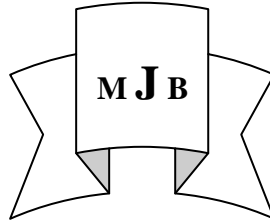


Assessment of Health Facilities' Performance of Surveillance Activities for Childhood Vaccine-Preventable Diseases at Health Facilities in Wasit Governorate / Iraq/2010

Wafaa F. Tawfeeq^a Abdul Rassul KH. Saeed^a Thaigham M. Abbas^b

^a College of health and Medical Technologies/Baghdad, Iraq.

^bKut Technical Institute, Kut, Iraq.



Abstract

Objectives: To assess health facilities' performance of surveillance of childhood vaccine preventable diseases.

Methods: A descriptive cross-sectional study was conducted at 51 surveillance units and communicable diseases units. The World Health Organization surveillance assessment questionnaire was used for data collection.

Results: Regarding the performance of health facilities, there were deficiencies in some surveillance items. No any health facility had complete of surveillance manual. The percentage of health facilities that had the standard case definitions and correctly filled clinical registers were 5.9% and 22.9% respectively. Only 11.6% of health facilities had a written case management protocol for one epidemic prone disease and 21.6% of health facilities implemented preventive and control measures based on local data.

Conclusions: There is no complete National surveillance manual, a clear deficiency in different resources, incomplete and incorrect form of filling of the majority of clinical registers.

Key words: surveillance, vaccine, preventable diseases

تقويم انجاز فعاليات الرصد الوبائي لأمراض الطفولة التي يمكن الوقاية منها باللقاحات

في المؤسسات الصحية في محافظة واسط / العراق - ٢٠١٠

الخلاصة

هدف البحث: تهدف الدراسة إلى تقويم انجاز فعاليات الرصد الوبائي لأمراض الطفولة التي يمكن الوقاية منها باللقاحات.

منهجية البحث: أجريت دراسة وصفية عرضية في ٥١ وحدة رصد وبائي ووحدة أمراض انتقالية. تم استخدام استبيان صممه منظمة الصحة العالمية لتقويم الترصد.

النتائج: بينت الدراسة أن هناك جوانب قصور في بعض المحاور المتعلقة بالرصد الوبائي حيث لم يتوفر دليل رصد أمراض الطفولة التي يمكن الوقاية منها باللقاحات بشكل متكامل في أي مؤسسة صحية بلغت نسبة المؤسسات الصحية التي تمتلك تعاريف نموذجية لأمراض الطفولة التي يمكن الوقاية منها باللقاحات ٥.٩% والتي كانت السجلات السريرية فيها مملئة بشكل صحيح ٢٢.٩% ، ٢٧.٥% فقط من المؤسسات الصحية كانت تمتلك القدرة على معالجة عينات الدم وكانت ١١.٨% فقط تمتلك القدرة على معالجة عينات المصل.

الاستنتاجات: إن كل وحدات الرصد و وحدات الأمراض الانتقالية لا تمتلك الدليل الوطني لرصد أمراض الطفولة التي يمكن الوقاية منها باللقاحات وهناك نقص في مختلف الموارد مع ملء ناقص وخاطئ لمعظم السجلات السريرية.

Introduction

Surveillance of vaccine-preventable diseases (VPDs) is an important tool for monitoring trends, identifying the target population for vaccination programs and evaluating programs effectiveness. Universal case reporting is widely used for

surveillance, but failure to report is common and must be taken into account in interpreting data, especially when change in incidence is expected because of preventive intervention [1]. Effective surveillance reveals trends over time which help to demonstrate the impact of immunization services. In many countries the

development of surveillance for VPDs has been less successful than that of vaccine delivery. Weak surveillance may result in delayed disease control interventions, complacency and inappropriate immunization strategies. One reason for weak surveillance is insufficient monitoring of surveillance performance through standard performance indicators. These indicators help to identify where surveillance is weak so that efforts to strengthen surveillance can be targeted. The provision of objective information on surveillance performance to staff at peripheral levels helps them to monitor themselves and stimulates improvements [2]. The threat of communicable diseases is re-emerging in developed countries [3]. While in the eastern Mediterranean region, these diseases are still the most common causes of death, disability and illness [4]. Developing effective and efficient National surveillance and response control systems are important for National, regional and global health security [4, 5]. Public health surveillance is "the ongoing systematic collection, analysis, interpretation and dissemination of data regarding a health – related event" [6]. Data dissemination by public health surveillance system can be used for immediate public health action, program planning, evaluation and formulating research hypotheses [6,7].

Aim of the Study

To assess health facilities' performance of surveillance of childhood VPDs in relation to guidelines for work, clinical registry, case reporting, data analysis, epidemic preparedness, epidemic response, feedback, supervision and adequacy of resources.

Methods

A descriptive cross-sectional study was conducted at 50 randomly selected health facilities in Wasit Governorate.

The scene of the study was in 50 health facilities in Wasit Governorate, 6 hospitals, 6 health sectors, 37 primary health care centers and Directorate of Health of Wasit Governorate.

The sample included all the health facilities with surveillance units and communicable diseases units in Wasit Governorate, the total surveillance units and communicable diseases units involvement in this study was 51 units distributed on 50 health facility. Directorate of Health of

Wasit Governorate had both surveillance unit and communicable diseases unit. The diseases involvement in this study were included mumps ,measles, rubella, poliomyelitis, tetanus, pertussis, diphtheria and hepatitis B virus.

The researcher received training in surveillance unit in the Directorate of Health of Wasit Governorate for two weeks. The researcher did not give an advance notice on the reason of his visit to health facility staff (as the researcher was checking a criteria for performance of surveillance activities). The data collection was made by the use of WHO generic questionnaire for assessment of National communicable disease surveillance and response system at health facility level [8] with some modifications to be specific for assessment of childhood VPDs. It was completed by the researcher at each health facility. The questionnaire includes both interview and observation items. Questions were asked about the efficacy and quality of the surveillance system, in addition to observe and check the presence of important materials needed for surveillance system.

Data feeding followed by descriptive and analytic statistics were carried out by utilizing the SPSS version 17. The performance indicators were calculated using WHO questionnaire.

Results

The National surveillance manual for VPDs was present partially in 41.2% while it was absent in 58.8% of the selected health facilities. The standard case definitions for childhood VPDs was present in only 5.9% of the selected health facilities while present partially in 21.6%, and absent in 72.5% of the health facilities (Table 1).

Table 2 shows that the percentage of health facilities with clinical registers was 94.1% while absent in 5.9% of health facilities. The clinical registers were filled correctly in 22.9%, and incorrectly in 77.1% of health facilities that had clinical registers.

The availability of appropriate surveillance forms in the preceding six months was available in 49%, not available in 51% of health facilities. Regarding the agreements of the last monthly report with clinical registers for disease targeted for eradication (poliomyelitis) it was in agreements in all health facilities (100%), for diseases targeted for elimination like

measles was agreed in 62.7%, agreed partially 17.6% while disagreed in 19.6% and for epidemic prone diseases agreed in 54.9%, agreed partially in 19.6% and disagreed in 25.5% of health facilities.

The preceding three months of 12 weekly reports and three monthly reports was present in 74.5%, present partially in 19.6% and absent in 5.9% of health facilities. The weekly reports were submitted on time in 84.3% of health facilities, while not submitted on time in 15.7% (Table 3).

The results of this study showed that data analysis of VPDs cases by place, time, and line graphs was in 70.6%, 90.2% and 3.9% of health facilities respectively, also the results showed the presence of special attention for highest disease frequency in Iraq (measles) in 11.8% of health facilities. Regarding demographic data the results showed the presence of epidemic map in 13.7%, total number of population in 11.8% and limitations for area of health facility in 84.3% of health facilities (Table 4).

Regarding epidemic preparedness and epidemic response, the results showed that 11.8% of the health facilities had a written case management protocol for one

epidemic-prone disease while it was absent in 88.2% of health facilities. In 21.6% of health facilities preventive and control measures based on local data for VPDs were implemented, while in 43.1% implemented partially and not implemented in 35.3% of health facilities (Table 5).

Regarding assessment of feedback and supervision, it was observed that only 15.7% of health facilities had at least one feedback bulletin or report on surveillance from the Ministry of Health in the preceding year, while it was absent in 84.3% of health facilities. Only 3.9% of health facilities had at least one written supervision report from Ministry of Health in the preceding six months, while it is not observed in 96.1% of the health facilities (Table 6).

The training courses on surveillance was found in only 9.8% of health facilities, the adequacy of human resources in 25.5% of health facilities, while assessment of the availability of other surveillance resources showed that 82.4%, 9.8%, 7.8%, 2% and 3.9% of the health facilities had stationery, computers, statistical packages e.g. SPSS, internet services (E-mail) and motor vehicles respectively (Table 7).

Table 1 The Frequency Distribution of Guidelines for Work in Surveillance Units (n= 51).

	Present		Partially present		Absent		Total	
	No.	%	No.	%	No.	%	No.	%
1) Guidelines for work								
1.1 Presence of National surveillance manual for VPDs (tuberculosis, diphtheria, pertussis, tetanus, mumps, measles, rubella, hepatitis B and poliomyelitis)	0	0	21	41.2	30	58.8	51	100
1.2 Presence of standard case definitions for childhood VPDs	3	5.9	11	21.6	37	72.5	51	100

Table 2 The Clinical Registry in Surveillance Units (n= 51).

2) Clinical registry		Surveillance units	
		No.	%
2.1 Presence of clinical registers	Yes	48	94.1
	No	3	5.9
2.2 Whether registers filled correctly	Correct	11	22.
	Incorrect	37	77.1

Table 3 Case Reporting in Surveillance Units (n= 51).

3) Case reporting		Surveillance units	
		No.	%
3.1 Availability of appropriate surveillance forms in the preceding 6 months	Available	25	49
	Not available	26	51
3.2 Whether last monthly report agrees with the clinical register for:			
3.2.1 Diseases targeted for eradication(poliomyelitis)	Agree	51	100
	Partially agree	0	0
	Disagree	0	0
3.2.2 Diseases targeted for elimination(measles)	Agree	32	62.7
	Partially agree	9	17.6
	Disagree	10	19.6
3.2.3 Epidemic-prone diseases	Agree	28	54.9
	Partially agree	10	19.6
	Disagree	13	25.5
3.3 Presence in the preceding 3 months of 12 weekly reports and three monthly reports	Present	38	74.5
	Partially present	10	19.6
	Absent	3	5.9
3.4 Whether weekly reports submitted on time in the last three months	Submitted on time	43	84.3
	Not submitted on time	8	15.7

Table 4 Data Analysis and Demographic Data in Surveillance Units (n= 51).

4) Data analysis	Surveillance units	
	No.	%
4.1 Presence of data analysis of VPDs cases by:		
4.1.1 Place	36	70.6
4.1.2 Time	46	90.2
4.1.3 Line graphs	2	3.9
4.2 Presence of special attention for highest disease frequency in Iraq (measles)	6	11.8
4.3 Presence of demographic data:		
4.3.1 Presence of epidemic map	7	13.7
4.3.2 Presence of total number of population	6	11.8
4.3.3 Presence of limitations for area of health facility	43	84.3

Table 5 Epidemic Preparedness and Epidemic Response in Surveillance Units (n= 51).

5) Epidemic preparedness		Surveillance units	
		No.	%
5.1 Presence of a written case management protocol for one epidemic-prone disease	Present	6	11.8
	Absent	45	88.2
6) Epidemic response:			
6.1 Whether prevention and control measures are implemented based on local data for VPDs	Implemented	11	21.6
	Partially implemented	22	43.1
	Not implemented	18	35.3

Table 6 The Assessment of Feedback and Supervision in Surveillance Units (n= 51).

7) Assessment of feedback		Surveillance units	
		No.	%
7.1 Presence of at least one feedback bulletin or report on surveillance from a higher level (ministry of health) in the preceding year	Observed	8	15.7
	Not observed	43	84.3
8) Assessment of supervision:			
8.1 Presence of at least one written supervision report from a higher level (ministry of health) in the preceding 6 months	Observed	2	3.9
	Not observed	49	96.1

Table 7 The Training and Adequacy of Resources in Surveillance Units (n= 51).

9) Training	Surveillance units	
	No.	%
9.1 Presence of training courses on surveillance	5	9.8
10) Adequacy of resources:		
10.1 Availability of human resources (Adequate)	13	25.5
10.2 Presence of stationery	42	82.4
10.3 Presence of computers	5	9.8
10.4 Presence of statistical packages e.g. SPSS	4	7.8
10.5 Presence of Faxes	0	0
10.6 Presence of internet services (E-mail)	1	2
10.7 Presence of motor vehicles	2	3.9

Discussion

Public health surveillance systems provide information for action against infectious disease threats and evaluating these systems is necessary to ensure that problems of public health importance are being monitored efficiently and effectively [9, 10, 11].

In the present study there was no surveillance unit which had complete National surveillance manual involving all

VPDs instructions, it was present to some extent in 41.2% this low percentage may be because the Directorate of Health of Wasit Governorate lacks complete National surveillance manual for all VPDs. Directorate of Health of Wasit Governorate is responsible for supplementation of the National surveillance manual to each health facility and then supervision on its use. These results were lower than the results obtained by Ibrahim et al from

Jeddah, Saudi Arabia in 2009 that 57.6% of health facilities had National surveillance manual for VPDs [12]. The difference in the availability of surveillance manual for VPDs between both studies may be attributed to the variation between the surveillance staff in their attention and knowledge about the importance of using of surveillance manual for VPDs in the implementation of all surveillance activities in scientific manner as well as the variation of health facilities in achievement of surveillance topics because of the partial availability of surveillance manual in the surveillance units.

Standardized case definitions for diseases under surveillance are important for providing uniform criteria for reporting cases [10]. The results of the present study revealed that the percentage of health facilities with access to the official standard case definition of childhood VPDs was only 5.9%. This low percentage may be attributed to the lack of available case definitions at surveillance units or a lack of knowledge of health workers about them, that is to say nonexistence of veritable manner for surveillance of childhood VPDs and the lack of focusing of medical directors and surveillance staff on the importance of standard case definitions to discover diseases and reporting process. The results of the present study were lower than that of a study by Opio et al from Uganda in 2000 reported where 35% of facilities had the official standard case definition of EPI diseases [13].

In the current study 94.1% of surveillance units had clinical registers, this high rate may be attributed to the continuous follow up of medical directors of clinical registers of childhood VPDs and presence of reporting system that makes the surveillance staff take notice of clinical registers to perform the immediate, weekly and monthly reports. These results were higher than the results of Ibrahim et al in Jeddah, in 2009 where only 75.8% of health facilities had clinical registers [12].

In this study only 22.9% of surveillance units had clinical registers filled correctly. An earlier study in 2000 in Jeddah by Bakarman et al to evaluate communicable diseases reporting found that the usefulness of reporting diminished because of incomplete, absent or incorrect

filling of personal and disease data [14]. The problem of incorrect and incomplete form-filling may be due to lack of supervision and or knowledge of surveillance staff about the importance of accuracy of data involved in clinical registers which are needed in the application of preventive and control measures, important in statistics to perform researches and in preparing of epidemiologic planning. The researcher observed that the follow up of medical directors of clinical registers was sometimes limited to its presence or absence and didn't have any attention to the correctness and completeness of data involved in these clinical registers, also observed lack of supervision regarding this aspect in some health facilities. These results disagree with a study in Uganda 2000 done by Opio et al where the corresponding rate was 56% [13]. In the United States of America (USA), despite state and local laws requiring medical providers to report notifiable infectious diseases to the public health authorities, a literature review of 33 published studies between 1970 and 1999 revealed that the percentage of complete reports varied from 9% to 99% and was most strongly associated with the disease being reported [15].

Results from Uganda showed that 65% of facilities lacked an adequate supply of reporting forms during the 6 months preceding the study [13]. The results of the present study were better, with 51.0% of surveillance units lacking the appropriate forms. This is perhaps due to differences in the resources available for health care between the countries. However, this percentage still requires improvement through availability of financial budget and different resources for the implementation of the surveillance forms completely and at all times, as well as by the education of health workers about the importance of surveillance and all related topics. A study done by Nsubuga et al in Tanzania in 2002 to assess the structure and performance of infectious disease surveillance using the health management information system reported a slightly better rate only 27% of facilities lacked these forms [5]. This better rate may be because the WHO Regional Office for Africa approved the integrated

disease surveillance and response strategy for strengthening infectious disease surveillance and response capacity in Tanzania, where it has been applied since 1998.

In the present study the last monthly reports agree with clinical registers for diseases targeted for eradication (poliomyelitis) in all surveillance units 100%, for diseases targeted for (elimination) in 62.7% and for epidemic prone diseases in 54.9%, clearly the results of diseases that agree with last monthly report were different, this may be attributed to the different degrees of attention of health staff and follow up of leaders supervisors toward each disease, there was special attention for poliomyelitis, on the other hand Iraq, was considered clean country from poliomyelitis, therefore all reports were free from poliomyelitis cases, however, the current percentage is better than that obtained by Ibrahim et al in Jeddah in 2009, about one third of health facilities monthly report agreed with the clinical register for diseases targeted for eradication, elimination and epidemic-prone diseases [12]. These results may be because of the difference between countries in surveillance system in relation to reporting process in addition to the weakness in follow up and supervision of medical directors on this aspect.

Timeliness of reporting is a key performance measure of public health surveillance systems [16]. In the present study the presence of 12 weekly reports and three monthly reports in the three months preceding the study was positive in 74.5% of surveillance units, weekly reports submitted on time in the last three months in 84.3% of surveillance units these results may be attributed to the nature of surveillance system in Iraq, that imposed on the surveillance staff to keep and submit the weekly and monthly reports in responsible health offices even if there were no cases of diseases. These results disagree with the results of the study of Ibrahim et al in Jeddah in 2009, in that only 39.3% of surveillance units had correct number of monthly reports in the last three months and 27.3% of surveillance units in the same study submitted weekly reports on time in the last three months [12]. In Germany in 2003, the first evaluation of the surveillance

systems of notifiable diseases using an electronic data-base system done by Krause et al, revealed that their program was very successful, with 90% of facilities transmitting data weekly [17]. This may be due to the benefits gained from application of an electronic data base system, which is a much easier and less costly way of transmitting data. The analysis of the National notifiable diseases surveillance system in the USA showed long lag times in reporting and variability in reporting across states limited the usefulness of the data [16]. For these reasons, a computer data-base and the public health surveillance knowledge-base was established in 2003 in order to facilitate the integration of information sources [18]. Even so, when database systems for notifiable diseases are in place, such as in New South Wales, Australia, there may be other factors limiting their ability to provide timely and accurate data [19].

In the present study the results showed that data analysis about each case of childhood VPDs was conducted manually (represents the local analysis in clinical registers and reports) at hospitals, health sectors and health care centers, 70.6% of surveillance units conducted analysis by place, 90.2% conducted analysis by time while 3.9% used general computerized analysis to conduct line graphs, this process has been conducted in the Directorate of Health of Wasit Governorate. These results may be attributed to the nature of analysis system in health facilities, regarding analysis of place and time must be conducted at each surveillance unit in clinical registers and reports, therefore this analysis became under control of the medical directors while analysis of childhood VPDs by line graphs was limited to the Directorate of Health of Wasit Governorate (surveillance unit and communicable diseases unit) only. These results were better than that the results of Ibrahim et al in Jeddah in 2009 in that the analysis of childhood VPDs was 33.3% by place, 39.3% by time, while it is lower regarding line graphs 12.1% [12]. These results indicate still a good degree of Iraqi performance regarding surveillance despite of the unusual general conditions of the country affecting the availability of performance facilities in comparison to the

stable conditions in Saudi Arabia. Results obtained from a study in Armenia, an assessment of infectious disease surveillance systems in Armenia where very few surveillance data were computerized, analyzed or used to develop or evaluate public health policy [20]. These results may be attributed to the unawareness of health worker

About the importance of data analysis and the necessity of the use of this data as a base to evaluate and determine the health policy toward communicable diseases as well as the deficiency in resources, which are necessary to perform data analysis as computers and training staff. The results of the present study also showed that only 11.6% of surveillance units had a special attention for the most prevalent country disease (measles), this low percentage requires improvement through good health information's communication between health facilities and surveillance unit and communicable diseases unit in Directorate of Health. These results may be attributed to the lack of the knowledge of surveillance staff about the most prevalent country disease (measles), during the period of conducting the study according to the view of Directorate of Health of Wasit Governorate. Results from Uganda showed that 27% of health facilities had a threshold action for epidemic-prone diseases [13]. Which is higher than the Iraqi percentage but still it is low in both countries indicating the need for more improvement in actions. Regarding epidemic preparedness and response, 11.8%, of surveillance units had a case management protocol for one epidemic-prone disease and 21.6% of surveillance units implemented prevention and control measures based on local data, this low percentage may be attributed to the defect in determining the highest epidemic – prone diseases in local area related to each health facility, on the other hand the poor knowledge of surveillance staff, mismanagement and reduction in financial and transporting resources could be considered the largest hampers in implementation of preventive and control measures for VPDs based on local data. The percentage obtained in this study requires more improvement by increasing

the availability of management protocols and training health workers on these aspects. These results disagree with the results of Ibrahim et al in Jeddah in 2009 in that 57.6% of health facilities had a case management protocol for one epidemic-prone disease and 60.6% of health facilities implemented prevention and control measures based on local data [12]. On the other hand, better results were obtained from Tanzania, where 79% of facilities using health management information system implemented prevention and control measures based on local data [5]. Lack of feedback from the reporting centers to the surveillance units hampers improvements in clinical practice [20]. In the present study the presence of at least one feedback bulletin or report on surveillance from a higher level (MoH) in the preceding year from conducting this study was found in only 15.7% of surveillance units, and the presence of at least one written supervision report from a higher level (MoH) in the preceding 6 months from conducting this study was found in only 3.9% of surveillance units these low results may be attributed to the infrequent supervision and follow up from higher level because of the unusual security conditions facing this country. Better results were obtained from the study of Nsubuga et al in Tanzanian in 2002, where 42% of facilities were using health management information system received supervision or feedback during the same time period [5]. On the other hand, in Uganda, feedback was found in only 15% of facilities and supervision in 32% [13]. This low percentage may be attributed to reduction in application of the surveillance topics, in addition to lack of programs for follow up and assessment of feedback and supervision in the health facilities as well as the lack of focusing of medical directors on the importance of supervision on surveillance works, indicating lack of focusing in different countries on the assessment of surveillance actions.

The study found a deficiency of resources needed for surveillance at the health facility level except in stationery resource; it was available in 82.4% of surveillance units. This high percentage may be because the supplementation and availability of stationery is done by each

surveillance unit. Regarding other resources only 9.8% of surveillance units had computers, 7.8% had statistical packages e.g. SPSS. This low percentage may be due to the fact that the analysis of data was confined to Directorate of Health. Regarding motor vehicles only 3.9% of health facilities had this resource. This low percentage may be because the vehicles if available were few and their uses are limited to administration issues. These results disagree with the results obtained by Ibrahim et al in Jeddah in 2009 that 63.6% of health facilities had stationery, 54.5% had computers, 6.1% had statistical package and 48.5% had vehicles [12]. Similar results were obtained from Brazil, where there was a lack of equipment and a deficiency in staff qualifications [21]. The Ugandan study reported a greater deficiency in resources than the present study, stationery was found in only 25% of facilities [6]. These results indicate variable use of resources and finances in different countries.

Conclusions

All surveillance units and communicable diseases units did not have complete National surveillance manual for childhood VPDs. There is a clear deficiency in different resources as financial, human, computers, statistical packages, faxes, internet services and motor vehicles. The majority of clinical registers were incomplete and in incorrect form of filling. The computerized data analysis was confined to the Directorate of Health of Wasit Governorate.

Recommendations

Development of National surveillance manual and standard case definitions for childhood VPDs in all health facilities. More coordination and communication between different levels of health facilities for proper detection of the epidemic prone diseases and for better feedback and assessment. The availability of a written case management protocol for one epidemic prone disease at each health facility.

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