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Evaluation of Communicable Disease Surveillance System at AL-Najaf Governorate

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ABSTRACT

To evaluate the communicable disease control surveillance system to target disease of expanded program on immunization at primary Health Care Center, Health Care Sectors, and Health Directorate and to indicate the level of usefulness of surveillance system characteristics of simplicity, flexibility, acceptability, stability. descriptive evaluation study is conducted on primary health care centers, primary health sectors, health directorates in AL- Najafe Governorate from 25 March 2015 to 30 January 2016. A probability multistage sample of (22) subjects which is selected from communicable disease for target disease of surveillance system units. Data were collected throughout the utilization of the developed questionnaire and interview technique. Questionnaire has been divided into three main parts consist, form(A) especially for health directorate, form (B) for health sectors, and form (C) for primary health care centers each form contains the basic components, structure; consists of manpower and materials and resources of surveillance system, process; consists of system components, and, feedback, outcome; consists of attributes (217) items.. The study results indicate that the study results regarding to male that there is majority of them are males. In addition, the study results indicate that the health officers have less than 5 years of experience in PHCs, and health sectors; while they have more than 8 years of experience at health directorate, shortage distribution of staff from physician and others specials as being compared with standard staff WHO (2001). Most of study sample which find lack in materials and resources at primary health care centers and health care sector except health directorate. recommend reveal Ministry of Higher Education and Scientific Research Further studies should be conducted to involve more governments in Iraq about the effectiveness of the surveillance system and to determine the factors that cause it is in affectivity. Apply the surveillance system as a unit in the faculty of nursing curriculums to increase the community health nurses' experience in area of surveillance system. Also, regarding Ministry of Health of recommendation Used of community health nurses as a managers to manage the surveillance system to benefit from their experience in surveillance system and all the community and community health nursing duties.

Keywords: Surveillance system, communicable disease

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INTRODUCTION

Surveillance has been around a long time. And it has historically focused on close observation of individuals exposed to a communicable disease such that early manifestation of the disease could be detected and prompt isolation and control measures imposed. This form of surveillance is referred to as medical surveillance. A more recent form of surveillance involves continuous monitoring and follow- up of health-related status or events within a population[1.]

The surveillance system in terms of it structure, process and output. Structure consists of objectives, resources and organizational procedures i.e. the input to the system. The epidemiological surveillance process may be divided into a) observation, communication and confirmation of the event/sand b) interpretation, presentation and communication of the findings to decision-makers. The final output of the surveillance system often takes the shape of a communication or report to the decision-makers. The use to which that report will be put (its impact) is the ultimate test of whether the surveillance system works[2].

Communicable disease surveillance is the continuous monitoring of the frequency and the distribution of disease and deaths due to infections that can be transmitted from human to human or from animals, food, water or the environment to humans, and the monitoring of risk factors for those infections. This definition means information for real action. Surveillance systems are networks maintaining and monitoring their operation at different levels and providing information for disease prevention and control[3].

Public health surveillance is a tool to estimate the health status and behavior of the populations served by ministries of health, ministries of finance, and donors. Because surveillance can directly measure what is going on in the population, it is useful both for measuring the need for interventions and for directly measuring the effects of interventions. The purpose of surveillance is to empower decision makers to lead and manage more effectively by providing timely, useful evidence [4]

Public health surveillance activities are generally authorized by legislators and carried out by public health officials. Public health surveillance systems have been developed to address a range of public health needs. In addition, public health information systems have been defined to include a variety of data sources essential to public health action and are often used for surveillance to prevent the outbreak. These systems vary from a simple system collecting data from a single source, to electronic systems that receive data from many sources in multiple formats, to complex surveys. Because surveillance data describe a current health situation or changes in the health

situation over time, these data can be used to generate hypotheses about the causes and predictors of disease in future and detected the dangerous or outbreak[5.]

Surveillance of infectious diseases is recognized as the cornerstone of public health decision-making and practice. Surveillance data are crucial for monitoring the health status of the population, detecting diseases and triggering action to prevent further illness, and to contain public health problems. The need to strengthen disease surveillance and response system is recognized globally. A well functioning disease surveillance system provides information for planning, implementation, monitoring and evaluation of public health intervention programmes. Early warning of epidemics is essential for effective and rapid control this consider core function for surveillance system, while information on endemic communicable diseases is essential for monitoring the disease. So, surveillance of communicable diseases is a national function[6].

The ease of implementation and degree of success of an evaluation of surveillance system is closely linked to the maturity of results-based management practices. Results -Based Management and Accountability Frameworks (RMAFs) help managers ensure to enhance the safety and quality of patient care provided, to reduce morbidity and mortality, and to improve health regardless of the practice setting through following points [7].

MATERIALS AND METHOD

A descriptive study using the evaluation process is conducted on primary health care centers, health sectors, health directorate in AL-Najaf governorate. The study is carried out to evaluate the communicable disease surveillance system of target disease expanded program on immunization from the period from 25 March 2015 to 30 January. The evaluation process is employed at three levels, regional (Health Directorate), intermediate i.e. Districts (Health Sectors), and local level (Primary Health Care Centers (PHCCs) in AL. Najaf Governorate. A multistage sample of (3) Health Sectors, and (18) Primary Health Care Centers, which is selected throughout the use of probability sampling approach. The sample of study is divided into two stages which include (Health Sectors, Primary Health Centers). In addition, to Health Directorate (Public Health Department), fourth more responsible about surveillance system unit. 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 developed questionnaires are depending on CDC guideline for evaluation of public health surveillance system with some modification to be adopted with our situation. These comprised of questionnaires are (278) items.

Each questionnaire deals with the basic components of the surveillance system structure, process, and outcome

Questionnaire (A) for Health Directorate, Questionnaire (B) for Health Care Sectors, and Questionnaire (C) for Primary Health Care Centers.

Data are collected through the utilization of the developed 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 from 25 March 2015 to 30 January 2016. Interviews are conducted with Focal points personnel of communicable disease EPI surveillance. Time for each interview varies with respect to the duty of each interviewer, after a permission was arranged from the Ministry of Planning Central Statistical System and Al-Najaf Health Directorate, the Center of Training and Staff Development. In addition to other consents are also obtained from al. Najaf Health Directorate. As a result of conducting a pilot study, reliability was determined through the implicated the cronbach alpha technique on A Simple random sample of (2) primary health care centers and one health sectors 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.

RESULTS AND DISCUSSION

Table 1: Distribution of the Study Subject According to Manpower and Structure Staff that Employs to Surveillance System in Health Directorates, Health Sectors and Primary Health Centers

Structure(Manpower)	Rating	Primary Health Care Centers		Health Sectors		Health Directorate	
		F	%	F.	%	F.	%
Types PHC	Main	14	77.8	0	0	0	0
	optimal	4	22.2	0	0	0	0
Gender of the surveillance system officers	male	18	100	3	100	1	100
Years in services for officers	5 years and Less than	9	50.0	1	66.6	0	0
	6-7 years	5	27.0	1	33.3	0	0
	8 years and More than	4	23.0	0	0	1	100
surveillance system of officers specialist	Medical assistance	12	66.7	3	100	1	100
	Skill nurse	4	22.2	0	0	0	0
	Laboratories or pharmacy assistance	2	11.1	0	0	0	0
Gender of surveillance system manager	Male	18	100	2	66.7	1	100
	Female	0	0	1	33.3	0	0
	<= 4 years	7	38.9	2	66.6	0	0
	5 - 6 years	2	11.1	1	33.3	0	0
	7 – 8 years	6	33.3	0	0	0	0
	9 years and More than	3	16.7	0	0	1	100
surveillance system of Managers Specialists	Medical assistance	12	66.7	2	66.7	0	0
	Skill nurse	4	22.2	1	33.3	1	100
	Laboratories or pharmacy assistance	2	11.1	0	0	0	0
Gender of surveillance system Supervision	Male	16	88.9	2	66.7	1	100
	Female	2	11.1	1	33.3	0	0
Years in Services for surveillance system supervision	Less than 2 years and equal 2 y	5	27.8	2	66.6	0	0
	3 – 4 years	2	11.1	1	33.4	0	0
	5 – 6 years	2	11.1	0	0	0	0
	7 – 8 years	6	33.3	0	0	1	100
	9 years and More than	3	16.7	0	0	0	0
surveillance system of Specialists supervision	Physician	0	0	0	0	1	100
	Medical assistance	12	66.7	2	66.7	0	0
	Skill nurse	4	22.2	1	33.3	0	0
	Laboratories or pharmacy assistance	2	11.1	0	0	0	0

This table shows the results of the study regarding types of primary healthcare centers (77.8%) are main centers. Concerned with gender of officer for primary health care center and health sectors of surveillance system, the study results indicate that the majority of them are males. In addition to services years for officer less than 5 years are (50%) for PHCs, (66.6%) in health sectors and more than 8 years are (100%) at health directorate. Also related to specialist officer of surveillance system at PHCs, health sectors, and health directorate, the study results indicate that the majority of them are medical assistance (66.7%, 100%, and 100%) respectively.

Table 2 Summary of Statistics Frequency and Percent, Overall Process of Surveillance System in Primary Health Care Centers, Health Sectors, and Health Directorate

Main Domain	**Primary Health Care Centers**			**Health Sectors**			**Health Directorate**		
	Evaluation	**F**	**%**	**Evaluation**	**F**	**%**	**Evaluation**	**F**	**%**
Overall Surveillance System Process For PHCs, health sectors, and health directorate	In Adequate (33-41)	12	66.7	Inadequate (37-39)	2	66.7	In adequate (less than 43.5)	0	0
	Adequate (42-50)	6	33.3	Adequate (39.1-41.1)	1	33.3	Adequate More than (43.5)	1	100
	Total	18	100.0	Total	3	100	Total	1	100

F: frequency, %: percentage

This table depicts the results of study which indicate that overall for primary health care centers is inadequate (66.7%). Also the study result indicate regarding to overall of surveillance system process is (66.7%) for inadequate in health sectors. In addition, concerning with overall of surveillance system process for health directorate is adequate (100%).

Table 3: Distribution of the Study Subjects According to Simplicity Attributes for different levels of Surveillance System

Attributes for surveillance system	Rating	Primary Health Care Centers F	%	Evaluate	Health Sectors F	%	Evaluate	Health Directorate F	%	Evaluate
Registration records format) Easy to use form	NO	9	50	Complex Range=(54-81)	1	33.3	Complex Range = 9-13.5	1	100	Simplicity Range =>4.5
for as cases of target disease of EPI an easy	YES	9	50		2	66.7		0	0	
Is there can be classified and diagnosis as cases	NO	10	55.6		2	66.7		0	0	
of target disease of EPI an easy?	YES	8	44.4		1	33.3		1	100	
The system has the ability to additional sources	NO	15	83.3		2	66.7		0	0	
of information, such as cases of reporting the	YES	3	16.7		1	33.3		1	100	
existence of target disease of EPI	Total	18	100		3	100		1	100	

F: frequency, % percentage

This table shows that the simplicity attribute for the surveillance system is complex at the primary health care centers and health sectors with statistical range of (54-81 and 9-13.5) respectively, while at the health directorate the surveillance system is simple at range of (> 4.5).

Table 4: Distribution of the Study Subjects According to flexibility Attributes for different lev els of Surveillance System

Attributes for surveillance system	Rating	Primary Health Care Centers F	%	Evaluation	Health Sectors F	%	Evaluation	Health Directorate F	%	Evaluation
System flexible can be make changes to his	NO	13	72.2	Inflexible Range=36-	2	66.7	Inflexible Range =6-	1	100	Inflexible Range =3-
plan to suit the areas subject to surveillance	YES	5	27.8		1	33.3		0	0	
The system has the ability to additional sources	NO	13	72.2		2	66.7		1	100	
of information, such as cases of reporting the	YES	5	27.8		1	33.3		0	0	
existence of target disease of EPI	Total	18	100		3	100		1	100	

F: frequency, % percentage

at the primary health care centers, health sectors, and health directorate at range of (>36-45, 6-9, &> 4.5) respectively.

Table 5: Distribution of the Study Subjects According to acceptability Attributes for different levels of Surveillance System

F: frequency, %: percentage table indicates that the acceptability attribute for the surveillance system is unacceptable at the primary health care centers and health care sectors

Attributes for surveillance system	Rating	Primary Health Care Center			Health Sectors			Health Directorate		
		F	%	Evaluation	F	%	Evaluation	F	%	Evaluation
Is there accept data generated by the surveillance system?	NO	6	33.3	Un acceptable Range=54-81	1	33.3	Un acceptable Range=9-13.5	0	0	Acceptable Range = >4.5
	YES	12	66.7		2	66.7		1	100	
Is there use the resulting which obtained from data collected through the surveillance system?	NO	8	44.4		2	66.7		0	0	
	YES	10	55.6		1	33.3		1	100	
The data resulting from the system is acceptance for the employs of the surveillance for target disease of EPI	NO	15	83.3		2	66.7		0	0	
	YES	3	16.7		1	33.3		1	100	
	Total	18	100					1	100	

This primary health care centers and health sectors with statistical range of (54-81 and 9-13.5) respectively, while at the health directorate the surveillance system is acceptable at range of (> 4.5).

Table 6: Distribution of the Study Subjects According to

Attributes for surveillance system	Rating	Primary Health Care Center			Health Sectors			Health Directorate		
		F	%	Evaluate	F	%	Evaluate	F	%	Evaluate
Is there the system is able to collect, manage and provide data from the non-delay about occur health events for target disease of EPI ?	NO	8	44.4	Inactive Range= 36-54	2	66.7	Inactive Range= 6-9	0	0	Active Range = >3
	YES	10	55.6		1	33.3		1	100	
Is there the system is able to operate at all times about target disease of EPI?	NO	11	66.1		2	66.7		0	0	
	YES	7	38.8		1	33.3		1	100	
	Total	18	100		3	100		1	100	

acceptability Attributes for different levels of Surveillance System This table reveals that the stability attribute for the surveillance system is inactive at the primary health care centers and health sectors with statistical range of (36-54 and 6-9) respectively, while at the health directorate the surveillance system is active at range of (> 3).

Discussion

Evaluation of Structure for manpower in surveillance system unit Regarding to the types of primary healthcare centers the study results indicate that more than half are main centers. Concerned with gender of officer for primary health care center and health sectors of surveillance system, the study results indicate that the majority of them are males. In addition, the study results indicate that the health officers have less than 5 years of experience in PHCs, and health sectors; while they have more than 8 years of experience at health directorate (Table 4). These results have emerged of the ministerial policy supervised the number and type of the established centers. Also in regarding to the officers gender and years of experience, these results have emerged too of the majority of the medical assistance and even the other employees in Al-Najaf Health Directorate are male with range of years of experience 5-10 years.

Relative to the specialty of officers of surveillance system at PHCs, health sectors, and health directorate, the study results indicate that the majority of them are medical assistants and this might come because the deficient in numbers of surveillance system specialists, so the unit may employ other employees to work as officers, such as medical assistant (Table 4.). In addition, these results are consistent with[8] which finds that the majority of personnel (Manpower) include surveillance officers, data managers, and supervisors staff are medical assistance, and these results also come because of inadequacy in surveillance system personnel at directorate level, health district, and even primary health centers. Thus, the study reveals that the system is requiring additional data managers and others supervisors to cover the shortage in personnel.

Evaluation is a vital and very critical component of any surveillance and response system, which needs to be implemented systematically in order to strengthen and improve these systems [9].Evaluation should include structure, process and resulting outputs evaluation, outcome evaluation and impact evaluation of the surveillance and response system [10] .

The adequacy of the system is determined through evaluation of its components as being statistically examined for items of the surveillance system process. The analysis indicates that EPI surveillance system process is inadequate at primary health centers and health sectors, while it is adequate in health.

The study findings is agree with that of[11] that indicate the evaluations should assess the extent of the improvements in the quality of surveillance systems for target disease of

EPI and its adequate at health directorate while it inadequate in local health. [12] has also supported these results when he mentions that the surveillance system for communicable disease is inadequate at primary health care centers and health sectors while, at health directorate the surveillance system is adequate. The findings of the present study have existed find there is a shortage in specialist staff and lack of materials and resources at primary health care centers and health sectors. As well as, the process of surveillance system is incomplete except at health directorate.

The simplicity of the system is determined through the evaluation of its components as being statistically examined. The analysis of the collected data indicates that the system is complex at primary health care centers, and health sectors, while it is simple in health directorate (Table 4.3). The results of the data analysis display that the simplicity of the system varies according to nature of the tasks and processes that take place within the system. In addition, these findings have emerged due to that the classification of EPI cases is difficult, and the system is unable to add additional sources of information, such as reporting the existence of target disease of EPI at primary health care centers and health sectors. These results are supported by[13] who find that the target disease of EPI surveillance system is complex at all levels of surveillance system except health directorate and that there is difficulty in classification and diagnosis of target disease of EPI cases.

The analysis of the collected data indicates that the system is inflexible at primary health care centers, health sectors, and health directorate (Table 4.4). The finding of the study present the surveillance system is flexibility which congruent with the findings from the studies by [14] in Pakistan; and [15] in Washington State. These studies indicate the flexibility as a surveillance system attribute for target disease of EPI, and find that the Surveillance System is inflexible at health care centers, health sectors, and health directorate. In addition, there is no up to dating and developing the planning and strategies to control and prevent target disease of EPI outbreak cases at all levels due to the policy that determine the responsibility of surveillance system unit and General Health Directorate in Ministry of Health. The study findings indicate that the system is unacceptable at primary health care centers and health sectors while, is acceptable at health directorate (Table 4.5).

The study findings are consistent with the study of [16]and[17] in Bikita District. These studies indicate that the surveillance system is unacceptable at local health level.

The results indicate variation of stability of the system between different levels. The participant in the study at health directorate make the surveillance system active in terms of the ability to collect, manage and provide data without delay. Contrary to the local and district level, the system is inactive that there is a slowdown in the system work and depict that the system is unable to provide dataset and the system is unable to operate at all times during the year at primary health care centers and health sectors (Table 4. 6).

The finding of the study on this point comes to match that of the study of [14] in Pakistan that indicates that the system is active at health directorate only. Also, [13] in South Africa find that target disease for EPI Surveillance System is inactive at district level and active at health directorate. These findings have emerged because that there is a deficient in materials and resources to complete the duties covered by surveillance system at the primary health care centers and health sectors.

RECOMMENDATIONS

1. Further studies should be conducted to involve more governments in Iraq about the effectiveness of the surveillance system and to determine the factors that cause it is in affectivity.
2. Encourage the academic personnel to be involved and participate in supporting the surveillance system through their studies and efforts in telling about the diseases according to the system of the surveillance system.
3. Provide a research based solutions and a new discovered methods and programs to improve and maintain the surveillance system in Iraq.
4. Reinforcement of the health facilities by specialized health manpower that have high scientific degree to make a periodic and accurate surveillance for the outbreaks and epidemic for communicable diseases.
5. Statisticians may coordinate the monthly surveillance forms and use of electronic statistic program, such as EPIINFO and ICD10 in data analysis at all levels of surveillance system.
6. Provide an appropriate logistic support and budget to serve the surveillance system in Iraq.
7. Employ a mass media to increase the community awareness about the importance of the surveillance system and the importance of the participation in telling about the diseases.

8. A periodic evaluation should be made for the surveillance system structure, process, and outcome to determine the strong and weakest point in surveillance system.

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