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Research Article

Assessment of Districts' Surveillance Officers Competencies in Iraq

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ABSTRACT

Background: Assessment of communicable diseases surveillance officers is one of the important aspects of the detection of obstacles that prevent the development of surveillance system, which would certainly affect their control programs.
Objectives: To assess the Competencies of communicable diseases' surveillance officers in all Iraqi provinces
Subjects and Methods: A cross sectional study from the15th March to 30th September 2019 in which all the communicable diseases' surveillance officers (136) that are employed by Ministry of Health all over Iraq were included. A structured questionnaire developed by the researcher and filled by them. The questionnaire form gathered demographic data, service characteristics and status of competencies including basic epidemiology, biostatistics, surveillance, outbreak investigation, rapid response to health incidence and developing scientific reports.
Results: The response rate was 85.3%, about half of surveillance officers was responsible for less than 10 Primary Health Care Centre. More than half of them (55.3%) were responsible for 1-2 hospitals. Their age ranged between 21 and 62 years and the males constituted more than three quarters (78.4%) of the study sample, Diploma was the highest educational certificate. 15.6% of the sample did not attend any training activity. Cholera has been the most frequently reported incident (53.8%).
Conclusions: The surveillance system in Iraq at district level was operated mainly by low qualified and under-trained health personnel. There is inequity in distribution of workload and training sessions between surveillance officers in health offices, therefore redistribution is recommended. Supporting continuous training programs with increase incentives.

Introduction

Assessment is a core public of health function, and surveillance for communicable diseases is considered one type of assessment activity that is continuous over time. Epidemiologic surveillance is defined as the ongoing systematic collection, analysis, and dissemination of health data for the planning, implementation, and evaluation of public health programs (1).

Surveillance is the collection, analysis, interpretation and dissemination of information about the selected health event. Health officials use the information to plan, implement and evaluate health programs and activities to reduce morbidity and mortality and to improve health. Surveillance is sometimes called "information for action" (2).

Public Health Surveillance is defined by the US Centers for Disease Control and Prevention (CDC), surveillance is the "ongoing systematic collection, analysis, and interpretation of health-related data essential to the planning, implementation, and evaluation of public health practice, closely integrated with the timely dissemination of these data to those who need to know so that action can be taken (3). The main purpose of surveillance is to inform and enable appropriate public health action and effectively maintain resources. Public health surveillance has general uses (4). The first use is to provide estimates of the scope and magnitude of health problems of interest. The second use is to illustrate trends in disease. So that epidemics can be detected. Continued surveillance during epidemics identifies the distribution and spread of the health event. Surveillance can also be used to facilitate research, whether epidemiologic or laboratory, and to generate and test hypotheses. It also allows changes in infectious agents to be monitored, as well as isolation activities. Changes in public health practices resulting from interventions can be detected. Programmatically, surveillance is important for planning public health action and the use of resources, including the allocation of resources to appropriate populations (4).

To have good functioning of the core activities of the communicable diseases we need for a number of support functions, which lead to better performance. These supportive functions are setting standards (e.g. case definitions, standard procedures for investigation, standard case management guidelines), training in (epidemiology, surveillance, laboratory), supervision, communications systems (e.g. phone, fax, e-mail, radio, health updates), providing resources (human – appropriate number with adequate skills and competencies; financial resources material - vehicles, laboratory equipment's, and supplies etc.) (4).

The quality of their competencies is not evaluated or studied for all Iraqi provinces' before. Accordingly assessing the capacities of surveillance officers (SO) working at the district level will help surveillance units at the central level to identify their needs and plan the content of future training workshops (3,5).

Study aims to assess the background characteristics communicable diseases' surveillance officers at all district levels of all Iraqi provinces and the competencies of those officers as per basic epidemiology, biostatistics, surveillance, outbreak investigation, rapid response to health incidents, laboratory models, basic computer skills and developing scientific report.

Subjects and Methods

A cross sectional study was conducted during the period between March 15th - September 30th, 2019, in which all SO of communicable diseases that are employed by MOH all over Iraq, 136 surveillance officers each one of them is responsible for one district.

A structured questionnaire developed by the researcher for the purpose of the current study. The questionnaire form gathered demographic data (age, sex, educational attainment), service characteristics (duration of service in the health sector, at the health district, in the surveillance of communicable diseases area) and status of their competencies including basic epidemiology, biostatistics, Surveillance, outbreak investigation, rapid response to health incidence and laboratory models, and developing scientific report.

The researcher explained the questionnaire during the coordination meeting for surveillance units to update data collection and reporting at the national level, Baghdad, Al Rashid hotel. Then, it was sent by e-mail to the surveillance focal points at the province level at all Directorates of Health DOHs. The questionnaire was self-administered and was filled by the district officers during the regular meeting with the province SO. The researcher compiled all the forms through e-mail or direct mail from the province officers. Periodic regular communication had been kept with all the provinces officers to ensure completing filling the forms and timely had sent back.

As an ethical step, approval had been granted by the College of Medicine, Baghdad University and the MOH to perform this study. An official letter had been sent from the directorate of Public Health to all DOHs to support implementation of the research. Findings reported to MOH, Iraq Field Epidemiology Training Program (FETP) and Eastern Mediterranean Public Health Network (EMPHNET) planned to establish training programs for SO at district level, Iraq Public Health Empowerment Program -Basic Field Epidemiology (PHEP – BFE) completed, Iraq Public Health Empowerment Program - Surveillance Polio Officers (PHEP-SPO) on track.

Analysis of data done using the available statistical package of SPSS-24 (Statistical Packages for Social Sciences- version 24). Data was presented in simple measures of frequency, percentage, mean, standard deviation, median, and range (maximum - minimums values).

Results

A total of 116 surveillance officers completed the questionnaire form out of the total of 136 surveillance officers. That is, the response rate was 85.3%. The highest proportion of surveillance officers (49.1%) were responsible for less than 10 PHCC, while only 13.8% were responsible for 20-29 centers. This workload of PHCC being under the responsibility of surveillance officer was different between DOH. The highest proportion of surveillance officers (55.3%) were responsible for 1-2 hospitals, while only 9.6% were responsible for 3-4 hospitals, Table 1.

About three quarters of the study sample were between 30 and 59 years of age. Males constituted more than three quarters (78.4%) of the study sample. The highest percentage of participants 64.37%, they had a Diploma degree as educational certificate, while only 4.3% had a post-graduate degree Table 2. Medical assistants/technicians were the most frequent career titles in the study sample (40.5%), while Veterinaries/dentists and statisticians were the least frequent (10.3% in total). Slightly more than a half (53.4%) of the surveyed sample had <10 years of experience in public health, while only 20.7% of them worked in public health department for 20+ years. Slightly more than a half (53.4%) of the surveyed sample had <5 years of experience as a surveillance officer, while only 20.7% of them spent 20+ years in this line of work, Table 3.

As shown in Figure 1, a total of 7 training topics were explored among study participants. The basic surveillance was the most frequently reported training topic for 69.8% of surveillance officers.

Table 4 showed the possible impact of training on actual work experience. Being trained in scientific writing had no association with participating in writing research, since no important difference in relative frequency of participating in research writing among those who received training (10%) and those who did not (8.5%). Being

trained in outbreak investigation was associated with an obvious increase in rate of participating in an outbreak investigation (62.5% Vs. 35.5% among those untrained). Being trained in rapid response to health incidents was associated with an obvious increase in rate of participating in a rapid response activity (44% Vs. 5.5% among those untrained).

Table 1: Frequency distribution of study sample by count of PHCCs and hospitals by districts

	No. of PHCCs					
	<10		10-19		20-29	
	N	%	N	%	N	%
Districts SO	57	**49.1**	43	37.1	16	**13.8**

	No. of hospitals					
	None		1-2		3-4	
	N	%	N	%	N	%
Districts SO	40	35.1	63	**55.3**	11	**9.6**

Table 2: Distribution of the study sample according to age, gender and education

		N (116)	%
Age group (years)	<30	22	19
	30-39	35	30.2
	40-49	24	20.7
	50-59	29	25
	60+	6	5.2
Gender	Female	25	21.6
	Male	91	78.4
Highest educational attainment	Diploma	75	64.7
	Bachelor	28	24.1
	Preparatory nursing school	8	6.9
	Postgraduate	5	4.3

Table 3: Distribution of the study sample by job title and years of experience

		No (116)	%
job title	Medical assistant/technician	47	40.5
	Other auxiliary services	22	19.0
	Physician	21	18.1
	Nurse	14	12.1
	Veterinary/dentist	8	6.9
	Statistician/administrative	4	3.4
Length of experience in public health (years)	<10	62	53.4
	10-19	30	25.9
	20+	24	20.7
Length of experience as a SO (years)	<5	66	57
	5-9	29	25
	10+	21	18

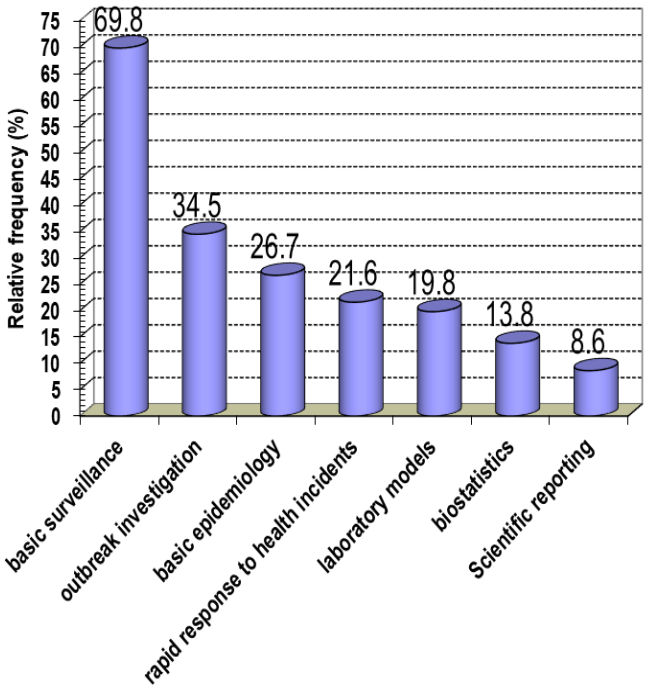

Figure 1: The relative frequency of being trained in a specific topic (N=116)

Table 4: The association between being trained in a specific topic and participating in an activity related to the training.

		Ever participated in related activity					
		No		Yes		Total	
		N	%	N	%	N	%
Ever trained in Scientific reporting	No	97	91.5	9	**8.5**	106	100.0
	Yes	9	90.0	1	**10**	10	100.0
		N	%	N	%	N	%
Ever trained in outbreak investigation	No	49	64.5	27	**35.5**	76	100.0
	Yes	15	37.5	25	**62.5**	40	100.0
		N	%	N	%	N	%
Ever trained in rapid response to health incidents	No	86	94.5	5	**5.5**	91	100.0
	Yes	14	56.0	11	**44**	25	100.0

As shown in Figure 2, cholera has been the most frequently reported incident investigated in an outbreak activity (53.8%), followed by measles and influenza (17.3% and 13.5% respectively). Leishmania, mumps, hepatitis and pertussis were infrequent health incidents as a topic for outbreak investigation (5.8%, 3.8%, 3.8% and 1.9% respectively).

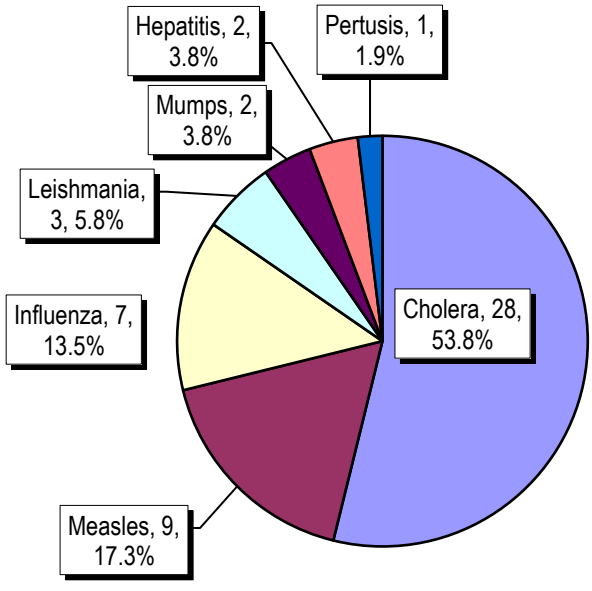

Figure2: The relative frequency of selected incidents of investigated outbreaks

Discussion

On average 11 PHCCs were served by studying SOs in the current study. However, Inequity in distribution of workload between SOs in different health offices was observed. This finding is similar to results of Moore et al (5) study, which found enough health workers of surveillance system in Iraqi Kurdistan with low efficiency. In addition, inequity in distribution of the workload of hospitals among surveillance officers was noticed. This inequity in workload might have an effect on data reporting which need to be studied in future because it is one of the main problems and obstacles that prevent the development of surveillance system, which would affect the control of programs of communicable diseases. McCollum et al (6) in the UK reported that unequal distribution of health care workers between health programs generally and for surveillance programs specifically lead to incompetent and inefficient programs in addition to budgets loss.

The current study showed that the mean age of surveillance officers was 40.9 years, most of them being 30-49 years of age. This finding is close to results of Staes et al study in the USA, who found that the mean age of surveillance officers working in communicable diseases reporting system was (44 years) (7). Increased age of surveillance officers with long career duration would potentiate their role and enforce the communicable surveillance system (8).

In this study, males' surveillance officers constituted more than three quarters of the study sample. This is similar to results of Krause et al study in Germany, which studied the notifiable diseases among practicing physicians and found a predominance of the male gender of practicing physicians responsible for surveillance (9). In general, the males were predominating in health career in Iraq, this might be due to sick leaves that females take.

The diploma was the highest educational certificate for the majority of the surveillance officers, while the minority had a post-graduate degree. The main carrier title was a medical assistant. This finding coincides with results of Janati et al study in Iran (10), which stated that in developing countries, the health surveillance system was operated mainly by low qualified and under-trained health personnel that had a negative effect on data reporting (10). The knowledge and experience of the staf play a vital role in providing quality services (11). Lack of knowledge and skills of service providers is one of the main problems and obstacles. There is always a need to educate others to interact with the objectives of public health programs (12-14).

The current study found that more than half of SO in Iraq had less than ten years of work experience in primary health care officer, i.e. no stability in career path which might be due to lack of incentives and support. This finding is similar to the results of Đurić et al study in Serbia, which stated that under-reporting of infectious diseases was observed among physicians with poor knowledge and experience in these diseases (15). Consistently, Dehcheshmeh et al study in Iran found that surveillance workers with poor experience in primary health services had deficient reporting performance and should receive a programmed training (16). In the same context, the current study revealed that slightly more than a half of the surveyed sample had less than five years of experience as a surveillance officer i.e. no stability in career path. This finding is consistent with results of Nnebue et al study in Niger, which reported that only 33% of surveillance workers had knowledge and experience in the integrated surveillance system (12).

Basic surveillance was the most frequently reported training topic for about two third of study participants of the surveyed health officers. This finding is higher than results of Baktash and Abdul Wahid study in Iraq, which found that only 14% of SOs were trained on acute flaccid paralysis surveillance system. This difference due to fact that the previous Iraqi study evaluated the SS in half of Baghdad only (17). Good definition of duties for surveillance for CD reporting, as well as training courses in cooperation with the various sectors of health system can be effective to eliminate these obstacles and problems (18,19).

The outbreak investigation and basic epidemiology ranked second in this list of training courses. This means less than one third of SOs received training in epidemiology and statistics. This finding is consistent with results of Ismail et al study in Syria, which revealed that the majority of communicable diseases surveillance staff in Syria were not trained or trained one time in epidemiology and biostatistics (20).

Scientific reporting was the least frequently reported topic for a training activity. The actual work experience was investigated after the training. Participating in a scientific writing and research publishing was very uncommon. This study showed that being trained in scientific writing had no association with participating in writing a research, since no important difference in relative frequency of participating in a research writing between those who received training (10%) and those who did not (8.5%), and this may be due to lack of incentives for writing scientific research or the trainings were not enough or not matched to skills of participants .

Conclusions

The SS in Iraq was operated mainly by low qualified and under-trained health personnel, more than half of SOs in Iraq had < 10 years of work experience in primary health care and <5 years of experience as a surveillance officer. This means no stability in career path, which might be due to lack of incentives and support.

There is inequity in distribution of workload (regarding PHCCs and hospitals) between SOs in health offices, which might influence data

reporting, Insufficient training in basic epidemiology, statistics, outbreak investigation, rapid response, and laboratory models.

Funding
Authors received no funds to complete this study.

Conflict of Interest
Authors declare no conflict of interest.

Data availability
Data are available upon reasonable request.

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