Evaluation of School Health Surveillance System characteristics in Baghdad Governorate

Ali H. Musa, B.CS. *
Mohammed F. Kalifa, PhD **

*** Academic nurse, Nursing Department, Ministry of Health**
****Professor, Community Health Nursing Department, College of Nursing, University of Baghdad**

المستخلص

ألهدف : تقييم نظام الرصد للصحة المدرسية مع بيان مستوى الفائدة من هذا نظام بالإضافة الى وصف النظام.
ألمنهجية : عينة احتمالية متعددة المراحل من (٥٤) عينة حيث تم اختيار وحدات الصحة المدرسية من المؤسسات الصحية . وقد تم تقسيم الاستبيان إلى ثلاثة أجزاء رئيسية تتألف ، من استمارة(A) خاصة بدوائر الصحة واستمارة(B) خاصة بالقطاعات الصحية واستمارة(C) خاصة بالمراكز الصحية ويحتوي كل استمارة من الاستمارات الثلاثة المكونات الأساسية لتقويم النظام ، الهيكل ألتنظيمي ، العملية ، والمخرجات ومجموع فقرات الاستبيان كانت (٤٧) فقرة .
ألنتائج : نتائج الدراسة تشير ان النظام متوسط الكفاءة ، بسيط ، متوسط المرونة ، ذات قبولية عالية ، وممثل للفئة الطلابية ، ذات فائدة قليلة ، مع عدم استقرارية النظام.
التوصيات : أوصت الدراسة إلى حوسبة المعلومات إضافة إلى التوثيق اليدوي والأرشيف .وجوب مشاركة الإحصائيين في تنسيق أشكال المراقبة الشهرية .إشراك الممرضة في وحدة الصحة المدرسية في مراكز الرعاية الصحية الأولية .مشاركة جميع المؤسسات الصحية والمراكز التي لها علاقة بالصحة المدرسية في برنامج نظام الرصد.

Abstract

Objectives: Evaluation of school health surveillance system with Indicate the level of usefulness of this system, in addition to Describe the system.

Methodology: A probability multistage sample of (54) subjects which is selected the school health units from the health institutions. 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, process, outcome, total items of questionnaire was (47) items.

Results: The study results indicate that the system is average adequacy, simple, moderately flexible, highly acceptance, representative, low utility and unstable system.

Recommendation: The study recommended computerizing the system data as addition to manual documentation. Statisticians may coordinate the monthly surveillance forms. Involving all health institutions and centers related to school health in the surveillance system program.

Key Word: Evaluation, school health, surveillance system.

Introduction:

Public health surveillance is the ongoing systematic collection, analysis, and interpretation of data, closely integrated with the timely dissemination of these data to those responsible for preventing and controlling disease and injury [1,2,3]. Surveillance has been around a long time.

Surveillance 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 of health-related status or events within a population [4]. Because surveillance systems vary widely in methodology, scope, and objectives, characteristics that are important to one system may be less important to another. Efforts to improve certain attributes--such as the ability of a system to detect a health event (sensitivity)--may detract from other attributes, such as simplicity or timeliness. Thus, the success of an individual surveillance system depends on the proper balance of characteristics**,** and the strength of an evaluation depends on the ability of the evaluator to assess these characteristics with respect to the system's requirements. In an effort to accommodate to these objectives, any approach to evaluation must be flexible. With this in mind, the guidelines that follow describe many measures that can be applied to surveillance systems, with the clear understanding that all measures will not be appropriate for all systems [5].

Methodology:

A descriptive evaluation study is conducted on primary health care centers, primary health sectors,health directorates and general health directorate in Baghdad governorate. The study is carried out to evaluate the school health surveillance system from November 27th 2011 to October 15th 2012.

Setting of the Study

The study is carried throughout Baghdad Governorate at the General Health Directorate, Al-russafa and Al-karkh Health Directorates, 16 Primary Health Sectors, 168 Primary Health Centers; as being divided into 135 major, 28 ideal, 5 training centers

A total of (43) primary health centers; 28major,12 ideal, and 3 training ones and 8 health sectors with two health directorates and the General Health Directorate are selected for the purpose of the study

Sample of the Study

A multistage sample of (54) subject, which is selected throughout the use of probability sampling approach. The sample of study is divided into three stages which include; First stage: health directorates, Second stage: health sectors, Third stage: primary health centers (major, ideal, and training)

Study Instrument

An evaluation tool is developed depending on the updated guidelines for evaluating public health surveillance system [5] with some modification to be adopted with our situation. It comprises three questionnaires and overall items included in these questionnaires are (47) item. Each questionnaire deals with the basic components of the evaluation tool; structure, process, and outcome.

Surveillance System Score

All scores were computed for the total score of each of its components.

1. Adequate score

The score is treated as adequate of (122-130), average adequacy of (131-139), and inadequate of (140-150).

2. Simplicity score

The score is treated as simple system of (14-17), moderate simplicity system of (18-21),and complex system of (22-26).

3. Flexibility score

The score is treated as flexible system of (5-6), average flexibility system of (7-8), and inflexible system of (9).

4. Representative score

The score is treated as unrepresentative system of (5-6), moderate representative system of (7-8), and representative system of (9-11).

5. Utilization score

The score is treated as high utility system of (13-14), moderate utility system of (15-16), and low utility system of (17-19).

Methods of Data Collection

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 1/10/2010 to 1/10/2011. Interviews are conducted with the chief of the school health unit in each stage level. Each interview takes approximately (15-20) minutes. The data collection is carried out from February 1st 2012 to March 30th 2012.

Pilot Study

Validity of the Questionnaire:

In order to test the validity of the questionnaire, the instrument is presented to (13) experts in different fields for this purpose. Few items were excluded and other were added and removed according to experts' notes, then the final draft is ready to be administrated. Experts had mean of years of experience (25.615) and standard Deviation (S.D) (6.156).

Reliability of the Questionnaire:

A purposive sample of (10) subjects involved in the surveillance system is interviewed on individual basis. Interobservor reliability technique is employed for the determination of the instrument reliability. Cronbach alpha correlation coefficient is computed for such determination

Data Analysis

Data are analyzed through the application of descriptive statistical data measurements (frequency and percentage).

Results:

Table 1. Adequacy scoring of the Surveillance System in Primary Health Centers

Score	Type of center	Frequency	percent	Evaluation	Score	Type of Institution	Frequency	percent	Evaluation
Adequate	Major	10	27.90 %	Average Adequacy	Adequate	health sectors	1	9.09	Inadequate
	Ideal	1				health directorate	0		
	Training	1							
Average	Major	12	39.53 %		Average	health sectors	5	45.45	
	Ideal	4				health directorate	0		
	Training	1							
Inadequate	Major	8	32.55 %		Inadequate	health sectors	2	45.45	
	Ideal	5				health directorate	3		
	Training	1							
	TOTAL	43	100				11	100	
adequacy scores key (122-130 good), (131-139 average), (more than 140 poor)					adequacy scores key (83-91 good), (92-100 average), (101-109 poor)				

This table shows that the average adequacy surveillance system (39.5%) in primary health centers and inadequate surveillance system in both health sectors and health directorate (45.45%).

Table 2. Simplicity scoring of the Surveillance System in Primary Health Centers

Score	Type of center	Frequency	percent	Evaluation	Score	Type of Institution	Frequency	percent	Evaluation
Simple	Major	14	48.80%	Simple system	Simple	health sectors	7	72.72	Simple system
	Ideal	5				health directorate	1		
	Training	2							
Moderate	Major	12	41.80%		Moderate	health sectors	1	18.18	
	Ideal	5				health directorate	1		
	Training	1							
Complex	Major	2	9.30%		Complex	health sectors	0	9.09	
	Ideal	2				health directorate	1		
	Training	0							
		43	100%				11	100	
simplicity scores key (14-17 simple), (18-21 moderate),(22-26 complex)					simplicity scores key (12-15 simple), (16-19 moderate),(20-24 complex)				

It is obvious from this table that simple surveillance system in primary health center is (48.8%) and health sectors and health directorate is (72.72%).

Table 3. Flexibility scoring of the Surveillance System in Primary Health Centers

SCORE	Type of center	Frequency	percent	Evaluation	SCORE	Type of Institution	Frequency	percent	Evaluation
Flexible	Major	10	37.20%	Moderately flexible	Flexible	health sectors	0	9.09	Moderately flexible
	Ideal	5				health directorate	1		
	Training	1							
Moderate	Major	16	58.10%		Moderate	health sectors	6	54.54	
	Ideal	7				health directorate	0		
	Training	2							
Inflexible	Major	2	4.60%		Inflexible	health sectors	2	36.36	
	Ideal	0				health directorate	2		
	Training	0							
		43	100				11	100	
flexibility scores key (5-6 high), (7-8 moderate), (more than 9 low)					flexibility scores key (4-5 high), (6-7 moderate), (8-9low)				

This table presents that the moderate flexible system is (58.10%), (54.54%) in both primary health centers, health sectors and health directorate.

Table 4. Acceptance scoring of the Surveillance System in Primary Health Centers

Type of center	Acceptance percent	Total percent	Evaluation
Major	**91.11**	**90.7**	**Highly acceptance**
Ideal	**91.45**		
Training	**88.93**		
Acceptability scores key (70-79% low), (80-89% moderate),(more than 90% high)			

This table presents that the acceptance of the surveillance system; it is highly acceptance system (90.7%).

Table 5. Representation scoring of the Surveillance System in Health Centers.

Score	Type of center	Frequency	Percent	Evaluation
Un representative	**Major**	**1**	**2.30%**	**Representative system**
	Ideal	**0**		
	Training	**0**		
moderate	**Major**	**7**	**23.20%**	
	Ideal	**3**		
	Training	**0**		
representative	**Major**	**20**	**74.40%**	
	Ideal	**9**		
	Training	**3**		
		43	**100**	
representative scores key (5-6 Unrepresentative), (7-8 moderate), (9-11 representative)				

This table shows the system of school health surveillance as being representative ones (74.40%).

Table 6. Utilization scoring of Surveillance System in Health Centers

Score	Type of center	Frequency	percent	Evaluation	Score	type of Institution	Frequency	percent	Evaluation
High	**Major**	**5**	**16.20%**	**Low utilization**	**High**	**health sectors**	**4**	**54.54**	**High utilization**
	Ideal	**2**				**health directorate**	**2**		
	Training	**0**							
Moderate	**Major**	**10**	**39.50%**		**Moderate**	**health sectors**	**1**	**9.09**	
	Ideal	**7**				**health**	**0**		

Continues table 6.

	Training	0				directorate			
Low	Major	13	44.10%		Low	health sectors	3	36.36	
	Ideal	3				health directorate	1		
	Training	3							
		43	100				11	100	
utilization scores key (13-14 high), (15-16 moderate),(17-19 low)					utilization scores key (13-14 high), (15-16 moderate), (17-18 low)				

This table presents that the utility of the system; it is clear the low utility system (44.10%) in the primary health center and high utility system (54.54%) in the health sectors and health directorate.

Discussion:

The system attributes are determined through evaluation of each characteristic components as being statistically examined. The analysis of the results indicate average adequacy of school health surveillance system in primary health centers and health sectors, while inadequate system in health directorate.

For priority diseases already under surveillance, the adequacy of the existing system to fulfill surveillance and response needs should be reviewed. Laboratory capacity for confirmation, whether it is within or outside the country, should be discussed for each of the priority diseases. Training needs, and guidelines and standards that require improvement or updating, should be identified. Feasible, cost-effective ways to improve the capacity for surveillance and control should be proposed[7].
The analysis of the results indicates the low utilization of system in primary health care centers, but high utilization of the system is in both health sectors and directorate.

The public health importance of a health-related event and the need to have that event under surveillance can be described in several ways. Health-related events that affect many persons or that require large expenditures of resources are of public health importance. However, health-related events that affect few persons might also be important, especially if the events cluster in time and place (e.g., a limited outbreak of a severe disease). In other instances, public creating or heightening the importance of an evaluation. Diseases that are now rare because of successful control measures might be perceived as unimportant, but their level of importance should be assessed as a possible sentinel health-related event or for their potential to reemerge. Finally, the public health importance of a health-related event is influenced by its level of preventability [8].

The analysis of the result indicates simple system in primary health centers, health sectors, and health directorate.

The simplicity of a public health surveillance system refers to both its structure and ease of operation. Surveillance systems should be as simple as possible while still meeting their objectives. A chart describing the flow of data and the lines of response in a surveillance system can help assess the simplicity or complexity of a surveillance system [5].

The analysis of the results indicates mode-rate flexible system in primary health centers, health sectors, and health directorate.

Unless efforts have been made to adapt the public health surveillance system to another disease (or other health-related event), a revised case definition, additional data sources, new information technology, or changes in funding, assessing the flexibility of that system might be difficult. In the absence of practical experience, the design and workings of a system can be examined. Simpler systems might be more flexible [5].

The analysis of the results indicates highly acceptance of students to the school health

surveillance in all primary health centers categories.

Acceptability refers to the willingness of persons in the sponsoring agency that operates the system and persons outside the sponsoring agency (e.g., persons who are asked to report data) to use the system. To assess acceptability, the points of interaction between the system and its participants must be considered, including persons with the health-related event and those reporting cases. It is a largely subjective attribute that encompasses the willingness of persons on whom the public health surveillance system depends to provide accurate, consistent, complete, and timely data [(5)].

The analysis of the results indicates representative system in all primary health centers categories.

To generalize findings from surveillance data to the population at large, the data from a public health surveillance system should accurately reflect the characteristics of the health-related event under surveillance. These characteristics generally relate to time, place, and person.

An important result of evaluating the representativeness of a surveillance system is the identification of population subgroups that might be systematically excluded from the reporting system through inadequate methods of monitoring them. This evaluation process enables appropriate modification of data collection procedures and more accurate projection of incidence of the health-related event in the target population [(9)].

Recommendation:

1. Review the surveillance forms to ensure reporting useful data.
2. Besides enhancing representativeness of school health, there is need to have a regular feedback and information dissemination mechanism to get simpler system.
3. Available data may be computerized as addition to manual documentation to more flexible system.
4. Statisticians may coordinate the monthly surveillance forms.
5. Increase the system adequacy by Customizing special financial of school health isolation from the general budget.

References:

1. Buehler JW, Hopkins RS, Overhage JM, Sosin DM, and Tong V (2004). ***Framework for evaluating public health surveillance system for early detection of outbreak*** .MMWR 53(RR05):1-11.
2. Last, JM (2001). ***A Dictionary of Epidemiology***, fourth edition. Oxford University Press, New York (167,174).
3. Thacker S. B., Berkelman R. L. **Public *Health Surveillance in the United States*.** Epidemiologic Reviews. 1988;10:164–90.
4. Merrill, ray M. (2010). ***Introduction to epidemiology*** (5th edition).London. Jones and Bartlett Publisher.
5. *CDC.* **Updated Guidelines for Evaluating Public Health Surveillance Systems**, 2001. MMWR July27, /50(RR13);1-35.
6. Health Surveillance Coordinating Committee(2004,MARCH). ***Framework and Tools for Evaluating Health Surveillance Systems***. Retrieved October 15,2011 from
7. http://www.healthsurv.gc.ca
8. WHO, ***Protocol for the Assessment of National Communicable Disease Surveillance and Response Systems***, Annex 1.0 Surveillance Definitions, Document WHO /CHS /CSR/ISR/2006.2
9. CDC. ***An ounce of prevention: what are the returns?*** 2nd ed. Atlanta, GA: Department of Health and Human Services, CDC, 1999.
10. Alter MJ, Mares A, Hadler SC, Maynard JE. ***The effect of underreporting on the apparent incidence and epidemiology of acute viral hepatitis***. Am J Epidemiol 1987; 125:133--9.
11. William M.K. Trochim,(2006) ***The Research Methods Knowledge Base***, last retrieved 20/10/2006.
12. WHO (World Health Organization). 1993. ***"Epidemiological Surveillance of Communicable Disease at the District Level."*** WHO Regional Committee for Africa, 43rd session, AFR/RC43/18. WHO, Geneva.
13. National Health Surveillance Network Working Group. **Proposal to develop a**

network for health surveillance in Canada. Health Canada: Ottawa; 1999. p. 6 Available at: URL: health_surveillance@hc-sc.gc.ca

14. American School Health Association, ***Association for the Advancement of Health Education, and the Society for Public Health Education. The National Adolescent Student Health Survey: a report on the health of America's youth.*** Oakland, CA: Third Party Publishing, 1989.