to the individuals who can take appropriate action.

The surveillance information help to detect and control outbreaks source, prevent more infection, morbidity, and mortality [1]. Surveillance System has three main elements and it include surveillance system structure, process and outcomes. Structure includes of objectives, resources and manpower.

Process may include many parts interpretation, presentation, communication of the outcome to decision makers that help to determine health events. The final outcome of the surveillance system is transport the information to the decision makers to determine whether the surveillance system adequacy or not [2].

The main causes of death and illness are Communicable diseases and it kills more individuals universally than any other single cause mostly, where there is, people dislocation, failing health care facilities, absence of programs to control disease, poor access to health care in city and/or rural areas, malnutrition, interrupted supplies and logistics, poor coordination among agencies.

Therefore, the surveillance system of infectious diseases plays an important role in the control and prevention of diseases, so as to decrease the morbidity and mortality and promote health and it is as a process can be evaluate prevention and control programs, detect future resources requirements for prevention, and suggest issues for future research [3].

A communicable disease surveillance assist in recognizing groups and populations whose at risk, in applying descriptive epidemiology and systematic sampling and in developing and evaluating laboratory testing. the system also help as ; early cautioning of conceivable dangers to public health and program monitoring functions which might be disease particular or multi-illness in nature [4].

The surveillance system evaluation helps to create the connection between individual who apply the program and who make judgment about population health, this connection is very important to increase an opportunity to take a regular look at the objectives, design, management and process qualities of the surveillance system and it is success in helping the wants of public health action. An evaluation of surveillance system's attributes against its necessities can happen at many different points in the progress, application and review of health surveillance [5].

The evaluation of Communicable Diseases Surveillance System is important to confirm that the infectious diseases are being checked in community professionally and effectually. Because of evaluation importance it must be done from time to time. The surveillance system must emphasis on how the system should work to achieve goals that planned to meet its. The structure, processes, and outcome of surveillance system is the focus of evaluation process when it done [6].

## Material and Methods

A descriptive study using an evaluation approach is conducted to evaluation of the Communicable Diseases Control Surveillance

System quality at Primary Health Care Centers in Kirkuk Governorate from October 14<sup>th</sup> 2017 to May 1<sup>st</sup> 2018. The sample of the study consist of (30) Primary Health Care Centers, which is selected throughout the use of probability sampling approach. The Study Instrument a pre tested interview administered questionnaires are used to elicit and collect information from people who are involved in the study for obtaining perfect information. The adopted questionnaires are depending on CDC guideline for evaluation of public health surveillance system.

These comprised of questionnaires are (80) items for primary health care centers. Data are collected through the utilization of the adopted questionnaire and interview technique as means of data collection and keeping records of all available contacts that facilitate the access to the study sample from the period February 18<sup>th</sup> 2018 to April 1<sup>st</sup> 2018. Interviews are conducted with the focal points personal of communicable diseases control surveillance at Primary Health Care Centers. The data in primary health care centers are gathered from surveillance officers.

Time for each interview varies with respect to duty of each participant. As a result of conducting a pilot study, reliability was determined through the implicated the cronbach alpha technique on A Simple random sample of (10) primary health care centers are selected for pilot study, which are involved in the surveillance system, employs at this centers are interviewed on individual basis for determining the data. Internal consistency is employed for the determination of the instrument reliability Cronbach alpha by computed for such determination. Validity determined through a panel of 13 experts. Data are analyzed by using of descriptive data analysis (frequency, percentage, total score, range and mean of scores), and Inferential statistical data analysis (principal component factor analysis).

## Results

**Table 1: Distribution of the Sample According to Primary Health Care Sectors**

	F	%
Hawija (2)	2	33.2
Daquq	1	16.7
Dibs	1	16.7
Kirkuk (1)	1	16.7
Kirkuk (2)	1	16.7
Total	6	100.0

**Table 2: Distribution of the Sample According to Primary Health care sectors and primary health Care Centers**

	F	%
Hawija (1)	4	13.4
Hawija (2)	3	10
Daquq	6	20
Dibs	7	23.4
Kirkuk (1)	5	16.6
Kirkuk (2)	5	16.6
Total	30	100.0

F: Frequency, %: Percentage

**Table 3: Mean of Scores for items of Surveillance Manual at Primary Health Care Centers**

List	Surveillance Manual	Scale	F (%)	Mean	Eva.
1	Presence of Surveillance Manual?	Yes	25 (83.3)	0.83	High
		No	5 (16.7)		
		Total	30 (100)		
2	Surveillance System manual up-to-date	Yes	23 (76.6)	0.78	High
		No	7 (23.4)		
		Total	30 (100)		
3	Surveillance System easy to use	Yes	23 (76.6)	0.75	High
		No	7 (23.4)		
		Total	30 (100)		
4	Causes of uneasiness to use of system	Difficult application	4(13.3)	--	--
		None	26(86.7)		
		Total	30 (100)		

F: Frequency, % Percentage, Eva: Evaluation, High (Mean=0.68-1)

Such evaluation indicates that all items have high mean of scores on all items of surveillance manual at primary health care centers.

**Table 4: Mean of Scores on Items of Work Resources at Primary Health Care Centers**

List	Resources	Scale	F (%)	Mean	Eva.
1	Is the Communicable Diseases record available at the primary health care center?	Yes	26 (86.7)	0.89	High
		No	4 (13.3)		
		Total	30 (100)		
2	Do the records serve as the main data base from which the requested information is retrieved and consulted when needed?	Yes	20 (66.7)	0.64	Moderate
		No	10 (33.3)		
		Total	30 (100)		
3	Is there an immediate notification form in the primary health care center?	Yes	29 (96.7)	0.97	High
		NO	1 (3.3)		
		Total	30 (100)		
4	Is there a weekly report form at the primary health care center?	Yes	30 (100)	1.00	High
		NO	0 (0)		
		Total	30(100)		
5	Is there a monthly report form at the primary health care center?	Yes	26 (86.7)	0.86	High
		NO	4 (13.3)		
		Total	30 (100)		
6	Is there a case investigation form at the primary health care center?	Yes	20 (66.7)	0.64	Moderate
		NO	10 (33.3)		
		Total	30 (100)		
7	Is there a shortage of staff working in the surveillance system?	Yes	21 (70)	0.69	High
		No	9 (30)		
		Total	30 (100)		
8	Is there a special room for epidemiological surveillance workers?	Yes	7 (23.4)	0.25	Low
		No	23 (76.6)		
		Total	30 (100)		

F: Frequency, %: Percent

Such assessment reveals that most of the manpower is males; surveillance officers are doctors; surveillance managers are medical assistants; and surveillance supervisors are medical assistants too. Most of them have (6-10) years of employment.

**Table 5: Assessment of Work Materials at Primary Health Care Centers**

Recourses	Available in PHCCs				Use in surveillance			
	Yes		No		Yes		No	
	F	%	F	%	F	%	F	%
Electric power	30	100	0	0	23	76.6	7	23.4
Computer	20	66.7	10	33.3	10	33.3	20	66.7
Printer	15	50	15	50	10	33.3	20	66.7
Internet	0	0	30	100	0	0	30	100
Telephone	2	6.6	28	93.4	2	6.6	28	93.4
Calculator	26	86.7	4	13.3	26	86.7	4	13.3
Poster	15	50	15	50	15	50	15	50

Transport tool	1	3.3	29	96.7	1	3.3	29	96.7
Office supplies (papers, pen)	26	86.7	4	13.3	26	86.7	4	13.3

F: Frequency, % Percentage

Such assessment reveals that some of the work materials are available except that of internet, telephone, Transport tool, printer and poster which are unavailable.

**Table 6: Mean of Scores on Items of case Detection and Registration at Primary Health Care Centers**

List	Detection and Registration	Scale	F (%)	Mean	Eva.
1	Is there a dedicated staff to prepare CDSS report?	Yes	15 (50)	0.50	Moderate
		No	15 (50)		
		Total	30 (100)		
2	Type of staff	Physician	4 (13.3)	2.25	Moderate*
		Nurse	16 (53.4)		
		Medical Assistant	10 (33.3)		
		Total	30 (100)		
3	Is the registration process done correctly?	Yes	21 (70)	0.69	High
		No	9 (30)		
		Total	30 (100)		
4	Are Records complete?	Yes	21 (70)	0.69	High
		No	9 (30)		
		Total	30 (100)		
5	Was the unit visited by the surveillance Committee during 2017?	Yes	20 (66.7)	0.64	Moderate
		No	10 (33.3)		
		Total	30 (100)		
6	Is the surveillance unit performing active search for CD case in community?	Yes	7 (23.4)	0.25	Low
		No	23 (76.6)		
		Total	30 (100)		

F: Frequency, % Percentage, Eva. Evaluation, Low (Mean=0-0.33), Moderate (Mean=0.34-0.67), High (Mean=0.68-1), \* Low (Mean=1-0.66), Moderate (Mean=1.67-2.33), High (Mean=2.34 -3)

Results out of this table indicate that mean of scores on such items indicate that items 3 and 4 are high; items 1, 2, 5 and 6 are moderate and low on item 7 of case detection and registration.

**Table 7: Mean of Scores on Items of Report Preparation and Sending at Primary Health Care Centers**

List	Report preparation and sending	Scale	F (%)	Mean	Eva.
1	Are there Communicable Diseases forms to prepare reporting?	Yes	29 (96.7)	0.97	High
		No	1 (3.3)		
		Total	30 (100)		
2	Does the Epidemiological Unit prepare a weekly summary report on the cases recorded that week and as indicated in the weekly report form?	Yes	29 (96.7)	0.97	High
		No	1 (3.3)		
		Total	30 (100)		
3	Does the Epidemiological Unit prepare a monthly summary report on the cases recorded that month and as indicated in the monthly report form?	Yes	25 (83.3)	0.83	High
		No	5 (16.7)		
		Total	30 (100)		
4	Are there problems with epidemiological reporting?	Yes	20 (66.7)	0.64	Moderate
		No	10 (33.3)		
		Total	30 (100)		
5	Problems with epidemiological reporting	Yes	7 (23.4)	0.25	Low
		No	23 (76.6)		
		Total	30 (100)		
6	Delay in receiving reports.	Yes	20 (66.7)	0.64	Moderate
		No	10 (33.3)		
		Total	30 (100)		
7	Lack of resources for reporting	Yes	20 (66.7)	0.64	Moderate
		No	10 (33.3)		
		Total	30 (100)		
8	Staff shortage	Yes	20 (66.7)	0.64	Moderate
		No	10 (33.3)		
		Total	30 (100)		

F: Frequency, % Percentage, Eva. Evaluation, Low (Mean=0-0.33), Moderate (Mean=0.34-0.67), High (Mean=0.68-1)

Results out of this table depict that the mean of scores is high on items 1, 2 and 3; moderate on items 4, 6, 7, and 8; and low on item 5.

**Table 8: Mean of Scores on Items of Epidemic Preparedness at Primary Health Care Centers**

List	Epidemic Preparedness	Scale	F (%)	Mean	Eva.
1	Is there a written list of communicable diseases?	Yes	25 (83.3)	0.83	High
		NO	5 (16.7)		
		Total	30 (100)		
2	Does the unit have knowledge about communicable diseases risk?	Yes	20 (66.7)	0.64	Moderate
		NO	10 (33.3)		
		Total	30 (100)		
3	Does the unit report communicable diseases immediately?	Yes	25 (83.3)	0.92	High
		NO	5 (16.7)		
		Total	30 (100)		
4	Does the surveillance Unit work with the Zero Transient Disease Reporting System?	Yes	26 (86.7)	0.89	High
		NO	4 (13.3)		
		Total	30 (100)		

F: Frequency, % Percentage, Eva. Evaluation, Moderate (Mean=0.34-0.67), High (Mean=0.68-1)

Results out of this table present that the scores is high on items 1, 3 and 4; and mean of moderate on item 2.

**Table 9: Mean of Scores on Items of Feedback at Primary Health Care Centers**

List	Feedback	Scale	F (%)	Mean	Eva.
1	Does the sector send feedback to the Primary Health Care center?	Yes	7 (23.4)	0.25	Low
		NO	23 (76.6)		
		Total	30 (100)		
2	Is feedback useful in improving performance, supervision, and evaluation?	Yes	23 (76.6)	0.78	High
		NO	7 (23.4)		
		Total	30 (100)		
3	Does the health unit save feedback reports?	Yes	7 (23.4)	0.25	Low
		NO	23 (76.6)		
		Total	30 (100)		

F: Frequency, % Percentage, Eva. Evaluation, Low (Mean=0-0.33), High (Mean=0.68-1)

This table indicates that the mean of scores is high on item 2 and low on items 1 and 3.

**Table 10: Mean of Scores on Items of Supervision and Follow up at Primary Health Care Centers**

List	Supervision and Follow up	Scale	F (%)	Mean	Eva.
1	Are there periodic supervisory visits from senior levels?	Yes	26 (86.7)	0.89	High
		NO	4 (13.3)		
		Total	30 (100)		
2	Does the supervisor review the surveillance system and reporting system?	Yes	23 (76.6)	0.78	High
		NO	7 (23.4)		
		Total	30 (100)		

F: Frequency, % Percentage, Eva. Evaluation, High (Mean=0.68-1)

This table depicts that the mean of scores is high on all items.

**Table 11: Mean of Scores on Items of the Surveillance System Usefulness at Primary Health Care Centers**

List	System's Usefulness	Scale	F (%)	Mean	Eva.
1	Are communicable diseases detected in a timely manner?	Yes	26 (86.7)	0.86	High
		NO	4 (13.3)		
		Total	30 (100)		
2	Can the data generated by the system be used as a signal for the population's health in the region?	Yes	23 (76.6)	0.81	High
		NO	7 (23.4)		
		Total	30 (100)		
3	Can data from the system be used in scientific research?	Yes	20 (66.7)	0.64	Moderate
		NO	10 (33.3)		
		Total	30 (100)		
4	When outbreaks occur, does the surveillance system provide an appropriate and effective response?	Yes	26 (86.7)	0.86	High
		NO	10 (33.3)		
		Total	30 (100)		
5	Does surveillance data rely as a primary warning of communicable diseases?	Yes	23 (76.6)	0.78	High
		NO	7 (23.4)		
		Total	30 (100)		
6	Is surveillance data used to identify vulnerable groups?	Yes	7 (23.4)	0.25	Low
		NO	23 (76.6)		
		Total	30 (100)		

F: Frequency, % Percentage, Eva. Evaluation, Low (Mean=0-0.33), Moderate (Mean=0.34-0.67), High (Mean=0.68-1)

This table indicates that the mean of scores is high on items 1, 2, 4 and 5; moderate on item 3 and low on item 6.

**Table 12: Mean of Scores on Items of System Characteristics Related to Completeness of Report at Primary Health Care Centers**

	System Characteristics	Scale	F (%)	Mean	Eva.
Completeness of report	Is there a completion in the percentage of completed surveillance reports submitted weekly?	Yes	29 (96.7)	0.97	High
		NO	1 (3.3)		
		Total	30 (100)		
Completeness of report	Is there a completion in the percentage of completed surveillance reports submitted monthly?	Yes	21 (70)	0.69	High
		NO	9 (30)		
		Total	30 (100)		
Completion of case reporting	Is there a match between the number of cases reported and the actual number of cases?	Yes	21 (70)	0.69	High
		NO	9 (30)		
		Total	30 (100)		
Completion of case reporting	Can be obtained by comparing the number of cases reported to the highest level with the number of cases recorded in the patient's record during the same time period.	Yes	21 (70)	0.69	High
		NO	9 (30)		
		Total	30 (100)		

F: Frequency, % Percentage, Eva. Evaluation, Low (Mean=0-0.33), Moderate (Mean=0.34-0.67), High (Mean=0.68-1)\* Low (Mean=1-2), Moderate (Mean=2.1-3), High (Mean=3.1-4)

Results out of this table reveal that the mean of scores is high on all items of Completeness of report; high and moderate on items of completion of case reporting;

**Table 13: Mean of Scores on Items of System Characteristics Related to Flexibility of System at Primary Health Care Centers**

List	System flexibility	Scale	F (%)	Mean	Eva.
1	Is the system able to adapt to change such as removing or inserting additional diseases?	Yes	29 (96.7)	0.97	High
		No	1 (3.3)		
		Total	30 (100)		
2	Does the system have the ability to respond to communicable diseases?	Yes	25 (83.3)	0.83	High
		No	5 (16.7)		
		Total	30 (100)		
3	Is the system flexible enough to shift from providing needs to detect outbreaks to response of outbreaks and control?	Yes	25 (83.3)	0.81	High
		No	5 (16.7)		
		Total	30 (100)		

F: Frequency, % Percentage, Eva. Evaluation, High (Mean=0.68-1)

Results out of this table reveal that the mean of scores is high on all items.

**Table 14: Mean of Scores on Items of System Characteristics Related to Sensitivity of the Surveillance System at Primary Health Care Centers**

List	Sensitivity of the System	Scale	F (%)	Mean	Eva.
1	Is the proportion of actual cases in the population that is detected through the system real?	Yes	23 (76.7)	0.78	H.S
		No	7(23.3)		
		Total	30 (100)		
2	Number of registered cases of communicable diseases	< 100	10 (33.3)	--	--
		100 – 500	17 (56.8)		
		600 – 1000	1 (3.3)		
		1000 <	2 (6.6)		
		Total	30 (100)		

F: Frequency, % Percentage, Eva. Evaluation, High (Mean=0.68-1)

This table indicates that the mean of scores is high on item 1.

**Table 15: Mean of Scores on Items of System Characteristics Related to Positive Predictive Values of the Surveillance System at Primary Health Care Centers**

List	Predictive	Scale	F (%)	Mean	Eva.
1	Are the people whose surveillance system indicates the presence of the disease in them already infected?	Yes	21 (70)	0.69	High
		No	9 (30)		
		Total	30 (100)		
2	Confirmed cases of transitional diseases	< 100	17 (56.8)	--	--
		100 – 500	10 (33.3)		
		600 – 1000	2 (6.6)		
		1000 <	1 (3.3)		
		Total	30 (100)		

F: Frequency, % Percentage, Eva. Evaluation, High (Mean=0.68-1)

This table presents that the mean of scores is high on item 1.

**Table 16: Assessment of System Characteristics related to Representation of System at Primary Health Care Centers**

List	Representation	Scale	F (%)	Mean	Eva.
1	Can the system determine the geographic distribution of areas where outbreaks occur?	Yes	25 (83.3)	0.83	High
		No	5 (16.7)		
		Total	30 (100)		
2	Can the system determine the rate of communicable diseases in Community?	Yes	23 (76.6)	0.78	High
		No	7 (23.4)		
		Total	30 (100)		

F: Frequency, % Percentage, Eva. Evaluation, High (Mean=0.68-1)

This table reveals that the mean of scores is high on all items.

**Table 17: Mean of Scores on Items of System Characteristics Related to Stability of the Surveillance System at Primary Health Care Centers**

List	Stability	Scale	F (%)	Mean	Eva.
1	Is the system able to collect data without delay?	Yes	26 (86.7)	0.89	High
		No	4 (13.3)		
		Total	30 (100)		
2	Is the system capable of managing data without delay?	Yes	23 (76.6)	0.78	High
		No	7 (23.4)		
		Total	30 (100)		
3	Is the system capable of working at all times?	Yes	23 (76.6)	0.78	High
		No	7 (23.4)		
		Total	30 (100)		

F: Frequency, % Percentage, Eva. Evaluation, High (Mean=0.68-1)

This table indicates that the mean of scores is high on all items.

**Table 18: Principal Component Factor Analysis of the Surveillance System**

Component	Initial Eigenvalues			Extraction Sums of Squared Loading		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
Structure	2.622	65.546	65.546	2.622	65.546	65.546
Process	1.017	25.413	90.959	1.017	25.413	90.959
Outcome	0.362	9.041	100.000			
Quality	2.040	5.10	100.000			

### Extraction Method: Principal Component Analysis

Such analysis depicts that the surveillance system quality has been affected by the structure as first factor with initial Eigen value of (2-622) and the process as second factor with initial Eigen value of (1.017).

### Discussion

In the present study, six primary health care sectors are involved in the investigation (Table 1). These findings present the actual distribution of the Primary Health Care Centers as being selected from the Primary Health Care Sectors in Kirkuk Health Directorate (Table 2). Relative to the overall evaluation of the structure of the Primary Health Care centers, The study findings adequate structure, and it is well-noted in the high mean of scores of items for surveillance manual at Primary Health Care centers of presence of surveillance manual, surveillance system manual is up-to-date, surveillance system is easy to use and no

causes of uneasiness to use of system (Table 3). Concerning the work resources at the Primary Health Care centers, the study findings indicate that the mean of scores is high on items of the communicable diseases records are available at the primary health care centers; there is an immediate notification form in the primary health care centers; there is a weekly report form at the primary health care centers; there is a monthly report form at the primary health care centers; and there is a shortage of staff working in the surveillance system.

Few items have moderate mean of scores which include that of the records have served as the main data base from which the requested information is retrieved and consulted when needed and there is a case investigation form at the primary health care centers. Only the item of there is a special room for epidemiological surveillance workers which is low (Table 4). Regarding the work materials, assessment of such materials reveals that some of the work materials are

available except that of internet, telephone, transport tool, printer and poster which are unavailable (Table 5). In the qualitative study of two districts of Upper East Region that has been conducted among (18) key informants. The respondents were from 9 health facilities considered representative of the health system (public, private and mission).

A semi-structured questionnaire with focus on core and support functions (e.g. resources) of the IDSR system is administered to the respondents. The responses are recorded according to specific themes. The majority (7/9) of health facilities had designated disease surveillance officers. Particular informants are of the opinion that the support and core functions of the IDSR system have enhanced additional time.

In particular, to make reporting easier it was stated to have made IDSR report by using mobile phone. Yet, none of the health facilities had copies of the IDSR Technical Strategies for standard case definitions, laboratories are ill-prepared [7]. In United Republic of Tanzania A descriptive studies conducted to assess the surveillance system structure and support for five infectious diseases.

The assessment of the system done through analyzing the core activities of surveillance and response and support functions (resources). Collection of data occurred by using questionnaires that included both local observations and interviews, district, and health facility levels in three of the (20) regions in the United Republic of Tanzania.

An HMIS is found at (26 of 32) health facilities (81%) surveyed and at all (14) regional and district medical offices. The four other surveillance systems are found at (<20%) of health facilities and (<75%) of medical offices. Nineteen (73%) health facilities with HMIS have adequate supplies of forms. HMIS could serve as the backbone for IDSR in the United Republic of Tanzania [8].

The surveillance system process at the primary health care centers indicates that the vast majority of these centers have experienced inadequate process. Such inadequate process is manifested in the moderate mean of scores of items of case detection and registration at the primary health care centers of there is no enough

dedicated staff to prepare CDSS report; there is shortage of staff; and the unit is not regularly visited by the surveillance committee during 2017; and the low mean of scores on item of that the surveillance unit is not performing active search for CD case in the community (Table 6).

Relative to report preparation and sending, the primary health care centers have experienced adequate process with regard to items of that there are communicable diseases forms to prepare reporting; the epidemiological unit prepares a weekly summary report on the cases recorded that week and as indicated in the weekly report form; and the epidemiological unit prepares a weekly summary report on the cases recorded that week and as indicated in the monthly report form; and they have experienced problems with such aspect of the surveillance system process which is obvious through the moderate mean of scores on items of that there are problems with epidemiological reporting which is accounted for one-third of them; delay in receiving reports which is accounted for half of them; lack of resources for reporting (one-third) of them; and lack of knowledge of the reporting method (one-third) of them, and low mean of scores on items of that problems with epidemiological reporting which is accounted for (83.3%) of them.

All the primary health care centers are using the manual post as method of sending reports (Table 7). With respect to epidemic preparedness, the study reveals that the mean of scores is moderate on item of that two-thirds of the units in the primary health care centers have no knowledge about communicable diseases risk. The mean of scores is high on items of there is a written list of communicable diseases; the unit reports communicable diseases immediately and the surveillance unit works with the Zero Transient Disease Reporting System (Table 8). Regarding to the feedback, the findings indicate that the mean of scores is low on items of that more than two-thirds of the centers do not receive feedback from the primary health care sectors and the health units do not save feedback reports (Table 9).

Relative to supervision and follow up at the primary health care centers, the findings depict that the mean of scores is high on all items of that there are periodic supervisory visits from senior levels and the supervisor



does review the surveillance system and reporting system at the majority of these centers (Table 10). A qualitative study has been conducted among (18) key informants in two districts of Upper East Region in Ghana. The respondents are from (9) health facilities considered representative of the health system (public, private and mission). A semi-structured questionnaire with focus on core and support functions (i.e., case detection, confirmation, reporting, analysis, investigation, response, training and supervision) of the IDSR system is administered to the respondents.

The responses are recorded according to specific themes. Some informants are of the opinion that the support functions of the IDSR system had improved over time. Supervision was largely absent and feedback occurred rather irregular. Informants also have reported that the community perceived diagnostic testing at the health facilities to be unreliable (i.e., tuberculosis, Human Immunodeficiency Virus). Although the IDSR system was linked with some benefits to the system, such as reporting and accessibility of SS reports, there stay major challenges to the quality and functioning of IDSR in Ghana. DS needs to be much support in West Africa to cope with outbreaks, such as the recent Ebola epidemic [7].

In United Republic of Tanzania A descriptive studies conducted to at assess the surveillance system structure and support for five infectious diseases. The assessment of the system done through analyzing the core activities of surveillance and response and support functions (resources). Collection of data occurred by using questionnaires that included both local observations and interviews, district, and health facility levels in three of the (20) regions in the United Republic of Tanzania. An HMIS is found at (26 of 32) health facilities (81%) surveyed and at all (14) regional and district medical offices. The four other surveillance systems are found at (<20%) of health facilities and (<75%) of medical offices. Standardized case definitions are used for only (3 of 21) infectious diseases. Nine (35%) reported on time; and 11 (42%) received supervision or feedback.

Four (29%) medical offices with HMIS have population denominators to use for data analyses; 12 (86%) are involved in outbreak

investigations; and 11 (79%) had conducted community prevention activities. While HMIS could serve as the backbone for IDSR in the United Republic of Tanzania, this will require supervision, standardized case definitions, and enhancements in the reporting quality, analysis, and feedback [8]. With respect to the surveillance system's usefulness, the study depicts that the mean of scores is moderate on item of that data from the system cannot be used in scientific research for one-third of the centers and surveillance data are not used to identify vulnerable groups on the majority of the centers (Table 11).

Concerning the system characteristics related to completeness of report, the study reveals that the mean of scores is moderate on items of that completion of ease reporting cannot be obtained by comparing the number of cases reported to the highest level with the number of cases recorded in the patient's record during the same time period and there is no matching between minimum expected data requirement and what has been reported as completeness of surveillance data at one-third of the primary health care centers (Table 12).

Regarding the flexibility of the system, the study depicts that the mean of scores is high on all items of such flexibility which are accounted for the majority of primary health care centers. These items include that the system is able to adapt to change, such as removing or inserting additional diseases; the system has the ability to respond to communicable diseases and the system flexible enough to shift from providing needs to detect outbreaks to response of outbreaks and control (Table 13).

Concerning the sensitivity of the system, the study indicates that the mean of scores is high on item of that the proportion of actual cases in the population that is detected through the system is real and it is accounted for the majority of primary health care centers (Table 14). Regarding the surveillance system's positive predictive values, the findings reveal that the mean of scores is high on the item of that the people whose surveillance system indicates the presence of the disease in them is already infected which is accounted for two-thirds of the primary health care centers' positive predictive values (Table 15).

Relative to representation of the system at primary health care centers, the mean of scores is high on all items of such representation of that the system can determine the geographic distribution of areas where outbreaks occur which is accounted for the majority of these centers and that of the system determines the rate of communicable diseases in the community which is accounted for two-thirds of the centers (Table 16).

With respect to the surveillance system's stability at primary health care centers, the findings depict that the mean of scores is high on all items of such stability of that the system is able to collect data without delay, the system is capable of managing data without delay and the system is capable of working at all times which are accounted for the majority of these centers (Table 17). An evaluation of the South Australian infectious syphilis surveillance system is employed. The evaluation has used the Centers for Disease Control and Prevention guidelines to assess ten surveillance system attributes.

The investigation is able to identify that the system, although highly sensitive, had variable data quality and inconsistencies due to the lack of a systematically applied case definition. Improvements in feedback to external stakeholders were recommended [9].

Throughout more advanced statistical data analysis, the study provides empirical evidence that the surveillance system quality has been affected by the structure as first factor with initial Eigen value of (2.622) and the process as second factor with initial Eigen value of (1.017) (Table 18). Report of the UNFIP Final Project Evaluation in Burkina Faso, Ghana, Guinea, Mali and southern Sudan has indicated that important gaps in linkages between local health units and the communities they served, including community-based surveillance and follow-up.

Little commitment to surveillance and response, as evidenced by a lack of clear, explicit, priorities for disease surveillance and control; lack of a uniform understanding among reporting sites as to what constituted,

for surveillance purposes, a case of a reportable disease; no standard case definitions, delayed and incomplete reporting of cases, starting at the health facility level, and including private and nongovernmental health-care providers; and incomplete confirmation of the reported diagnosis, both by timely investigator follow-up and by laboratory testing of clinical specimens. Little analysis of the surveillance data at the local level to identify patterns and trends and to determine whether the current incidence of a priority disease had exceeded its epidemic threshold and therefore warranted a response [10].

## Conclusions

Empirical evidence is provided through that the surveillance system quality has been affected by the structure as first domain and the process as second domain. Furthermore, the process as domain of the quality of the surveillance system has significant relation to its quality more than others.

Adequate structure at the Primary Health Care Centers is well-noted in the high mean of scores of items for surveillance manual at Primary Health Care Sectors of presence of surveillance manual, surveillance system manual is up-to-date, surveillance system is easy to use and no causes of uneasiness to use of system.

## Recommendations

- The Ministry of Health and Environment Directorate of Public Health can consider and take the evaluation of the surveillance system for communicable diseases control seriously and on regular base to maintain its benefits relative to the structure, process and outcome.
- The Directorate of Public Health and Kirkuk Health Directorate may initiate serious actions to overcome insufficiencies relative to the surveillance system quality's essential domains of structure, process and outcome.

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